



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION IV  
1600 E LAMAR BLVD  
ARLINGTON, TX 76011-4511

September 18, 2014

EA-14-151

Louis P. Cortopassi, 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 CALHOON STATION – NRC CONFIRMATORY ACTION LETTER  
FOLLOW UP INSPECTION AND PROBLEM IDENTIFICATION AND  
RESOLUTION INSPECTION REPORT NUMBER 05000285/2014009 AND  
NOTICE OF VIOLATION**

Dear Mr. Cortopassi:

On September 12, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed a Confirmatory Action Letter follow-up and Problem Identification and Resolution (PI&R) team inspection at the Fort Calhoun Station (FCS). On September 12, 2014, the NRC inspection team discussed the results of this inspection with you and other members of your staff. The inspection team documented the results of this inspection in the enclosed inspection report.

The inspection focused on assessing activities related to the effectiveness of the FCS corrective action program (CAP) and Omaha Public Power District's (OPPD's) implementation of the commitments described in Confirmatory Action Letter (CAL) EA-13-243, issued December 17, 2013 (ML13351A423<sup>1</sup>). CAL EA-13-243 confirmed the OPPD's commitments to ensure the improvements realized during the extended outage remain in place and performance continues to improve at the facility. Specifically, the NRC reviewed the CAL items associated with 10 Performance Improvement Integrated Matrix Action Plans characterized as the "Key Drivers for Achieving and Sustaining Excellence."

In performing the portion of the inspection associated with PI&R, the inspection team assessed OPPD's threshold for identifying problems, implementation of the process for prioritizing and evaluating problems, as well as the effectiveness of corrective actions identified and implemented to resolve the problems. The team also evaluated the effectiveness of other processes used to identify issues for resolution. These included the use of audits and self-assessments, and incorporation of lessons learned from industry operating experience, into station programs, processes, and procedures.

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<sup>1</sup> Designation in parentheses refers to an Agencywide Documents Access and Management System (ADAMS) accession number. Unless otherwise noted, documents referenced in this letter are publicly available using the accession number in ADAMS.

Based on the inspection results, the team concluded that FCS maintained a CAP in which individuals generally identified issues at an appropriately low threshold. Of concern, the team identified a number of deficiencies involving OPPD's ability to effectively and consistently evaluate and resolve problems as discussed in more detail below, and in the enclosed inspection report.

A number of the deficiencies that were identified by the inspectors involved inadequate evaluations of degraded or non-conforming conditions that were entered into the CAP. Several examples involved the failure to make an immediate determination of operability because your staff failed to recognize that a degraded or non-conforming condition existed. Additional examples involved operability evaluations that lacked adequate technical justification as to why the affected system, structure, or component would perform its specified safety function as described in licensing and design basis documentation. The team concluded weakness exists in this area and that OPPD's corrective actions, to date, have not been effective in ensuring that problems are consistently evaluated in a thorough and effective manner, with the appropriate technical rigor that supports the operability conclusion.

These findings and observations are similar to previous NRC inspection results identified during the last NRC PI&R team inspection completed in June 2013, documented in NRC Inspection Report 05000285/2013008. Many of the issues, identified both prior to and following restart, reflect a poor understanding and use of design basis information. We do note that you are taking action to address this challenge by a long-term licensee commitment to conduct a design basis reconstitution through 2018. Based on the results of this inspection, the NRC understands OPPD is conducting evaluations to determine the cause of the performance problems affecting effective implementation of the corrective action program. The NRC is interested in understanding the status of these evaluations and corrective actions during an upcoming public meeting in Omaha, Nebraska on September 25, 2014. Additionally, the NRC will be conducting future inspections focused on these areas of concern.

The NRC determined that your staff appropriately evaluated industry operating experience for relevance to the facility and entered applicable items into the CAP. Audits and self-assessments were generally thorough and complete; however, the team identified instances where the corrective actions to address the findings identified from these audits and self-assessments were not always complete or timely. The NRC determined that your station's management maintains a safety-conscious work environment in which your employees are willing to raise nuclear safety concerns through at least one of the several means available.

The NRC determined that, with the exception of the PI&R key area and the Operability Determination element of the Program key area, OPPD is adequately implementing the CAL items. The NRC determined that five key CAL areas were adequately completed and are considered closed. These five key areas are:

- Organizational Effectiveness, Safety Culture, and Safety Conscious Work Environment
- Site Operational Focus
- Procedures
- Nuclear Oversight
- Transition to the Exelon Nuclear Management Model and Integration into the Exelon Nuclear Fleet

With respect to the PI&R key area, the license had completed most of the items. Based on the NRC's independent assessment results that identified the concerns previously discussed, this

key area will remain open pending further NRC inspection. The details of the NRC's assessment of the Confirmatory Action Letter key performance areas are discussed in Section 4OA4 of the enclosed report.

Finally, there were also a number of deficiencies identified by the inspectors that involved inadequate resolution of problems. Of particular concern, the inspectors reviewed OPPD's actions to resolve 36 previously issued NRC non-cited violations, documented in various inspection reports in 2013, and identified five examples where OPPD failed to adequately address the issues. Several examples were noted where no actions were either planned or implemented to resolve the findings. The inspectors noted that a self-assessment, performed by both OPPD and Exelon individuals prior to the team inspection, also identified this concern, however, incomplete CAP implementation resulted in deficiencies that were not entered into the process, and, subsequently, the particular non-cited violations were not adequately addressed. As a result, the NRC has determined that one Severity Level IV violation of NRC requirements occurred and four violations associated with findings of very low safety significance (Green) occurred. The NRC evaluated these violations in accordance Section 2.3.2.a of the NRC Enforcement Policy, which appears on the NRC's Web site at <http://www.nrc.gov/about-nrc/regulatory/enforcement/enforce-pol.html>.

The NRC determined that these violations did not meet the criteria to be treated as non-cited violations, and therefore will be cited in the enclosed Notice of Violation (Notice). These violations are being cited because FCS failed to restore compliance (or demonstrate objective evidence of plans to restore compliance) within a reasonable time after the violations were first identified in NRC Inspection Report 05000285/2013008. You are required to respond to this letter and should follow the instructions specified in the enclosed Notices of Violation 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's review of your response to the Notices will also determine whether further enforcement action is necessary to ensure compliance with regulatory requirements.

The enclosed report documents 14 additional findings of very low safety significance (Green). All of these findings involved violations of NRC requirements; one of these violations was determined to be Severity Level IV under the traditional enforcement process. Two additional Severity Level IV violations with no associated finding are also documented in the enclosed report. The NRC is treating these violations as non-cited violations consistent with Section 2.3.2.a of the NRC Enforcement Policy.

Four licensee-identified violations are being documented in the enclosed report that were determined to be of very low safety significance. The NRC is treating these violations as non-cited violations consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the violations or significance of these violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, DC 20555-0001; with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC resident inspector at Fort Calhoun Station. If you disagree with a cross-cutting 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 Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," a copy of this letter, its enclosures, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents 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).

Sincerely,

/RA/

Anton Vegel, Director  
Division of Reactor Safety

Docket No.: 50-285  
License No.: DPR-40

Enclosures:

1. Notice of Violation EA -14-151
  2. NRC Inspection Report 05000285/2014009  
w/Attachments:
    1. Supplemental Information
    2. Notification of Inspection and Request for Information
- cc w/ encl: Electronic Distribution

If you disagree with a cross-cutting 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 Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," a copy of this letter, its enclosures, and your response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents 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).

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ADAMS ACCESSION NUMBER: ML14261A455

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SIGNATURE	/RA Email/	/RA Email/	/RA Email/	/RA/	/RA Email/	/RA/	
DATE	9/17/14	9/17/14	9/15/14	9/18/14	9/18/14	9/18/14	

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FOLLOW UP INSPECTION AND PROBLEM IDENTIFICATION AND  
RESOLUTION INSPECTION REPORT NUMBER 05000285/2014009 AND  
NOTICE OF VIOLATION

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ROPreports

## NOTICE OF VIOLATION

Omaha Public Power District  
Fort Calhoun Station

Docket No: 50-285  
License No: DPR-40  
EA-14-151

During an NRC Inspection conducted from June 23 through September 12, 2014, violations of NRC requirements were identified. In accordance with the NRC Enforcement Policy, the violations are listed below:

- A. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires in part that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in §50.2, and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions.

Contrary to the above, as of November 28, 2010, measures established by the licensee did not assure that applicable regulatory requirements and design bases were correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to properly evaluate NRC Bulletin 88-04, "Potential Safety-Related Pump Loss," for strong pump, weak pump, interaction regarding auxiliary feedwater pumps FW-6 and FW-10, which are considered safety-related pumps. The licensee's evaluation documented in Calculation FC08310, "Auxiliary Feedwater (AFW) Motor Driven Pump FW-6 and Turbine Driven Pump FW-10 Performance and Runout Evaluation," Revision 0, failed to consider pump-to-pump interaction that may result due to pump discharge check valve leakage.

This violation is associated with a Green Significance Determination Process finding.

- B. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in §50.2, and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions.

Licensee's procedure AOP-01, "Acts of Nature," Revision 33, instructs operators to secure the raw water pumps at an intake cell level of 976'9".

Contrary to the above, from initial plant operations to present, measures established by the licensee failed to assure that applicable regulatory requirements and the design basis for those components are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to ensure that raw water cooling was provided down to the design basis low river level of 976'9" mean sea level. The intake cell level in the licensee's procedure AOP-01, is not equivalent to mean sea level. As a result, the licensee failed to ensure the associated specifications and procedures support raw water pump operations, which are safety related pumps, to support the plant's cooling systems.

This violation is associated with a Green Significance Determination Process finding.

- C. 10 CFR Part 50.54(q)(2), "Conditions of License," requires, in part, that a nuclear power reactor licensee shall follow and maintain the effectiveness of an emergency plan that

meets the requirements of Appendix E to Part 50 and the planning standards of 10 CFR 50.47(b).

10 CFR 50.47(b)(4), requires, in part, that a standard emergency classification and action level scheme, is in use by the nuclear facility licensee.

Contrary to the above, as of May 14, 2009, the licensee failed to maintain the effectiveness of the emergency plan, by not maintaining a standard emergency classification and action level scheme. Specifically, the emergency action level scheme was not maintained because emergency action level HA1, "Natural or destructive phenomena affecting the Protected Area," contained an inaccurate river level of 973'9" mean sea level. The river level was inaccurate because the basis document, Procedure TBD-EPIP-OSC-1H, "Recognition Category H – Hazards and Other Conditions Affecting Plant Safety," Revision 2, stated the emergency action level was based on the minimum elevation of the raw water pump suction. Because the river level does not correspond to intake cell level, then the river level would have to be at least 973'10" mean sea level to provide an adequate suction for the raw water pumps.

This violation is associated with a Green Significance Determination Process finding.

- D. 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in §50.2, and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions.

Engineering Analysis FC-92-072, "Diesel Generator Loading Transient Analysis Using Paladin Design Base 4.0," Revision 7, discussed a frequency spectrum of 60.5 +/-0.3 hertz for the emergency diesel generators, which are safety-related components.

Licensee's Calculation FC08034, "Diesel Fuel Usage During a Severe Flooding Event," does not assume that the diesel generators were run at 60.8 hertz for the entire 7-day mission time.

Contrary to the above, as of June 2011, measures established by the licensee failed to assure that applicable regulatory requirements and the design basis for those components are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee's calculation for fuel consumption did not assume that the diesel generators were run at 60.8 hertz, for the entire 7-day mission time. As a result, the licensee failed to translate the worst-case design emergency diesel generator frequency of 60.8 hertz, which could impact the consumption of fuel oil, into the applicable design documentation.

This violation is associated with a Green Significance Determination Process finding.

- E. 10 CFR Part 50.59(c)(2)(ii), "Changes, Tests, and Experiments," requires, in part, that a licensee shall obtain a license amendment prior to implementing a proposed change, test, or experiment if the change, test, or experiment would result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the final safety analysis report (as updated).



10 CFR 50.59(d)(1) requires, in part, that the licensee shall maintain records of changes in the facility or procedures and that the records must include a written evaluation which provides the bases for the determination that the change does not require a license amendment.

Contrary to the above, as of June 2008, the licensee did not perform a written evaluation for a design change that may have required NRC review and approval. Specifically, the licensee did not evaluate a change that would permanently substitute manual actions for an automatic action to add water and nitrogen gas to the component cooling water surge tank, which is an Updated Safety Analysis Report described design function for the component cooling water system.

This violation is associated with a Severity Level IV traditional enforcement violation.

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 Fort Calhoun Station 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 Notice of Violation; EA 14-151," and should include: (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 to avoid further violations, 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 website at [www.nrc.gov/reading-rm/adams.html](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).

Dated this 18th day of September, 2014

**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 05000285

License: DPR-40

Report: 05000285/2014009

Licensee: Omaha Public Power District

Facility: Fort Calhoun Station

Location: 9610 Power Lane  
Blair, NE 68008

Dates: July 7 through September 12, 2014

Team Lead: G. Warnick, Senior Resident Inspector

Inspectors: I. Anchondo, Reactor Inspector  
E. Coffman, Resident Inspector  
B. Davis, Senior Construction Inspector  
W. Deschaine, Resident Inspector  
J. Groom, Senior Resident Inspector, Assistant Team Leader  
B. Hagar, Senior Project Engineer, Assistant Team Leader  
C. Henderson, Resident Inspector  
D. Holman, Senior Security Specialist  
G. Khouri, Senior Construction Inspector  
J. Mateychick, Senior Reactor Inspector  
C. Smith, Project Engineer  
M. Williams, Reactor Inspector

Approved By: Anton Vogel  
Director, Division of Reactor Safety

## SUMMARY

IR 05000285/2014009; 07/07/2014 – 09/12/2014; Fort Calhoun Station; Problem Identification and Resolution Inspection and Confirmatory Action Letter Follow-up Inspection.

The inspection activities described in this report were performed from July 7-25, 2014, by 13 inspectors from the NRC's Region IV and Region II offices. The report documents 14 findings of very low safety significance (Green). All of these findings involved violations of NRC requirements; one of these violations was determined to be Severity Level IV under the traditional enforcement process. Additionally, NRC inspectors documented two Severity Level IV violations with no associated finding. Further, NRC inspectors documented one Severity Level IV violation and four violations associated with findings of very low safety significance (Green) that were evaluated in accordance Section 2.3.2.a of the NRC Enforcement Policy. The NRC inspectors determined that these violations did not meet the criteria to be treated as non-cited violations because the licensee did not restore compliance within a reasonable time after previous non-cited violations were issued.

The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process." Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas." Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

### **Assessment of Problem Identification and Resolution**

The NRC 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.

Based on its inspection sample, the team concluded that the licensee maintained a corrective action program in which individuals generally identified issues at an appropriately low threshold. Once entered into the corrective action program, the NRC noted deficiencies in the licensee's ability to effectively evaluate and resolve issues. The results of this inspection closely mirror inspection results from previous team inspections conducted in 2011 and 2013 documented in NRC Inspection Reports 05000285/2011006 and 05000285/2013008, respectively, in that the NRC identified significant weakness in the licensee's ability to evaluate and resolve issues entered into the corrective action program. In particular, the team noted that technical evaluations performed by the licensee were in some cases incomplete or contained incorrect conclusions. The team identified several instances where the licensee failed to perform appropriate evaluations for equipment issues entered into the corrective action program. Specific examples include inadequate operability evaluations, technically inaccurate calculations (used as corrective actions), and evaluations that failed to consider the design and licensing basis of the facility or all applicable regulatory requirements. The findings and observations identified by the team revealed significant weakness in the evaluation area and cause concern related to the licensee's ability to implement this element of the corrective action program.

The team concluded that the licensee did not consistently develop appropriate corrective actions to address issues entered into the corrective action program. The team noted that while the licensee was identifying and placing a large number of adverse conditions into the corrective action process, the associated resolution of these issues was often incomplete, narrowly focused, or untimely. The team identified multiple examples of untimely or ineffective corrective actions to address conditions adverse to quality. Of particular concern, the team reviewed the licensee's corrective actions to address 36 previous NRC non-cited violations and identified 5 examples where the licensee failed to restore compliance within a reasonable time after the previous NRC violations were issued. Three other examples identified by the team involved the failure to adequately address the technical aspects of the violation. Additionally, the team identified several examples where the corrective action to address complex regulatory or technical issues were incomplete, narrowly focused, or untimely. The findings and observations identified by the team revealed significant weakness in the area of resolution and cause concern related to the licensee's ability to implement this element of the corrective action program.

The licensee appropriately evaluated industry operating experience for relevance to the facility and entered applicable items in the corrective action program. The licensee incorporated industry and internal operating experience in its root cause and apparent cause evaluations. The licensee performed effective and self-critical nuclear oversight audits and self-assessments. However, the corrective actions to address the individual findings from these audits and self-assessments were not always complete or timely.

The licensee maintained a safety-conscious work environment in which personnel were willing to raise nuclear safety concerns without fear of retaliation.

### **Cornerstone: Mitigating Systems**

- Green. Multiple examples of a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified involving the failure to follow Procedure OP-FC-108-115, "Operability Determinations," Revision 0a. In each example, the team identified that the licensee failed to make an immediate determination of operability for a degraded or non-conforming condition or failed to make an immediate determination of operability based on a detailed examination of the deficiency. The licensee took immediate corrective actions to update the incomplete or inaccurate operability determinations and entered the collective failures to follow station operability procedures into their corrective action program as Condition Report 2014-09163.

This performance deficiency was more than minor, and therefore a finding, because it affected the equipment performance attribute of the Mitigating Systems Cornerstone objective of ensuring the reliability of systems that respond to initiating events. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of human performance because the licensee failed to use decision-making

practices that demonstrate that a proposed action is to be safe in order to proceed, rather than unsafe in order to stop. Specifically, the licensee made non-conservative decisions related to the impact of degraded or non-conforming conditions [H.14]. (Section 40A2.5.b)

- SLIV/Green. A non-cited violation of 10 CFR 50.59, “Changes, Tests, and Experiments,” and associated non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified involving the failure to evaluate and implement adequate compensatory measures for a degraded condition associated with raw water pump AC-10C. Specifically, the licensee’s operability determination established a compensatory measure to place pump AC-10C in pull-to-lock, contrary to the system single failure analysis design criteria described in the Updated Safety Analysis Report. The licensee entered this issue into its corrective action program as Condition Reports 2014-09104 and 2014-08515 and performed an operability evaluation and associated 10 CFR 50.59 evaluation that used an acceptable compensatory measure to pump water from affected manholes prior to affecting the degraded power feeder cable for raw water pump AC-10C.

The NRC evaluated this performance deficiency as both a reactor oversight process finding and a traditional enforcement violation. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” Using IMC 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions,” dated July 1, 2012, this finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee’s maintenance rule program. This finding has a cross-cutting aspect in the area of problem identification and resolution with an aspect of evaluation because the licensee failed to ensure that resolutions address causes and extent of conditions commensurate with their safety significance [P.2].

In addition, because this performance deficiency had the potential to impact the NRC’s ability to perform its regulatory function in that the failure to obtain a license amendment for a change that could result in a malfunction of a structure, system or component with a different result than previously evaluated in the Updated Safety Analysis Report is in violation of 10 CFR 50.59(c)(2)(vi), the NRC also evaluated the violation using traditional enforcement. Since this violation is associated with a Green reactor oversight process violation, the traditional enforcement violation was determined to be a Severity Level IV violation, consistent with the example in paragraph 6.1.d(2) of the NRC Enforcement Policy. (Section 40A2.5.c)

- Green. A non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” was identified involving the failure to implement appropriate design control measures associated with a safety-related pipe stress calculation. Specifically, several unverified and potentially non-conservative inputs were identified associated with Calculation FC07240 used to analyze stresses on a pipe reduction tee in the safety injection system. The licensee entered this issue into the corrective action program as Condition Report 2014-09098 and initiated action to update Calculation FC07240.

This performance deficiency was more than minor, and therefore a finding, because it affected the design control attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of components that respond to initiating events. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of human performance in that the licensee failed to apply the appropriate rigor when evaluating the overstressed pipe union tee [H.6]. (Section 40A2.5.e)

- Green. A self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified involving the failure to maintain design control of the raw water strainer AC-12B control panel AI-348. Specifically, the licensee failed to adequately design control panel AI-348 to protect it from the effects of spraying and wetting as required by the plant's licensing and design basis. The licensee entered this issue into its corrective action program as Condition Reports 2013-03301 and 2014-06974 and initiated action to encase control panel AI-348 to protect it against the effects of spraying and wetting.

This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, control panel AI-348 was not designed to prevent water intrusion that resulted in a loss of power to raw water strainer AC-12B. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding was of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program; and (5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event. This finding has a cross-cutting aspect in the area of problem identification and resolution associated with the organization thoroughly evaluating issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance [P.2]. (Section 40A2.5.f)

- Green. A non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified involving the failure to accurately model cell level control of river water during external flooding events. Specifically, the licensee failed to account for losses due to the

physical obstructions of trash racks for inflowing river water, the decreased withdrawal rate of the raw water pumps due to fouling across the traveling screens, and a bounding inleakage rate for the sluice gates when the river level is at maximum level of 1014' mean sea level and the intake cell levels are at minimum level of 976'9". The licensee entered this issue into its corrective action program as Condition Report 2014-09155, performed an operability determination, and initiated action to update station calculations related to intake cell level control.

This performance deficiency was more than minor, and therefore a finding, because if left uncorrected, the finding would have the potential to lead to a more significant safety concern. Specifically, the failure to accurately model flow in and out of the cells could adversely affect the external flooding mitigation strategy beyond previously identified equipment capacities and operator actions. This finding was associated with the Mitigating Systems Cornerstone. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program; and (5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event. This finding has a cross-cutting aspect in the area of problem identification and resolution, operating experience, in that the licensee failed to incorporate relevant internal operating experience related to previous NRC inspection into Calculation FC08081 [P.5]. (Section 4OA2.5.g)

- Green. A non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified involving the failure to translate applicable design requirements into the specifications for plant systems. Specifically, inadequate design control inputs were used for analyzing the ability of the vital switchgear room cooling system to perform its safety function under all conditions. The licensee entered this issue into its corrective action program as Condition Report 2014-08317 and initiated actions to analyze the ability of vital switchgear room cooling to meet its specified safety function.

This performance deficiency was more than minor, and therefore a finding, because it affected the design control attribute of the Mitigating Systems Cornerstone, and it directly affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect

in the evaluation component of the problem identification and resolution cross-cutting area because the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, the licensee failed to analyze and evaluate a 1998 loss of switchgear cooling event to ensure that its use as a design assumption bound the worst design basis event [P.2]. (Section 4OA2.5.i)

- Green. A cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified involving the failure to assure that applicable regulatory requirements and design bases were correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to properly evaluate NRC Bulletin 88-04, "Potential Safety-Related Pump Loss," for strong pump weak pump interaction regarding auxiliary feedwater pumps FW-6 and FW-10. The evaluation failed to consider pump-to-pump interaction that may result due to pump discharge check valve leakage. In addition, the licensee failed to re-evaluate the condition after surveillance testing performed on November 28, 2010, and September 1, 2012, identified leakage past both pump discharge check valves. The licensee entered this issue into its corrective action program as Condition Report 2014-08381 and initiated actions to re-evaluate NRC Bulletin 88-04.

This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the finding was of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program. This finding has a cross-cutting aspect in the area of human performance because the licensee failed to demonstrate a conservative bias in decision making-practices. Specifically, the licensee's determination that the event is not credible failed to consider documented check valve leakage in the auxiliary feedwater system [H.14]. (Section 4OA2.5.j)

- Green. A cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified involving the failure to ensure that the safety-related raw water pumps are available for safe plant operations down to the design basis low river level. Specifically, station analysis and abnormal operating procedures would not allow operation of the raw water pumps to the design basis low river water level. The licensee entered this issue into its corrective action program as Condition Report 2014-09159 which included actions to re-evaluate the capability of the raw water pumps to operate at low river levels.

This finding was more than minor, and therefore a finding, because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the associated cornerstone objective to ensure the availability, reliability, and capability of



systems that respond to initiating events to prevent undesirable consequences. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the finding was of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program. This finding has a cross-cutting aspect in the area of human performance in that the licensee did not ensure that personnel, equipment, procedures and other resources are available and adequate to support nuclear safety. Specifically, the licensee deferred funding for a vendor analysis of the capabilities of the raw water pumps at the design low river level [H.1]. (Section 4OA2.5.k)

- Green. A cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified involving the failure to account for design basis conditions in station calculations. Specifically, the licensee failed to account for worst-case electrical frequency when analyzing diesel fuel oil consumption and storage requirements. The licensee entered this issue into its corrective action program as Condition Report 2014-09157 and initiated action to update station calculations.

This performance deficiency was more than minor, and therefore a finding, because it affected the design control attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of components that respond to initiating events. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the finding is of very low safety significance (Green) because: (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance [P.2]. (Section 4OA2.5.n)

- Green. A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified involving the failure to take corrective actions for a condition adverse to quality. Specifically, the licensee failed to take corrective actions to address multiple issues involving gas voiding of the component cooling water system. As immediate corrective action the licensee placed a maintenance hold on the component cooling water system until adequate fill and vent procedures were established. The licensee initiated corrective actions to analyze the effects of gas accumulation on the component cooling

water system and entered this issue into the corrective action program as Condition Reports 2014-08892, 2014-09011 and 2014-09034.

This performance deficiency was more than minor, and therefore a finding, because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the associated objective to ensure availability, reliability, and capability of systems that responds to initiating events to prevent undesirable consequences. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program. This finding has a cross-cutting aspect in the area of human performance in that the licensee failed to operate the component cooling water system within design margins and failed to place special attention on minimizing long-standing equipment issues related to gas voiding in that system [H.6]. (Section 4OA2.5.o)

- Green. A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified involving the failure to take timely corrective actions to ensure the proper control and use of software products used in safety related applications. Specifically, the team identified multiple instances of uncontrolled software products in use at the licensee's facility following identification of similar deficiencies in 2009 and 2011. The licensee entered this issue into their corrective action program as Condition Report 2014-09162 and initiated action to strengthen their software control program.

The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, it could lead to a more significant safety concern. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because: (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of human performance in that the licensee failed to provide training and ensure knowledge transfer to maintain a knowledgeable, technically competent workforce and instill nuclear safety values. Specifically, the apparent cause report for Condition Report 2009-04715 stated that a contributing cause was "first and foremost [there is] a lack of knowledge associated with the procedural requirements for software control at FCS" [H.9]. (Section 4OA2.5.p)

- Green. A non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," was identified involving the failure to correct a condition adverse to quality associated with classification of check valves in the auxiliary feedwater system. Specifically, the licensee failed to update the in-service testing program to classify auxiliary feedwater discharge check valves as Category A/C valves and include required seat leakage testing. The licensee entered this issue into its corrective action program as Condition Report 2014-08452 and initiated actions to re-assess the current in-service testing methodology of check valves in the auxiliary feedwater system.

This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because: (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of problem identification and resolution because the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, the licensee failed to evaluate the function of discharge check valves FW-173 and FW-174 when developing the in-service testing program and addressing previous condition reports [P.2]. (Section 4OA2.5.q)

- Green. A non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified involving the failure to take timely corrective actions to address deficiencies in station calculations. Specifically, the licensee failed to update station calculations to incorporate actual test data for sluice gate leakage to ensure design basis flood levels do not adversely affect equipment important to safety. The licensee entered this issue into its corrective action program as Condition Report 2014-09156 and initiated actions to update station calculations.

This finding was more than minor, and therefore a finding, because if left uncorrected, the finding would have the potential to lead to a more significant safety concern. Specifically, failure to complete accurate calculations that support engineering modifications for mitigating the consequences of an external flooding event could lead to unanalyzed conditions adversely affecting safety related systems or components. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because: (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; (4) did not represent an actual loss of function of one or more non-technical specification

trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program; and (5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event. This finding has a cross-cutting aspect in the area of human performance in that the licensee failed to prioritize an update to Calculation FC08081 following completion of the May 2013 in-leakage test [H.5]. (Section 4OA2.5.r)

- Green. A non-cited violation of 10 CFR 50.54(hh)(2), "Conditions of License," was identified involving the failure to maintain available equipment needed to implement mitigating strategies to maintain or restore core, containment, and spent fuel pool cooling capabilities following large fires or explosions. Specifically, the licensee failed to maintain available a flexible suction hose related to the reactor coolant system heat removal mitigating strategy. The licensee initiated Condition Report 2014-08876 to address this deficiency and initiated action to procure and replace the missing flexible suction hose.

This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). The NRC determined that this finding was of very low safety significance (Green) using NRC Manual Chapter IMC 0609, Appendix L, "B.5.b Significance Determination Process," because it resulted in an unrecoverable unavailability of an individual mitigating strategy but did not result in multiple unavailable mitigating strategies such that reactor coolant system heat removal could not occur. This finding has a cross-cutting aspect in the area of human performance in that the licensee's inadequate B.5.b inventory procedure contributed to the lack of recognition that the degraded flexible suction hose was required to implement mitigating strategies [H.1]. (Section 4OA2.5.s)

- Green. A self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified involving the failure to take timely corrective actions to address service life related degradation of the emergency diesel generator starting air system. As a result, diesel generator 1 failed to roll during planned surveillance testing due to a degraded diesel starting air valve. The licensee replaced the faulty starting air valve and implemented corrective actions to develop preventative maintenance strategies for the starting air system. The licensee entered this issue into the corrective action program as Condition Report 2014-09424.

The performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings", Exhibit 3, "Mitigating Systems Screening Questions," dated May 9, 2014, the finding was of very low safety significance (Green) because the finding does not represent a loss of system safety function and the finding does not represent an actual loss of safety function of a single train for greater than its technical specification allowed outage time. This finding has a cross-cutting aspect in the area of human performance in that the licensee failed to recognize and plan for the possibility of latent issues, and inherent risk, even while expecting successful outcomes when determining the repair schedule for starting air valve SA-148 [H.12]. (Section 4OA2.5.t)

- Green. A self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” was identified involving the failure to take corrective actions to address a design deficiency affecting the control panel for raw water strainer AC-12B. Consequently, the panel experienced a water intrusion event on August 3, 2014, resulting in an unplanned inoperability of the raw water system. Following identification of this issue, the licensee implemented corrective actions to seal conduits leading to control panel AI-348 to prevent future water intrusion. The licensee entered this issue into its corrective action program as Condition Report 2014-09572.

This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, “The Significance Determination Process (SDP) for Findings At-Power.” Using IMC 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions,” dated July 1, 2012, this finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee’s maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to adequately review and provide timely responses to past operating experience that demonstrated that panel AI-348 was susceptible to water intrusion [P.5]. (Section 4OA2.5.u)

### **Cornerstone: Emergency Preparedness**

- Green. A cited violation of 10 CFR 50.54(q)(2), “Conditions of License,” was identified involving the failure to maintain the effectiveness of the site’s emergency plan. Specifically, the licensee established an “Alert” low river level emergency classification criteria that was below the raw water pump’s minimum suction requirements, contrary to the standard emergency action level scheme. The licensee entered this issue into its corrective action program as Condition Report 2014-08757 which included actions to re-evaluate the capability of the raw water pumps to operate at low river levels.

This finding was more than minor, and therefore a finding, because it was associated with the emergency response organization performance attribute of the Emergency Preparedness Cornerstone and affected the associated cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, inaccurate emergency actions levels degrade the licensee’s ability to implement adequate measures to protect public health and safety. The finding was evaluated using the Emergency Preparedness Significance Determination Process, and was determined to be of very low safety significance (Green) because the finding was not a lost or degraded risk significant planning function. The planning standard function was not degraded because the emergency classifications would have been declared although potentially in a delayed manner. This finding has a cross-cutting aspect in the area of human performance in that the licensee did not ensure that personnel, equipment, procedures and other resources are available and

adequate to support nuclear safety. Specifically, the licensee deferred funding for a vendor analysis of the capabilities of the raw water pumps at the design low river level [H.1]. (Section 4OA2.5.I)

### Other Findings and Violations

- Green. A non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instruction, Procedures, and Drawings," was identified involving the failure to follow procedures to initiate condition reports to enter conditions adverse to quality into the corrective action program. Specifically, the licensee failed to initiate condition reports in accordance with Procedure FCSG 24-1, "Condition Report Initiation," Step 4.1.1.G, when deficiencies related to the station's corrective actions implemented for NRC violations were identified. The licensee entered this issue into its corrective action program as Condition Report 2014-09063 and initiated action to write condition reports for identified gaps related to previous NRC violations.

This performance deficiency was more than minor, and therefore a finding, because if left uncorrected, it would have the potential to lead to a more significant safety concern. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609 Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding was of very low safety significance (Green) because it did not involve a loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of human performance because the licensee elected to use an informal system to resolve these issues rather than the corrective action program [H.13]. (Section 4OA2.5.a)

- Severity Level IV. A non-cited violation of 10 CFR 50.59, "Changes, Test, and Experiments," was identified involving the failure to evaluate if a change to the facility as described in the Updated Safety Analysis Report would require prior NRC review and approval. Specifically, the licensee failed to evaluate if a change implemented under Engineering Change 59252 that credited the non-safety related demineralized water system as a make-up source to the component cooling water system during post-accident conditions represented an adverse change to the Updated Safety Analysis Report described design function. The licensee entered this deficiency into its corrective action program for resolution as Condition Report 2014-09151 and established action items to update Engineering Change 59252.

The NRC determined that the licensee's failure to perform an evaluation prior to implementing a proposed change described in the Updated Safety Analysis Report was a violation of 10 CFR 50.59. Because this violation had the potential to impact the NRC's ability to perform its regulatory function, the NRC evaluated the violation using traditional enforcement. In accordance with Section 2.1.3.E.6 of the NRC Enforcement Manual, the NRC evaluated this finding using the significance determination process to assess its significance. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the finding was of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of

function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program. Therefore, in accordance with Section 6.1.d.2 of the NRC Enforcement Policy, this performance deficiency is characterized as a Severity Level IV violation. The team determined that a cross-cutting aspect was not applicable because the issue involving the failure to perform an adequate 10 CFR 50.59 evaluation was strictly associated with a traditional enforcement violation. (Section 40A2.5.d)

- Severity Level IV. A non-cited violation of 10 CFR 50.73(a)(1), "Licensee Event Report System," was identified involving the failure to submit a required licensee event report. Specifically, the licensee failed to report within 60 days the discovery that Namco™ Type EA 180 limit switches were not environmentally qualified as required due to inadequate maintenance procedures, a condition that resulted in operation prohibited by the plant's technical specifications. The licensee restored compliance by submitting Licensee Event Report 05000285/2014-004 on June 20, 2014. The licensee entered this issue into its corrective action program as Condition Report 2014-08454.

The NRC determined that the failure to submit a licensee event report within the time limits specified in regulations was a violation of 10 CFR 50.73. This violation was evaluated using Section 2.2.4 of the NRC Enforcement Policy, because the failure to submit a required licensee event report may impact the ability of the NRC to perform its regulatory oversight function. As a result, this violation was evaluated using traditional enforcement. In accordance with Section 6.9 of the NRC Enforcement Policy, this violation was determined to be a Severity Level IV, non-cited violation. The NRC determined that a cross-cutting aspect was not applicable because the issue was strictly associated with a traditional enforcement violation. (Section 40A2.5.h)

- Severity Level IV. A cited violation of 10 CFR 50.59, "Changes, Tests, and Experiments," was identified involving the failure to evaluate if a change to the facility as described in the Updated Safety Analysis Report would require prior NRC review and approval. Specifically, the licensee did not evaluate a change that would permanently substitute a manual action for an automatic action to add water and nitrogen gas to the component cooling water surge tank. The licensee entered this issue into its corrective action program as Condition Report 2014-09080 and initiated action to evaluate the change to the component cooling water system.

The NRC determined that the licensee's failure to perform an evaluation prior to implementing a proposed change described in the Updated Safety Analysis Report was a violation of 10 CFR 50.59. Because this performance deficiency had the potential to impact the NRC's ability to perform its regulatory function, the NRC evaluated the performance deficiency using traditional enforcement. In accordance with Section 2.1.3.E.6 of the NRC Enforcement Manual, the team evaluated this finding using the significance determination process to assess its significance. The NRC performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the finding was of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a

loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program. Therefore, in accordance with Section 6.1.d.2 of the NRC Enforcement Policy this performance deficiency is being characterized as a Severity Level IV violation. The team determined that a cross-cutting aspect was not applicable to this finding because the issue was strictly associated with a traditional enforcement violation. (Section 4OA2.5.m)

### **Licensee-Identified Violations**

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



## REPORT DETAILS

### 4. OTHER ACTIVITIES (OA)

#### 4OA2 Problem Identification and Resolution (71152)

The team based the following conclusions on a sample of corrective action documents that were open during the assessment period, which ranged from February 2013 until the end of the on-site portion of this inspection on July 25, 2014.

#### .1 **Assessment of the Corrective Action Program Effectiveness**

##### a. Inspection Scope

The team reviewed approximately 400 condition reports (CRs) including associated root cause, apparent cause, and direct cause evaluations, from approximately 26,000 that had been issued between February 2013 and July 25, 2014, 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 standards ownership 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 also performed an in-depth review of the component cooling water system and the emergency diesel generators. The samples reviewed by the team focused on, but were not limited to, these systems. The team conducted a walk-down of these systems to assess whether problems were appropriately identified and entered into the corrective action program.

b. Assessments

1. Effectiveness of Problem Identification

During the 18-month inspection period, licensee staff generated approximately 26,000 condition reports. The team determined that the licensee entered most conditions that required generation of a condition report into their corrective action program as required by Procedure FCSG 24-1, "Condition Report Initiation." However, the team noted the following example where the licensee failed to enter conditions adverse to quality into the corrective action program in accordance with station procedures:

- Following completion of a problem identification and resolution self-assessment, the licensee identified several incomplete or ineffective corrective actions for previous NRC non-cited violations (NCVs). Upon discovery of these issues, the licensee failed to generate condition reports in accordance with Procedure FCSG 24-1, "Condition Report Initiation." The team determined that the failure to initiate a required condition report was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," which is discussed further in Section 4OA2.5.a.

Overall, the team concluded that the licensee usually maintained a low threshold for the formal identification of problems and entry into the corrective action program for evaluation. Most of the personnel interviewed by the team understood the requirements for condition report initiation and most expressed a willingness to enter newly identified issues into the corrective action program at a very low threshold.

2. Effectiveness of Prioritization and Evaluation of Issues

The team found that the licensee had usually prioritized condition reports adequately; however, the team found some condition reports that had been inconsistently prioritized. The team noted the following example where the licensee failed to adequately prioritize an issue entered into the corrective action program:

- The licensee initiated several condition reports related to the condition of the alternate access road used when the main access road is closed during severe weather. The main access road is closed to eliminate the potential for tornado borne vehicle missiles affecting structures, systems, and components important to safety. The closing of the main access road during periods of severe weather was a condition imposed on the licensee through Amendment 272 to their operating license. The team noted that CR 2013-14613, CR 2013-15635, CR 2013-15640, CR 2013-18831, and CR 2014-02711 document issues with grading and condition of the road that could affect the roads functionality when needed. The team identified that the prioritization of condition reports was primarily as trend conditions, meaning that no action was taken. Consequently, during a recent severe weather event in June 2014, the alternate access road became impassable, requiring the licensee to open the main access road, contrary to conditions imposed on the licensee through Amendment 272.

The sample of condition reports reviewed by the team focused primarily on issues screened by the licensee as having higher-level significance, including those that

received cause evaluations, those classified as significant conditions adverse to quality, and those that required engineering evaluations. The team noted that the licensee generally performed causal analyses at a level commensurate with the significance and complexity of the issue. The team identified the following example where the licensee's causal analysis reached incorrect conclusions:

- A simple cause evaluation performed for CR 2014-01029 documents the licensee's actions to address NCV 05000285/2014002-04, "Failure to Request a License Amendment for Required Change to Technical Specifications." The licensee identified the cause of the violation as, "there is a disagreement with the NRC . . . and throttling the valves does not require NRC approval."

The team reviewed this condition report and identified that the licensee's stated cause in CR 2014-01029 does not identify the actual cause for the NRC violation.

The team also reviewed a number of condition reports involving degraded or non-conforming conditions and identified that the licensee, in several instances, failed to make an immediate determination of operability for a degraded or non-conforming condition. Additionally, the team identified several examples where an operability determination performed for a degraded or non-conforming condition lacked adequate technical justification as to why the affected structure, system, or component would perform its specified safety function. These findings and observations closely mirror previous NRC violations related to the licensee's ability to perform operability evaluations. The team concluded weakness exists in this area and that the licensee's corrective actions to date do not appear to be effective. Specific examples identified by the team include the following:

- For CR 2014-05006 involving the unexpected discovery of air in the component cooling water system, the team identified that the licensee failed to perform an operability determination for this degraded condition. The team determined that the licensee's failure to perform an operability determination was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," further discussed in Section 4OA2.5.b.
- For CR 2014-05019 involving a non-seismically mounted portable crane installed near component cooling water pump AC-3B, the team identified that the licensee failed to perform an operability determination for this non-conforming condition. The team determined that the licensee's failure to perform an operability determination was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," further discussed in Section 4OA2.5.b.
- For CR 2014-05955 involving reliability issues with a temporary manhole water level monitoring system, the team identified that the licensee failed to recognize that this system was a credited compensatory measure for the operability determination associated with CR 2013-00273. Consequently, the licensee failed to perform an operability determination which the team determined was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," further discussed in Section 4OA2.5.b.

- For CR 2014-08912 involving missing fittings needed to transfer fuel oil from fuel oil storage tank FO-10 to FO-1, the team determined that the licensee failed to recognize that the ability to transfer fuel oil between these tanks was necessary to meet the required 7-day fuel oil inventory requirements. Consequently, the licensee failed to perform an operability determination for this condition report as required by station procedures which the team determined was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," further discussed in Section 4OA2.5.b.
- For CR 2014-05901 involving a degraded condition on the component cooling water heat exchanger baffle plate that created a bypass around the heat exchanger tubes. The operability determination stated that a heat exchanger performance test would provide verification of heat exchanger capability. The team discovered the testing had not been performed and therefore the licensee's operability determination lacked an adequate technical justification why the heat exchanger was operable. The team determined that the licensee's inadequate operability determination was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," further discussed in Section 4OA2.5.b.
- For CR 2013-00273 that documented jacket damage to the power cable for raw water pump AC-10C, the team identified that the compensatory measure established by the licensee did not maintain or enhance system operability and was contrary to the definition of a compensatory measure in station procedures. Consequently, the documented operability determination lacked adequate technical justification as to why the affected system could perform its specified safety function with the degraded or non-conforming condition. The team determined that the licensee's failure to perform an adequate operability determination was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," further discussed in Section 4OA2.5.c.
- Following discovery of a leak in the raw water system, the licensee initiated CR 2013-22937 that included an immediate operability determination and application of ASME Code Case N513-3. The team identified that the licensee failed to identify the degradation mechanism that, in accordance with Procedure OP-FC-108-115, "Operability Determinations," Step 4.5.10, must be readily apparent to support an immediate operability determination. The team determined this was a minor violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings." The licensee entered this issue into its corrective action program as CR 2014-08600.

Additionally, the team identified several examples where the licensee performed inadequate technical evaluations to address deficiencies including conditions adverse to quality and non-compliances with NRC regulatory requirements. These evaluations failed to consider the design and licensing basis of the facility or all applicable regulatory requirements. The findings and observations identified by the team revealed significant weakness in the evaluation area and cause concern related to the licensee's ability to implement this element of the corrective action program. Examples identified by the team include the following:

- On February 14, 2013, a fire protection leak of approximately 2-3 gallons per minute caused a ground on raw water strainer AC-12B control panel AI-348. Similarly, on June 3, 2014, a severe weather event damaged the intake structure roof and caused a subsequent water intrusion into control panel AI-348. The team reviewed these events and noted that when the licensee implemented a design change to the raw water strainer control panel, the licensee failed to consider all required design specifications for the system including protection against spraying and wetting. The team identified a self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," further discussed in Section 4OA2.5.f.
- As a corrective action to CR 2013-07751, which identified an overstressed pipe union-tee in the safety injection system, the licensee prepared Calculation FC07240, "Shutdown Cooling Piping Tee Finite Element Analysis," to evaluate the overstressed condition. The team reviewed Calculation FC07240 and identified several unverified and potentially non-conservative inputs. The team determined the licensee's failure to develop an adequate calculation was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," further discussed in Section 4OA2.5.e.
- As a corrective action to address several issues related to strategies required to mitigate external flooding events, the licensee prepared Calculation FC08081, "Sizing and Selection for Intake Cell Flood Water Inlet Valves for the AOP-1 Raw Water Flowpath." The team identified that Calculation FC08081 failed to account for flow losses due to the physical structures in the flow path to the raw water pumps. Additionally, the team identified that Calculation FC08081 failed to include a bounding in leakage rate for the sluice gates when the river level is 1014' mean sea level (msl) and the cell level is a minimal 976' 9". The team determined that the licensee's failure to model the intake structure when evaluating intake cell level control methods was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," further discussed in Section 4OA2.5.g.

### 3. Effectiveness of Corrective Actions

Overall, the team concluded that the licensee did not consistently develop appropriate corrective actions to address problems including conditions adverse to quality. The team identified 12 corrective actions associated with conditions adverse to quality that were not completed in a timely or effective manner. Of particular concern, the team reviewed the licensee's corrective actions to address 36 previous NRC non-cited violations and identified 5 examples where the licensee failed to restore compliance within a reasonable time after the previous NRC violations were issued and 3 examples where the licensee's corrective actions failed to adequately address the technical aspects of the violations. Based on the number of findings and observations the team concluded the licensee corrective action program fails to consistently resolve problems. The team identified the following specific examples of the licensee's failure to develop and implement corrective actions to resolve problems:

- The team reviewed the licensee's corrective actions to address NCV 05000285/2013008-03, "Lack of Safety-Related Equipment for Design Basis Low River Level," which was entered into the licensee's corrective action program as CR 2013-04169 and CR 2013-06436. The team identified that the licensee had not taken any actions to ensure that the raw water pumps can operate through the full range of river levels required by the plant's technical specifications. Based on the

failure to resolve this non-cited violation, the team identified a cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," further discussed in Section 4OA2.5.k.

- The team reviewed the licensee's corrective actions to address NCV 05000285/2013008-04, "Non-Conservative Value for Declaring an Alert on Low River Level," which was entered into the licensee's corrective action program as CR 2013-04198 and CR 2012-04169. The team identified that the licensee had not taken action to address this non-cited violation and the current emergency action level criteria for declaring an "Alert" on low river level continues to be inadequate because it correlates to a river level below the minimum suction requirements for the raw water pumps. Based on the failure to resolve this non-cited violation, the team identified a cited violation of 10 CFR 50.54(q)(2), "Conditions of License," further discussed in Section 4OA2.5.l.
- The team reviewed the licensee's corrective actions to address NCV 05000285/2013008-06, "Failure to Account for Worst Case Conditions in Fuel Oil Inventory Calculation," which was entered into the licensee's corrective action program as CR 2013-04311 and CR 2013-04470. The team identified that the licensee had not taken any actions to address these identified deficiencies affecting the diesel fuel oil inventory calculations. Based on the failure to resolve this non-cited violation, the team identified a cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," further discussed in Section 4OA2.5.n.
- The team reviewed the licensee's corrective actions to address NCV 05000285/2013008-36, "Deficient Evaluation of NRC Bulletin 88-04, Strong Pump Weak Pump Due to Failure to Consider the Effect of AFW Pumps Discharge Check Valves Leakage," which was entered into the licensee's corrective action program as CR 2013-04680. The team identified that the licensee had not taken any actions to address identified deficiencies in their evaluation of NRC Bulletin 88-04, "Potential Safety-Related Pump Loss." Based on the failure to resolve this non-cited violation, the team identified a cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," further discussed in Section 4OA2.5.j.
- The team reviewed the licensee's corrective actions to address NCV 05000285/2013008-28, "Failure to Perform an Evaluation for a Change to Component Cooling Water Make-up," which was entered into the licensee's corrective action program as CR 2013-09080. The team noted that the licensee's corrective actions included a re-performance of the 10 CFR 50.59 screening, which again reached an incorrect conclusion that a change to the make-up method for component cooling water did not require a 10 CFR 50.59 evaluation. Based on the failure to resolve this non-cited violation, the team identified a cited violation of 10 CFR 50.59, "Changes, Tests, and Experiments," further discussed in Section 4OA2.5.m.
- The team reviewed the licensee's corrective actions to address NCV 05000285/2013013-13, "Failure to Incorporate Design Requirements for Switchgear Room Cooling," which was entered into the licensee's corrective action program as CR 2012-09804 and CR 2013-17288. The team identified that the licensee had developed a calculation to address this non-cited violation but that the

- calculation did not adequately address the violation because it did not analyze the ability of vital switchgear room cooling to ensure operability requirements of equipment under all conditions. Based on the failure to resolve this non-cited violation, the team identified a green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," further discussed in Section 4OA2.5.i.
- The team reviewed the licensee's corrective actions to address NCV 05000285/2013008-39, "Failure to Properly Implement Applicable ASME OM Code Requirements," which was entered into the licensee's corrective action program as CR 2013-05018 and CR 2013-05569. The team identified that the licensee had not corrected issues related to ASME Code characterization and testing of valves in the auxiliary feedwater system. The team determined that the licensee's failure to correct a condition adverse to quality was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," further discussed in Section 4OA2.5.q.
  - On February 22, 2013, diesel generator 1 failed to roll during planned surveillance testing as documented in CR 2013-04030. The licensee's apparent cause identified age-related degradation of the valve due to a lack of preventative maintenance on starting air valve SA-148. The team identified that age-related degradation of diesel generator starting air valves had previously been identified as a condition adverse to quality in CR 2012-09424, dated August 4, 2012, but that the licensee had not taken timely corrective actions prior to the failure of diesel generator 1 on February 22, 2013. The team determined that the licensee's failure to take timely corrective action was a self-revealing non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," further discussed in Section 4OA2.5.t.
  - On October 19, 2012, the licensee initiated CR 2012-15877 that identified several issues related to the component cooling water system including a lack of analysis relative to system performance and the potential for gas to come out of solution due to elevated system operating temperature and an inadequate fill and vent procedure. The team reviewed CR 2012-15877 and identified that many of the technical issues documented in the condition report continue to exist because the licensee had not implemented timely corrective actions. The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," further discussed in Section 4OA2.5.o.
  - On February 22, 2014, the licensee identified that a temporary flexible suction hose needed to implement B.5.b mitigating strategies was in a degraded condition and initiated CR 2014-02381 to address this deficiency. On, July 17, 2014, the licensee walked down the same B.5.b mitigating strategies with the NRC senior resident inspector and found that the same flexible suction hose was missing. Subsequent investigation revealed that the licensee had removed and not replaced the required temporary flexible suction following initiation of CR 2014-02381. The team determined that the B.5.b mitigating strategies were degraded because of the missing flexible suction hose for approximately 5 months. The team identified a non-cited violation of 10 CFR 50.54(hh)(2), further discussed in Section 4OA2.5.s.
  - In May 2013, the licensee performed a test to determine sluice gate in-leakage in the fully closed position. The test results revealed sluice gate in-leakage of

approximately 4650 gallons per minute when extrapolated to worst-case design conditions. The Fort Calhoun Station Updated Safety Analysis Report and station calculations only assume sluice gate in-leakage of 750 gallons per minute. Sluice gate in-leakage beyond that assumed in station calculations can negatively affect the analysis performed for external flooding events and is a condition adverse to quality. The team determined that the licensee's failure to correct this condition adverse to quality was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," further discussed in Section 4OA2.5.r.

- On June 4 and August 3, 2014, water intrusion occurred in raw water strainer AC-12B control panel AI-348 resulting in an unplanned entry into 12 hour shutdown Technical Specification 2.4(2)d, "Containment Cooling." The team reviewed these events and determined that the licensee failed to take timely corrective actions to address a design deficiency in panel AI-348 that made the panel susceptible to spraying and wetting. The team identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," further discussed in Section 4OA2.5.u.

## **.2 Assessment of the Use of Operating Experience**

### **a. Inspection Scope**

The team examined the licensee's program for reviewing industry operating experience, including reviewing the governing procedures. The team reviewed a sample of industry operating experience communications and the associated site evaluations to assess whether the licensee had appropriately assessed the communications for relevance to the facility. The team also reviewed assigned actions to determine whether they were appropriate.

### **b. Assessment**

Overall, the team determined that the licensee appropriately evaluated industry-operating experience for its relevance to the facility. Operating experience information was incorporated into plant procedures and processes as appropriate. The team did note that two findings documented in Section 4OA2.5 were directly related to NRC information notices and that an inadequate review of this operating experience may have contributed to the findings identified during this inspection. Specific examples identified by the team include the following:

- NRC Information Notice 2008-02, "Findings Identified During Component Design Bases Inspections," which describes instances where NRC inspectors identified that the emergency diesel generators loading calculations failed to account for the increased electrical load resulting from operation at the maximum frequency allowed by technical specifications. The team noted issues identified in this information notice related to the performance deficiencies documented in VIO 05000285/2014009-14, "Failure to Account for Worst Case Diesel Frequency in Fuel Oil Consumption Calculations," which is described in Section 4OA2.5.n.
- NRC Information Notice 2011-14, "Component Cooling Water System Gas Accumulation and Other Performance Issues." The licensee's review of this information notice, which was previously documented in NRC Inspection



Report 05000285/2011006 (ADAMS Accession Number ML12079A224), noted that the component cooling water system was not in the Managing Gas Accumulation in Safety Systems Program. The team identified that several actions to address gas voiding in the component cooling water system were not complete at the time of this inspection. The team noted issues identified in this information notice related to the performance deficiencies are documented NCV 05000285/2014009-18, "Failure to Complete Corrective Action in Timely Manner," which is described in Section 4OA2.5.r.

The team further determined that the licensee appropriately evaluated industry operating experience when performing root cause analyses and apparent cause evaluations. The licensee appropriately incorporated both internal and external operating experience into lessons learned for training and pre-job briefs.

### **.3 Assessment of Self-Assessments and Audits**

#### **a. Inspection Scope**

The team reviewed a sample of licensee self-assessments and audits to assess whether the licensee was regularly identifying performance trends and effectively addressing them. The team also reviewed audit reports to assess the effectiveness of assessments in specific areas. The specific self-assessment documents and audits reviewed are listed in Attachment 1.

#### **b. Assessment**

Overall, the team concluded that the licensee had an effective self-assessment and audit process. The team determined that for the self-assessments and audits reviewed, the results reflected self-critical and thorough evaluations to identify deficiencies. The team did note that the licensee cancelled a large number of self-assessments (23 total) planned for calendar year 2013 and 2014. The team determined that the licensee's action to cancel these self-assessments could be reflective of a lack of resources needed to meet all the demands of a healthy and effective self-assessment program.

The team identified that while self-assessment and audits were generally thorough and complete, the licensee's actions to address the individual findings from these audits and self-assessments were not always complete or timely. Specifically, the team identified the following examples where the licensee took incomplete or untimely corrective actions to address issues identified during audits and surveillances:

- On October 6, 2009 and December 13, 2011, the licensee's quality assurance organization initiated CR 2009-04715 and CR 2011-10137 to document audit related findings that Fort Calhoun Station had failed to follow its software control program. On September 16, 2013, the licensee identified 15 additional examples where the licensee failed to follow its software control program. The team reviewed these 15 condition reports and determined that the licensee's failure to correct inadequacies in the licensee's software control program was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," which is discussed further in Section 4OA2.5.p.

- During a review of Focused Area Self-Assessment PI-AA-126-1001-F-01, “Preparation of 2014 NRC Problem Identification and Resolution Inspection,” dated May 2, 2014, the team noted that the focused area self-assessment made the following observation:

Several issues were identified when reviewing corrective actions associated with NRC violations which demonstrate continued problems with Station Corrective Action Program behaviors and the effectiveness of issue resolution, including poor corrective action specification, untimely action completion, poor quality corrective action closure, and ineffective corrective actions. Corrective actions from Root and Apparent causes are not consistently closed with quality and in a timely manner. Because the self-assessment identified problems with 6 of the 30 issues reviewed (>20%), it is recommended that the Station perform a complete extent of condition review to identify other cases where NRC issues were not addressed effectively.

The licensee initiated CR 2014-05555 to capture this issue which included an extent of condition review. The extent of condition review was completed by taking credit for a parallel effort that was on-going to perform a non-technical process review of non-cited violations for closure adequacy. This parallel effort identified gaps involving closure adequacy, which were communicated to the issue owners. However, the licensee failed to document these conditions in the corrective action program, such that, the established process could be used to ensure the gaps were adequately evaluated and corrected. The team determined that the licensee’s failure to follow procedures to initiate condition reports for identified conditions adverse to quality was a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures and Drawings,” which is discussed further in Section 4OA2.5.a.

#### **.4 Assessment of Safety-Conscious Work Environment**

##### **a. Inspection Scope**

The team interviewed approximately 64 individuals in five focus groups. The purpose of these interviews was (1) to evaluate the willingness of licensee staff to raise nuclear safety issues, either by initiating a condition report or by another method, (2) to evaluate the perceived effectiveness of the corrective action program at resolving identified problems, and (3) to evaluate the licensee’s safety-conscious work environment. The focus group participants included personnel from Security, Operations, Maintenance, and Engineering. At the team’s request, the licensee’s regulatory affairs staff selected the participants blindly from these work groups, based partially on availability. To supplement these focus group discussions, the team interviewed the Employee Concerns Program manager to assess his perception of the site employees’ willingness to raise nuclear safety concerns. The team reviewed the Employee Concerns Program case log and select case files.

b. Assessment

1. Willingness to Raise Nuclear Safety Issues

All individuals interviewed indicated that they would raise nuclear safety concerns. Most felt that their management were receptive to nuclear safety concerns and were willing to address them promptly. All of the interviewees further stated that if they were not satisfied with the response from their immediate supervisor, they had the ability to escalate the concern to a higher organizational level. Most expressed positive experiences after raising issues to their supervisors. Positive experiences were expressed documenting most issues in condition reports. Some interviewees, however, expressed a concern with the timeliness of corrective actions. For safety significant issues, there was confidence that the issue would be addressed. However, for issues classified at lower priority levels, some expressed less confidence that those issues would be ultimately resolved because of lack of resources.

2. Employee Concerns Program

All interviewees were aware of the Employee Concerns Program. Most explained that they had heard about the program through various means, such as posters, training, presentations, and discussion by supervisors or management at meetings. Most interviewees stated that they would use Employee Concerns if they felt it was necessary. Most expressed confidence that their confidentiality would be maintained if they brought issues to Employee Concerns. Some interviewees expressed concerns regarding the potential for Employee Concerns Program management to be non-biased since they were part of management.

3. Preventing or Mitigating Perceptions of Retaliation

When asked if there have been any instances where individuals experienced retaliation or other negative reaction for raising issues, most individuals interviewed stated that they had neither experienced nor heard of an instance of retaliation, harassment, intimidation or discrimination at the site. The team determined that processes in place to mitigate these issues were being successfully implemented.

Regarding the overall safety culture at Fort Calhoun Station, all interviewees acknowledged that the station was improving and performance was much better today than it was a year ago. The focus group interview results confirm what station metrics show. Specifically, that safety culture issues still exist in some work groups and that continued efforts were warranted to improve further in this area to close those gaps. Some of the more significant overall comments included:

- The allocated resources are not commensurate with the amount of work to be done.
- The change management associated with the transition to the Exelon procedures has not been successful. It is often difficult to know which procedure to use, and whether the procedure used was the latest revision.
- The station was good at identifying issues but poor at resolving them.

## **.5 Specific Findings Identified During this Inspection**

### **a. Failure to Initiate Condition Reports for Gaps Identified in Resolving NRC Non-Cited Violations**

Introduction. A Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instruction, Procedures, and Drawings,” for the licensee’s failure to follow procedures to initiate condition reports to enter conditions adverse to quality into the corrective action program. Specifically, the licensee failed to initiate condition reports in accordance with Procedure FCSG 24-1, “Condition Report Initiation,” Step 4.1.1.G, when gaps related to the station’s corrective actions implemented for NRC violations were identified.

Description. During the first on-site week of the inspection, the team developed several issues of concern where it appeared that the station had not restored compliance within a reasonable time after previous NRC violations. The percentage of previous NRC violations reviewed that appeared to have issues was approximately 20 percent, and was of concern to the team. Accordingly, the team decided to expand the scope of review. In determining the additional scope, the team wanted to understand whether the licensee had performed a review in this area, and if so, what was determined.

The team reviewed Focused Area Self-Assessment PI-AA-126-1001-F-01, “Preparation of 2014 NRC Problem Identification and Resolution Inspection,” dated May 2, 2014. The team noted that the focused area self-assessment made the following observation in the executive summary of the report:

Several issues were identified when reviewing corrective actions associated with NRC violations which demonstrate continued problems with Station Corrective Action Program behaviors and the effectiveness of issue resolution, including poor corrective action specification, untimely action completion, poor quality corrective action closure, and ineffective corrective actions. Corrective actions from Root and Apparent causes are not consistently closed with quality and in a timely manner. Because the self-assessment identified problems with 6 of the 30 issues reviewed (>20%), it is recommended that the Station perform a complete extent of condition review to identify other cases where NRC issues were not addressed effectively.

The focused area self-assessment identified Deficiency Number 1 as, “Corrective Actions to address NRC violations are not consistently closed with adequate documentation or in accordance with FCSG-24-6,” and initiated CR 2014-05555 to capture the issue. Action Item 2014-05555-01 was identified to perform an extent of condition review.

The extent of condition review recommended by the focused area self-assessment was completed by taking credit for a parallel effort that was on-going to perform a non-technical process review of NRC non-cited violations for closure adequacy. The team reviewed the results of the extent of condition review and noted that the closure adequacy was questioned for several of the previous NRC violations reviewed. The team questioned whether condition reports were initiated for the identified gaps. The licensee informed the team that the extent of condition review team did not initiate condition reports, but instead, only communicated the apparent gaps to the issue owners

to determine the appropriate actions. Consequently, the team concluded that no condition reports had been written to document the identified conditions adverse to quality in the corrective action program, such that, the established process could be used to ensure the deficiencies were adequately evaluated and corrected.

During the inspection, the team independently reviewed 36 previous NRC non-cited violations and identified the following five in which the licensee had failed to restore compliance within a reasonable time:

- NCV 05000285/2013008-36, "Deficient Evaluation of NRC Bulletin 88-04, Strong Pump Weak Pump Due to Failure to Consider the Effect of AFW Pump Discharge Check Valve Leakage"
- NCV 05000285/2013008-03, "Failure to Ensure Safe Operations at Design Basis Low River Level"
- NCV 05000285/2013008-04, "Non-Conservative Value for Declaring An Alert on Low River Level"
- NCV 05000285/2013008-28, "Failure to Perform Evaluation for a Change to Component Cooling Water Make-Up"
- NCV 05000285/2013008-06, "Failure to Account for Worst Case Conditions in Fuel Oil Inventory Calculation"

The team observed that several of the same issues identified by the team had also been identified by the licensee during the extent of condition review, however, no condition reports were initiated.

Analysis. The failure to initiate condition reports for identified conditions adverse to quality in accordance with Procedure FCSG 24-1, was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because if left uncorrected, it would have the potential to lead to a more significant safety concern. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609 Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the team determined that this finding was of very low safety significance (Green) because it did not involve a loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of human performance because the licensee elected to use an informal system to resolve these issues rather than the formal, consistent corrective action program [H.13].

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. Procedure FCSG 24-1, "Condition Report Initiation," states, in part, that all personnel who discover, are made aware of, or believe a problem exists SHALL initiate a condition report prior to leaving the work site at the end of the

Originators work day. Contrary to the above, in May 2014, the licensee failed to initiate condition reports in accordance with Procedure FCSG 24-1 when deficiencies were identified related to FCS's corrective actions implemented for NRC non-cited violations as part of a problem identification and resolution program focused self-assessment. The licensee initiated CR 2014-09063 to address the failure to initiate condition reports to properly review issues identified during the self-assessment. Because this violation was of very low safety significance and was entered into the licensee's corrective action program as CR 2014-09063, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000285/2014009-01, "Failure to Initiate Condition Reports for Gaps Identified in Resolving NRC Non-Cited Violations."

b. Multiple Examples of Failure to Evaluate Operability of Degraded or Non-Conforming Conditions

Introduction. A Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," was identified involving multiple examples of the licensee's failure to follow Procedure OP-FC-108-115, "Operability Determinations," Revision 0a, a quality related procedure. In each example, the team identified that the licensee failed to make an immediate determination of operability for a degraded or non-conforming condition or failed to make an immediate determination of operability based on a detailed examination of the deficiency.

Description. The team identified the following four examples where the licensee failed to make an immediate operability determination for a degraded or non-conforming condition in accordance with Procedure OP-FC-108-115, Step 4.1.6:

- April 18, 2014, CR 2014-05006 identified that during a rotation of safety related component cooling water pumps for planned surveillance testing, pump AC-3B had to be vented for approximately 30 seconds before a solid, continuous stream of water flowed from the pump's vent valve. The licensee's review of this condition report documented this as an administrative issue that did not represent a degraded or non-conforming condition. Consequently, the licensee did not perform an immediate operability determination for the condition identified in CR 2014-05006. The team determined the issue documented in the condition report was not an administrative issue and warranted an operability determination since the presence of air could affect the system's ability to perform its safety function. The licensee entered this deficiency into their corrective action program as CR 2014-07833.
- April 20, 2014, CR 2014-05019 identified a non-seismically mounted portable crane installed near safety related component cooling water pump AC-3B. The licensee's review of this condition report stated that the issue did not represent a degraded or non-conforming condition. The team reviewed CR 2014-05019 and determined that the issue documented did represent a degraded or non-conforming condition and warranted an operability determination because of the unnecessary equipment in the area of the pump that could potentially affect the pump during a seismic event. The licensee entered this deficiency into its corrective action program as CR 2014-08564.
- May 13, 2014, CR 2014-05955 identified reliability issues with a temporary manhole water level monitoring system. The licensee's review of this condition report concluded that no degraded or non-conforming condition existed and that no further

screening was required. The team reviewed CR 2014-05955 and identified that the licensee failed to recognize that the operability determination for CR 2013-00273 related to a flaw on the electrical cable jacket for safety related raw water pump C and relied on this temporary manhole water level monitoring system. Because CR 2014-05955 identified reliability issues with a system used as a documented compensatory measure for an open operability determination, the team determined that the condition report required further operability screening in accordance with station procedures. The licensee entered this deficiency into their corrective action program as CR 2014-08506.

- July 18, 2014, CR 2014-08912 identified missing fittings needed to transfer fuel oil from fuel oil storage tank FO-10 to tank FO-1. The licensee's review of this condition report determined that no degraded or non-conforming condition existed. The team reviewed CR 2014-08912 and identified that the licensee failed to recognize the current licensing basis requirements of fuel oil storage tank FO-10 in that it is a required storage volume needed to maintain a 7-day inventory of diesel fuel oil through manual transfer to tank FO-1 as credited in station calculations. The team determined that the missing fittings identified in CR 2014-08912 could adversely affect the ability to transfer fuel between tanks FO-10 and FO-1, therefore, the issue was a degraded or non-conforming condition that required further operability screening in accordance with station procedures. The licensee entered this deficiency into their corrective action program as CR 2014-09652.

Additionally, the team identified the following two examples where the licensee failed to perform a detailed examination of a deficiency documented in a condition report as required by Procedure OP-FC-108-115, Step 4.1.6. In each instance listed below, the team determined that the licensee's documented basis for operability lacked adequate technical justification as to why the affected system could perform its specified safety function with the degraded or non-conforming condition.

- May 12, 2014, CR 2014-05901 identified a degraded condition on the safety related component cooling water heat exchanger baffle plate that created a bypass around the heat exchanger tubes. The operability determination stated that heat exchanger capability would be verified during testing under Procedure SE-PFT-CCW-01, "Component Cooling Water Heat Exchangers Performance Test," Revision 15. The team reviewed this operability determination and discovered that Procedure SE-PFT-CCW-01 was never performed. Consequently, the team determined that the licensee's documented basis for operability lacked adequate technical justification as to why the component cooling water system could perform its specified safety function with the degraded component cooling water heat exchanger baffle plate. The licensee entered this deficiency into their corrective action program as CR 2014-08423.
- July 9, 2014, CR 2014-08430 identified plastic sheeting placed above control panel AI-348 and questioned if the sheeting was a compensatory measure to maintain raw water strainer AC-12B operable. The licensee's operability determination stated that:

AC-12B is operable but non-conforming. AI-348 initial design did not account for water dripping into the panel. The lack of initial waterproofing of AI-348 constitutes a situation in which operating experience has

identified a design inadequacy in which quality has been reduced and therefore nonconforming condition. As AC-12B is currently performing its specified support function, it is considered operable. Additionally, Condition Report CR-2014-06984 documents roof drains for the Intake Structure backing up, overflowing, and creating pools of water that dripped near diesel fire pump FP-1B strainer FB-6B and to AC-12B. The subject roof drains have since been verified as cleared and now allow free flow of rainwater down the drain pipes and prevents pooling of water on the Intake Structure roof areas. AC-12B is operable with normal operating conditions, and has been since intrusion damage was repaired on June 6, 2014, therefore a reasonable expectation that AC-12B can perform its specified safety function exists, even when experiencing normal rainfall. All support equipment, including AI-348, are currently able to perform their related support functions therefore AC-12B is operable.

The team reviewed this operability determination and identified that the licensee's scope of review that only included AC-12B during "normal operations" was inadequate because it did not evaluate the full licensing basis of that equipment. Specifically, the licensee's operability evaluation did not consider the potential for water intrusion consistent with the plant's licensing basis as documented in License Amendment 40 and associated Safety Evaluation Report, "Regarding the Potential for Flooding from Postulated Ruptures of Non-Category I (Seismic) Systems," dated February 16, 1978. Consequently, the team determined that the licensee's documented basis for operability lacked adequate technical justification as to why strainer AC-12B could perform its specified safety function under all design conditions. The licensee entered this deficiency into their corrective action program for resolution as CR 2014-09655.

The licensee took immediate corrective actions to update the incomplete or inaccurate operability determinations and entered the collective failures to follow station operability procedures into their corrective action program as CR 2014-09163.

Analysis. The failure to perform an adequate immediate operability determination for degraded or non-conforming conditions in accordance with Procedure OP-FC-108-115 was a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it affects the equipment performance attribute of the Mitigating Systems Cornerstone objective of ensuring the reliability of systems that respond to initiating events. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of human performance because the licensee failed to use decision-making practices that demonstrate that a proposed action is to be safe in order to proceed, rather than unsafe



in order to stop. Specifically, the licensee made non-conservative decisions related to the impact of degraded or non-conforming conditions [H.14].

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. Procedure OP-FC-108-115, “Operability Determinations,” Revision 0a, Step 4.1.6, requires the licensee to make an immediate determination of operability for a degraded or non-conforming condition based on a detailed examination of the deficiency. Contrary to the above, on April 18, April 20, May 12, May 13, July 9, and July 18, 2014, the licensee failed to accomplish activities affecting quality in accordance with prescribed procedures. Specifically, the licensee failed to perform an immediate operability evaluation for CR 2014-05006, CR 2014-05019, CR 2014-05901, CR 2014-05955, CR 2014-08430 and CR 2014-08912, in accordance with Procedure OP-FC-108-115. Because this violation was of very low safety significance and was entered into the licensee’s corrective action program as CR 2014-07833, CR 2014-08423, CR 2014-08506, CR 2014-08564, CR 2014-09652, CR 2014-09655 and CR 2014-09163, this violation is being treated as a non-cited violation, consistent with the Enforcement Policy: NCV 05000285/2014009-02, “Multiple Examples of Failure to Evaluate Operability of Degraded or Non-Conforming Conditions.”

c. Failure to Adequately Perform an Operability and 50.59 Evaluation

Introduction. A Severity Level IV non-cited violation of 10 CFR 50.59, “Changes, Tests, and Experiments,” and an associated Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, “Instructions, Procedures, and Drawings,” was identified involving the licensee’s failure to evaluate and implement adequate compensatory measures for a degraded condition associated with safety related raw water pump AC-10C. Specifically, the licensee’s operability determination established a compensatory measure to place pump AC-10C in pull-to-lock, contrary to the single failure design requirements described in the Updated Safety Analysis Report.

Description. On May 9, 2013, the licensee completed an operability evaluation for CR 2013-00273 that documented degradation of the C phase power cable feeding raw water pump AC-10C’s motor which allowed for water intrusion beneath the jacket of the cable. The operability evaluation noted that the cable was dried and hi-pot tested. The licensee’s evaluation modified annunciator response Procedure ARP-MLM-1, “Wireless Remote Level Alarms for Manhole Level Monitors,” to include compensatory actions to place pump AC-10C’s motor in pull-to-lock and rack down its associated breaker if more than 36 inches of water was present in manholes MH-5 or MH-31. The evaluation stated that the compensatory measure would affect the raw water system’s ability to support flood mitigation but that since only one raw water pump is required for an external flooding event, the compensatory measure of placing raw water pump AC-10C in pull-to-lock was acceptable.

The team identified that the operability evaluation referenced Updated Safety Analysis Report, Section 9.8.4.3, which specifies the post design basis accident operation of the raw water system. This section of the Updated Safety Analysis Report required the licensee to assume a single active failure of one emergency diesel coincident with a design basis accident. Using this assumption, the Update Safety Analysis Report

concludes that a minimum of two raw water pumps would be operable if river water temperature is greater than 60°F.

The team concluded that the licensee's compensatory measure of placing raw water pump C in pull-to-lock, coupled with the design assumption of a single active failure, would result in only one raw water pump being available during accident conditions, below the minimum requirements in Updated Safety Analysis Report, Section 9.8.4.3. The 10 CFR 50.59 evaluation associated with this compensatory measure did not address Updated Safety Analysis Report, Section 9.8.4.3. The team concluded that the compensatory measure would likely have required prior NRC approval because the action of taking pump AC-10C out of service created the possibility for a malfunction of a structure, system, or component important to safety with a different result than previously evaluated in the Updated Safety Analysis Report.

The team also noted that Procedure NOD-QP-31, "Operability Determinations Process (ODP)," Revision 54, defined a compensatory measure as "an interim action, either physical or administrative, that is taken to maintain or enhance an operable but degraded or nonconforming structures, systems and components (SSCs), to ensure its specified safety function can be performed until final corrective action to resolve the condition is complete." The team determined that disabling pump AC-10C did not maintain or enhance operability, and therefore, the compensatory measure did not meet the definition found in Procedure NOD-QP-31.

The licensee entered this issue into their corrective action program as CR 2014-09104 and CR 2014-08515 and performed a new operability evaluation and associated 10 CFR 50.59 evaluation that used a compensatory measure of pumping water from affected manholes prior to affecting the degraded power feeder cable for raw water pump AC-10C.

Analysis. The failure to adequately perform an operability evaluation was a performance deficiency. The team also determined that the licensee's inadequate evaluation of the compensatory measure was a violation of 10 CFR 50.59. The team evaluated this performance deficiency as both a reactor oversight process finding and as a traditional enforcement violation. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant for greater than 24 hours in accordance with the licensee's maintenance rule program.

Because the violation of 10 CFR 50.59 had the potential to impact the NRC's ability to perform its regulatory function, the team also evaluated the violation using traditional enforcement. Since the violation is associated with a Green reactor oversight process violation, the traditional enforcement violation was determined to be a Severity Level IV violation, consistent with the example in paragraph 6.1.d(2) of the NRC Enforcement Policy. This finding has a cross-cutting aspect in the area of problem identification and

resolution with an aspect of evaluation because the licensee failed to ensure that resolutions address causes and extent of conditions commensurate with their safety significance [P.2].

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. Licensee Procedure NOD-QP-31, “Operability Determinations Process (ODP),” Revision 54, states, in part, that a compensatory measure is used “to maintain or enhance an operable but degraded or nonconforming SSC.” Contrary to the above, on May 9, 2013, the licensee failed to accomplish activities affecting quality in accordance with documented instructions. Specifically, the operability evaluation under CR 2013-00273 relied on an inadequate compensatory measure that results in the inoperability of safety related raw water pump C. This action does not meet the definition of a compensatory measure in Procedure NOD-QP-31.

Additionally, 10 CFR 50.59(c)(2)(vi) states, in part, that a licensee shall obtain a license amendment pursuant to Section 50.90 prior to implementing a proposed change, test, or experiment if the change, test, or experiment would create a possibility for a malfunction of a structure, system, or component important to safety with a different result than any previously evaluated in the Updated Safety Analysis Report. Contrary to the above, on May 9, 2013, the licensee made a change to the facility without obtaining a license amendment that could result in a malfunction of a structure, system, or component important to safety with a different result than previously evaluated in the Updated Safety Analysis Report. Specifically, the operability evaluation under CR 2013-00273 relied on an inadequate compensatory measure that results in the inoperability of raw water pump C. This configuration differs from Updated Safety Analysis Report, Section 9.8.4.3, which states, “if all normal power sources are lost and only one emergency diesel-generator functions, a minimum of two raw water pumps would operate if the river water temperature is greater than 60°F.” Because this violation was of very low safety significance, the associated traditional enforcement violation was screened as Severity Level IV, and each violation has been entered into the licensee’s corrective action program as CR 2014-09104 and CR 2014-08515, respectively, this violation is being treated as a non-cited violation, consistent with the Enforcement Policy: NCV 05000285/2014009-03, “Failure to Adequately Perform an Operability Evaluation and a 50.59 Evaluation.”

d. Failure to Perform an Evaluation for a New Operator Manual Action to Refill Component Cooling Water System During Post-Accident Conditions

Introduction. A non-cited violation of 10 CFR 50.59, “Changes, Test, and Experiments,” was identified involving the failure to evaluate if a change to the facility as described in the Updated Safety Analysis Report would require prior NRC review and approval. Specifically, the licensee did not evaluate if a change implemented under Engineering Change EC 59252 that credited the non-safety related demineralized water system as a make-up source to the component cooling water system during post-accident conditions represented an adverse change to the Updated Safety Analysis Report described design function.

Description. The team reviewed EC 59252, "Incorporate Component Cooling Water System Leakage Criteria into Procedures," Revision 0, and associated 10 CFR 50.59 evaluation. This engineering change, developed in response to NCV 05000285/2013008-33, "Inadequate Operability Determination due to Failure to Establish Component Cooling Water System Leakage Criteria," established a compensatory measure to refill component cooling water system surge tank AC-2 at the end of the first 24 hours of a design basis accident to maintain component cooling water system operability. The manual action implemented by EC 59252 used the non-safety related demineralized water system as the credited source of make-up to maintain component cooling water system operability. The licensee incorporated this new manual operator action into station normal and abnormal procedures. The licensee's 10 CFR 50.59 screening completed on April 15, 2014, determined this manual action was not an adverse change to the Updated Safety Analysis Report described design function for component cooling water system and could be implemented without a formal 10 CFR 50.59 evaluation.

The team noted that the change implemented under EC 59252 introduced a new permanent manual action not described in the Updated Safety Analysis Report to maintain the component cooling water system operable during a design basis accident. Specifically, the team noted that Updated Safety Analysis Report, Section 9.7, "Component Cooling Water System," and Section 14, "Safety Analysis," did not describe a manual action to refill component cooling water system surge tank AC-2 during post-accident conditions. The team concluded that change implemented under EC 59252 required a 10 CFR 50.59 evaluation because it involved a manual operator action not currently described in the Updated Safety Analysis Report. The team also determined that the change implemented under EC 59252 would likely have required prior NRC review and approval because it relied on the non-safety-related demineralized water system to maintain the operability of the safety-related component cooling water system during accident conditions. The licensee entered this deficiency into their corrective action program for resolution as CR 2014-09151 and assigned action items to update EC 59252.

Analysis. The licensee's failure to perform an evaluation prior to implementing a proposed change described in the Updated Safety Analysis Report was a violation of 10 CFR 50.59. Because this violation had the potential to impact the NRC's ability to perform its regulatory function, the team evaluated the violation using traditional enforcement. In accordance with Section 2.1.3.E.6 of the NRC Enforcement Manual, the team evaluated this finding using the significance determination process to assess its significance. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the finding was of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program. Therefore, in accordance with Section 6.1.d.2 of the NRC

Enforcement Policy, the team characterized this performance deficiency as a Severity Level IV violation. The team determined that a cross-cutting aspect was not applicable because the issue involving the failure to perform an adequate 10 CFR 50.59 evaluation was strictly associated with a traditional enforcement violation.

Enforcement. Title 10 CFR 50.59, “Changes, Tests, and Experiments,” Section (c)(2) requires, in part, that a licensee shall obtain a license amendment prior to implementing a proposed change, test, or experiment if the change, test, or experiment would result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the Updated Safety Analysis Report. Title 10 CFR 50.59, Section (d)(1) states, in part, that the licensee shall maintain records of changes in the facility or procedures and that the records must include written evaluation that provides the bases for the determination that the change does not require a license amendment. Contrary to the above, since April 15, 2013, the licensee did not perform an evaluation for a design change that may have required NRC review and approval. Specifically, the licensee did not evaluate a new operator manual action to refill the component cooling water system surge tank AC-2 during post-accident conditions, which was not a described action in the Updated Safety Analysis Report. Because this violation was of very low safety significance and was entered into the licensee’s corrective action program as CR 2014-09151, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC’s Enforcement Policy: NCV 05000285/2014009-04, “Failure to Perform an Evaluation for a New Operator Manual Action to Refill Component Cooling Water System During Post-Accident Conditions.”

e. Inadequate Design Inputs into Safety Injection Piping Stress Calculation

Introduction. A Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” was identified involving the licensee’s failure to implement appropriate design control measures associated with a safety-related stress calculation for the safety injection system. Specifically, the team identified several unverified and potentially non-conservative inputs in Calculation FC07240, “Shutdown Cooling Piping Tee Finite Element Analysis,” used to analyze stresses on a pipe reduction tee in the safety injection system.

Description. In 2013, the licensee replaced piping and welds on the charging line and letdown line portions of the chemical and volume control system because this system was exposed to thermal cycles beyond those specified in the original design. During the modification to replace the degraded chemical and volume control system letdown and charging piping, the licensee discovered that a majority of the remaining small-bore piping in the chemical and volume control system did not meet the current licensing basis code allowable stress levels.

In response to this discovery, the licensee performed a root cause analysis under CR 2013-01796 to document the stress analysis results and the need to modify chemical and volume control system small bore piping supports to meet the code requirements for ANSI B31.7 piping. One of the licensee’s corrective actions included an extent-of-condition review of the stress calculations for the small-bore safety-related piping systems, including the reactor coolant system, safety injection system, auxiliary feedwater system, and raw water system. The licensee’s extent-of-condition review was to verify that these piping systems satisfied the code allowable stress limits.

During a review of the licensee's corrective actions, the NRC noted that CR 2013-07751 identified an overstressed pipe union-tee of seismic subsystem SI-201A at Node 21. To address the non-conforming condition, the licensee opted to use finite element analysis, in accordance with ASME NC-3673, to calculate the actual stress intensification factor for this pipe union-tee rather than a stress intensity factor using nominal dimensions and generic formulas specified by ASME. The original calculation determined a stress intensity factor of 2.06 using the nominal dimensions of the pipe and generic formulas specified by ASME. The licensee prepared pipe stress Calculation FC07240 to determine the actual stress intensity factor.

The team reviewed Calculation FC07240 and determined the calculation predicted a stress intensity factor of 1.83. To satisfy ASME code requirements, the piping tee required a stress intensity factor of less than 1.85. Because the analysis predicted a lower stress intensity factor than required, the licensee considered the corrective action closed. However, due to the uncertainty in finite element analyses, and the low margin (~1%) from the calculated value of 1.83 to the threshold ASME code value of 1.85, the team questioned the justification for some of the design inputs used to calculate the stress intensity factor. Specifically, the team found that Calculation FC07240 stated "a modulus of elasticity of  $29 \times 10^6$  psi was used in all analyses . . . the ASME code specified cold modulus of elasticity is  $28.3 \times 10^6$  psi . . . the difference has no impact on the results." The team questioned the technical justification for deviating from the ASME specified values for the elastic modulus.

Additionally, the team reviewed the methodology used in the finite element analysis, and found that the calculation also stated, "[piping] wall thickness values are based on 95% of the field measured thickness of the actual tee." The inspectors reviewed the calculation assumed thickness data and found that it was not 95% of the field measured thickness. The finite element analysis used thickness values as much as 12% different than what was measured in the field. Further, the NRC questioned why the calculation would assume 95% thickness instead of the actual measured data since the stress intensity factor is dependent on the geometry change in the tapered diameter of the pipe, not necessarily wall thickness. Finally, the NRC reviewed the maintenance logs for the field measured data and observed that there was difficulty in obtaining the field measurements because of the tooling limitations – specifically "[ultrasonic test] readings at the true crotch of the tee could not be obtained due to signal attenuation and the surface curvature. The reading was taken about ½ inch up."

The licensee did not have any technical justification for why the calculation deviated from the specified methodology or the measured field data for the piping tee. Given the low margin results and inherent uncertainty with finite element analysis, the team found that the design inputs to the finite element analysis did not have an adequate technical basis and were potentially non-conservative. The licensee entered this issue into the corrective action program as CR 2014-09098 and initiated action to update Calculation FC07240.

Analysis. The failure to control design inputs as required by 10 CFR Part 50, Appendix B, Criterion III, was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it affected the design control attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of components that respond to initiating events. The team

performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of human performance in that the licensee failed to apply the appropriate rigor when evaluating the overstressed pipe union tee [H.6].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires in part that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in §50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled. Contrary to the above, prior to July 25, 2014, the licensee failed to establish measures to assure that applicable regulatory requirements and the design basis were correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to control the design inputs into the safety related stress Calculation FC07240 for the piping tee in seismic subsystem SI-201A. The licensee took immediate action to confirm the operability of the piping tee for seismic subsystem SI-201A to determine the scope of the problem. Because this violation was of very low safety significance and entered into the licensee's corrective action program as CR 2014-09098, it is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC's Enforcement Policy: NCV 05000285/2014009-05, "Inadequate Design Inputs into Safety Injection Piping Stress Calculation."

f. Failure to Maintain Design Control of Raw Water Strainer Control Panel

Introduction. A self-revealing Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified involving with the licensee's failure to maintain design control of the safety related raw water strainer AC-12B control panel AI-348. Specifically, the licensee failed to adequately design control panel AI-348 to protect it from the effects of spraying and wetting as required by the plant's licensing and design basis.

Description. On February 14, 2013, a fire protection leak of approximately 2-3 gallons per minute from the diesel fire pump FP-1B strainer FB-6B in the intake structure leaked onto control panel AI-348 for raw water strainer AC-12B. The water caused a trouble alarm, presumably resulting from a ground. The licensee entered this deficiency into their corrective action program for resolution as CR-2013-03301. On June 3, 2014, a severe weather event damaged the intake structure roof and caused a similar water intrusion event. For this event, water leaked from an intake structure roof drain onto the floor near strainer FP-6B and into control panel AI-348 again causing a trouble alarm. The water in control panel AI-348 resulted in a blown fuse and loss of power to drive

motor strainer AC-12B and required operations to enter into a 12-hour shutdown Technical Specification 2.4(2)d, "Containment Cooling," action statement. The licensee entered this deficiency into their corrective action program as CR 2014-06974.

The licensee's apparent cause analysis for CR 2014-06974 concluded that loss of control panel AI-348 due to water intrusion on June 3, 2014, was because Engineering Change EC 41587, "Raw Water Strainer Upgrade," Revision 0, did not consider the many sources of water in the raw water vault when specifying the encasement of the control system. The station initiated corrective actions to repair the intake structure roof storm damage and long term corrective actions to prevent water intrusion into control panel AI-348.

The team reviewed the licensee's apparent cause analysis documented in CR 2014-06974 and concluded that the design for control panel AI-348 as specified in EC 41587 was inadequate because the component was not protected from the effects of spraying and wetting as required by the facility-licensing basis. Specifically, the team noted that safety evaluation report to License Amendment 40, "Regarding the Potential Flooding from Postulated Ruptures of Non-Category I (Seismic) Systems," dated February 16, 1978, Item 3.2.1, states that the licensee will analyze the effects of a rupture of fire water piping to be installed on safety related equipment.

On August 3, 2013, an additional event occurred where water leaked through the intake structure roof and onto control panel AI-348. Similar to the previous events, the water intrusion resulted in a blown fuse and loss of power to drive motor strainer AC-12B and an unplanned entry into the 12-hour shutdown Technical Specification 2.4(2)d, "Containment Cooling." Following this event, the licensee implemented corrective actions to seal conduits leading to control panel AI-348 to prevent future water intrusion. The licensee entered this issue into their corrective action program as CR 2014-09572.

Analysis. The failure to account for the design basis requirements involving spray and wetting for raw water strainer AC-12B control panel AI-348 was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, control panel AI-348 was not adequately designed to prevent water intrusion that resulted in a loss of power to raw water strainer AC-12B. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding was of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program; and (5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event.



This finding has a cross-cutting aspect in the area of problem identification and resolution associated with the organization thoroughly evaluating issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance [P.2].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires in part that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in §50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, from 2010 until June 2013, measures established by the licensee did not assure that applicable regulatory requirements and the design bases, as defined in 10 CFR 50.2 and as specified, were correctly translated into specifications, drawings procedure, and instructions. Specifically, EC 41587, "Raw Water Strainer Upgrade," Revision 0, did not adequately account for the effects of water intrusion into safety related control panel AI-348 from breaks of the fire protection and circulating water piping, water through the intact structure roof, and external flooding in the raw water vault. Because this violation was of very low safety significance and entered into the licensee's corrective action program as CR 2013-03301 and CR 2014-06974, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000285/2014009-06, "Failure to Maintain Design Control of Raw Water Strainer Control Panel."

g. Failure to Accurately Model Flow Path for External Flood Mitigation

Introduction. A Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified involving the failure to appropriately model cell level control of river water during external flooding events. Specifically, the licensee failed to account for losses due to the physical obstructions of trash racks for inflowing river water, the decreased withdrawal rate of the raw water pumps due to fouling across the traveling screens, and a bounding inleakage rate for the sluice gates when the river level is at a maximum level of 1014' mean sea level (msl) and the intake cell levels are at minimum level of 976'9".

Description. The team reviewed Calculation FC08081, "Sizing and Selection for Intake Cell Flood Water Inlet Valves for the AOP-1 Raw Water Flowpath," Revision 0, completed in December 2012, which includes maximum flow into the 18" trash rack blowdown pipe when the river level is increased during an external flooding event. The licensee did not account for loss of flow across the trash racks, which are metal grates that extend the length of the river side of the intake structure to prevent large debris from flowing into the cells. Additionally, the calculation does not include the bounding value of maximum inleakage past the sluice gates when river level has reached 1014' msl and the cell level has been decreased to 976'9" with the running of the raw water pumps. This maximum differential in elevated river level and minimized intake cell level creates a head pressure of ~37' on the sluice gates, which could result in inleakage exceeding the estimated flow rate of 750 gallons per minute, as stated in the Updated Safety Analysis Report. An accurate account of the amount of river water flowing into the cells, from both the blowdown pipe and leakage past the sluice gates, is important in order to ensure the raw water pumps can withdraw enough of the river water to keep the motors from being submerged and ensure the external flooding mitigation strategy will be successful.

The team noted that the NRC had previously issued NCV 05000285/2013008-10, "Failure to Accurately Model Raw Water Flow into the Intake Structure," documenting that a similar calculation did not account for flow losses across the trash racks but that the licensee had not incorporated this operating experience into Calculation FC08081. The licensee entered this issue into their licensee's corrective action program as CR 2014-09155, performed an operability determination, and initiated action to update Calculation FC08081.

Analysis. The failure to accurately model cell level control of river water during external flooding events was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because if left uncorrected, the finding would have the potential to lead to a more significant safety concern. Specifically, the failure to accurately model actual flow in and out of the cells may challenge the external flooding mitigation strategy beyond previously identified equipment capacities. This finding was associated with the Mitigating Systems Cornerstone. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program; and (5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event. This finding has a cross-cutting aspect in the area of problem identification and resolution, operating experience, in that the licensee failed to incorporate relevant internal operating experience related to previous NRC inspection into Calculation FC08081 [P.5].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires in part that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in §50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, prior to July 25, 2014, the licensee failed to accurately model cell level control of river water during external flooding events. Specifically, the calculation currently used by the licensee fails to account for losses across the trash racks, traveling screens, and the bounding case of maximum inleakage past the sluice gates. Because this finding was of very low safety significance and entered into the licensee's corrective action program as CR 2014-09155, this violation is being treated as a non-cited violation in accordance with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000285/2014009-07, "Failure to Accurately Model Flow Path for External Flood Mitigation."

h. Failure to Report Loss of Environmental Qualification of Safety Related Limit Switches within Required Time Limits

Introduction. A Severity Level IV non-cited violation of 10 CFR 50.73(a)(1), "Licensee Event Report System," was identified involving the failure to submit a required licensee event report. Specifically, the licensee failed to report within 60 days the discovery that Namco™ Type EA 180 limit switches were not meeting environmental qualifications due to inadequate maintenance procedures, a condition that resulted in operation prohibited by the plant's technical specifications.

Description. On May 3, 2012, the licensee initiated CR 2012-03651 documenting a concern that the licensee's current maintenance and surveillance instructions for Namco™ Type EA 180 limit switches differed from the maintenance and surveillance instructions contained in the vendor manual for the equipment. In particular, CR 2012-03651 identified that the vendor manual provided torque values of 20-25 inch-pounds for the top cover screws whereas the licensee's maintenance procedure only required a torque value of between 19-21 inch-pounds for the top cover screws. During an evaluation of these maintenance practice discrepancies, the licensee contacted the limit switch vendor concerning permissible torquing values and the potential impact to the environmental qualification of the limit switch. The vendor informed the licensee that with a switch cover only torqued to 19 inch-pounds, the installed configuration, would not match the as-tested condition and there would be no data to support the acceptability of the use of the switch in a harsh environment.

The licensee reviewed the reportability of the issues identified under CR 2012-03651, Action Item 11. The licensee's reportability evaluation determined that issues identified in CR 2011-10129 bound the loss of environmental qualifications for Namco™ Type EA 180 limit switches. This condition report identified a lack of analysis of the temperature conditions for a main steam line break inside containment and that the environmental qualification of equipment including the Namco™ limit switches could be challenged. The licensee's review of the issues identified in CR 2011-10129 ultimately determined that temperature conditions inside containment following a main steam line break did not challenge environmental qualification limits. However, the licensee's analysis for CR 2011-10129 did not consider the configuration control issues identified in CR 2012-03651. Specifically, the licensee did not consider that Namco™ limit switches, because of inadequate maintenance procedures, might not be sufficiently leak tight to ensure their ability to function in a harsh environment. On April 24, 2014, the licensee initiated CR 2014-05237 to document that the reportability evaluation for CR 2012-03651 incorrectly considered the analysis performed for CR 2011-10129. On June 20, 2014, the licensee submitted Licensee Event Report (LER) 05000285/2014-004, "Unqualified Limit Switches Render Safety Equipment Inoperable," documenting that the condition in CR 2012-03651 could result in a loss of environmental qualification and loss of operability of several safety related systems.

The team reviewed CR 2011-10129, CR 2012-03651, CR 2014-05237, and LER 05000295/2014-004 and noted that the licensee event report identified an event discovery date of April 24, 2014, that corresponded to the initiation of CR 2014-05237. The team determined that this event discovery date was incorrect and not consistent with the reportability guidance contained in NUREG 1022, "Event Report Guidelines 10 CFR 50.72 and 50.73," Revision 3, Section 2.5, which states that "the discovery date is generally the date when the event was discovered rather than the date when an

evaluation of the event is completed.” The team determined that the discovery date was May 3, 2012, when it was first identified that the licensee’s current maintenance and surveillance instructions for Namco™ Type EA 180 limit switches differed from the maintenance and surveillance instructions contained in the vendor manual. Based on a May 3, 2012, discovery date, the team determined that a licensee event report needed to be submitted by July 2, 2012, as required in 10 CFR 50.73. The licensee entered this non-compliance involving a late report into its corrective action program as CR 2014-08454.

Analysis. The failure to submit a licensee event report within the time limits specified in regulations was a violation of 10 CFR 50.73. This violation was evaluated using Section 2.2.4 of the NRC Enforcement Policy, because the failure to submit a required licensee event report may impact the ability of the NRC to perform its regulatory oversight function. As a result, this violation was evaluated using traditional enforcement. In accordance with Section 6.9 of the NRC Enforcement Policy, this violation was determined to be a Severity Level IV, non-cited violation. The team determined that a cross-cutting aspect was not applicable because the issue involving untimely reports to the NRC was strictly associated with a traditional enforcement violation.

Enforcement. Title 10 CFR Part 50.73(a)(1), “Licensee Event Report System,” requires, in part, that licensees shall submit a licensee event report for any event of the type described in this paragraph within 60 days after the discovery of the event. Contrary to the above, on July 2, 2013, the licensee failed to submit a licensee event report for an event meeting the requirements for reporting specified in 10 CFR 50.73. Because this violation was of very low safety significance and entered into the licensee’s corrective action program as CR 2014-08454, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000285/2014009-08, “Failure to Report Loss of Environmental Qualification of Safety Related Limit Switches within Required Time Limits.”

i. Failure to Incorporate Design Requirements for Switchgear Room Cooling

Introduction. A Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” was identified involving the failure to incorporate applicable design requirements into the specifications for plant systems. Specifically, the team identified that FCS failed to implement adequate design control measures when analyzing the ability of vital switchgear room cooling to ensure operability requirements are satisfied for the associated equipment under all design conditions.

Description. On April 3, 2014, the NRC issued NCV 05000285/2013013-13, “Failure to Incorporate Design Requirements for Switchgear Room Cooling,” documenting that the licensee failed to incorporate applicable cooling design requirements into specifications for the vital switchgear ventilation system. This non-cited violation identified that the Fort Calhoun Station Final Safety Analysis Report and the Updated Safety Analysis Report both state that the vital switchgear rooms are cooled by a ventilation system that is capable of maintaining it below the operability requirements of the equipment under all conditions and that the licensee’s existing analysis demonstrated that the installed auxiliary building ventilation was not capable of maintaining the vital switchgear room’s temperature under the design limits. The non-cited violation also identified that the licensee’s use of additional cooling units that were not designated as safety-related

components and that were not capable of functioning during all design events resulted in a condition where the station did not have sufficient analysis to demonstrate the capability of the auxiliary building ventilation system of maintaining the room temperatures under all conditions.

The licensee initiated CR 2012-09804 and CR 2013-17288 to capture the non-compliance documented in NCV 05000285/2013013-13. These condition reports identified that following a high energy line break event outside containment, the supporting calculations determined that auxiliary building Rooms 56E and 56W (the east and west vital switchgear rooms) would become a harsh environment due to the consequential effects involving a loss of ventilation. Without restoration of this ventilation, temperatures would rise and exceed the harsh environmental threshold, and challenge the qualification of electrical equipment. Condition Reports 2012-09804 and 2013-17288 went on to identify that Fort Calhoun Station did not have existing analysis that demonstrates that supplemental cooling provided in Procedure OI-VA-2, "Auxiliary Building Ventilation System Normal Operation," Revision 44, would be effective in maintaining the temperature of the switchgear rooms within analyzed limits. As corrective action, CR 2013-17288, Action Item 4, established an action to provide a calculation that demonstrates the manual actions in Procedure OI-VA-2 would be effective or to revise the procedure as necessary.

As corrective action to address NCV 05000285/2013013-13, Fort Calhoun Station staff prepared Calculation FC6102, "Switchgear Heatup Analysis," Revision 2. This revision to the calculation added Attachment 1, "Evaluation of Supplemental Switchgear Room Cooling," which analyzed the ability of supplemental switchgear cooling in one specific scenario, a loss of switchgear cooling that occurred in 1998. The licensee did not document the actual heat load and cooling capability associated with the 1998 event. Instead, the licensee used the documented room heat-up during this event to calculate a total combined heat load for the east and west switchgear rooms of 16,307 Btu/hr. The licensee then determined that supplemental cooling for the east and west switchgear rooms would be adequate because the cooling capability would exceed 16,307 Btu/hr.

The team reviewed Calculation FC6102, Attachment 1, and identified that it failed to translate the design basis requirements of switchgear room cooling because it used a non-conservative heat load developed from a 1998 event rather than the actual heat load expected during the most bounding design basis event. Specifically, the 16,307 Btu/hr heat load assumed in Calculation FC0612, Attachment 1, represented only a small fraction of the actual heat load (approximately 473,000 Btu/hr) placed on the cooling units used to maintain vital switchgear room temperatures below equipment operability limits. Consequently, the team determined that the licensee's corrective action was inadequate because they failed to analyze the ability of switchgear cooling including an appropriate use of supplemental cooling to maintain room temperature below limits during all design scenarios.

The licensee entered this issue into the corrective action program as CR 2014-08317 and initiated actions to analyze the ability of vital switchgear room cooling to meet its specified safety function.

Analysis. The failure to incorporate applicable design requirements into specifications for vital switchgear cooling was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it affected the design control

attribute of the Mitigating Systems Cornerstone, and it directly affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the evaluation component of the problem identification and resolution cross-cutting area because the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, the licensee failed to analyze and evaluate a 1998 loss of switchgear cooling event to ensure that its use as a design assumption bound the worst design basis event [P.2].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires in part that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in §50.2 and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, from initial construction until present, measures established by the licensee did not assure that applicable regulatory requirements and design bases were correctly translated into specifications, drawings, procedures, and instructions. Specifically, measures established by the licensee did not assure that the vital switchgear ventilation system was capable of maintaining the rooms' temperature below design requirements under all conditions. This issue does not represent an immediate safety concern because the licensee has compensatory measures in place to maintain room temperatures. Because this violation was of very low safety significance and was entered into the licensee's corrective action program as CR 2014-08317, it is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC's Enforcement Manual: NCV 05000285/2014009-09, "Failure to Incorporate Design Requirements for Switchgear Room Cooling."

j. Deficient Evaluation of NRC Bulletin 88-04, Strong Pump Weak Pump Due to Failure to Consider the Effect of AFW Pumps Discharge Check Valves Leakage

Introduction. A Green cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified involving the failure to properly evaluate NRC Bulletin 88-04, "Potential Safety-Related Pump Loss." Specifically, the licensee failed to evaluate for strong pump-weak pump interaction between auxiliary feedwater pumps FW-6 and FW-10.

Description. On July 15, 2013, the NRC issued NCV 05000285/2013008-36, "Deficient Evaluation of NRC Bulletin 88-04, Strong Pump Weak Pump Due to Failure to Consider the Effect of AFW Pumps Discharge Check Valves Leakage," involving the licensee's failure to properly evaluate NRC Bulletin 88-04, "Potential Safety-Related Pump Loss,"

regarding the auxiliary feedwater pumps. Specifically, the non-cited violation identified that the licensee failed to evaluate for strong pump-weak pump interaction between pumps FW-6 and FW-10. In particular, the licensee failed to consider pump-to-pump interaction due to pump discharge check valve leakage. The licensee entered this deficiency into their corrective action program as CR-2013-04680 and CR 2013-04806 and generated Calculation FC08310, "Auxiliary Feedwater (AFW) Motor Driven Pump FW-6 and Turbine Driven Pump FW-10 Performance and Runout Evaluation," Revision 0, as a corrective action to address NCV 05000285/2013008-36. The team reviewed Calculation FC08310 and noted that the evaluation states in part,

Condition Report CR-2013-04680 identifies a strong pump, weak pump condition where there is potential for inadequate recirculation flow FW-6 caused by leakage past FW-6 discharge check valve FW-173. FW-10 is a stronger pump and may force check valve FW-173 to close if both pumps are in operation. Leakage past FW-173 would flow through the FW-6 recirculation line and potentially reduce the amount of FW-6 minimum flow below the required minimum of 50 gallon per minute. Based on a review of surveillance testing procedures, this event is not credible for the following reasons: 1) FW-173 is currently tested for closure by checking pressure rise and FW-6 shaft rotation. Additionally, valve FW-173 is inspected by measuring upstream temperature during operator rounds; 2) The check valves are designed with seat leakage in accordance with MSS-SP-61, "Hydrostatic Testing of Steel Valves." The allowable leakage for a 4" NPS check valve is well below 1 gallon per minute. The station concludes that existing station procedures and check valve design are adequate to ensure that leakage across check valves FW-173 and FW-174 will not prevent delivery of the minimum required AFW flows or damage to FW-6 through FW-173 leakage when both pumps are running. Therefore no additional testing or procedure changes are required.

The team determined that the evaluation documented in Calculation FC08310 did not adequately address the issue identified in NCV 05000285/2013008-36. Specifically, the evaluation did not consider pump-to-pump interaction that may result due to pump discharge check valve leakage. The team noted, as did the previous NRC inspection, that surveillance testing performed on November 28, 2010, and September 1, 2012, identified leakage past both pump discharge check valves. The team determined that the applicable pump surveillance testing verified the check valve closed, but did not measure check valve leakage.

The licensee entered this issue into the corrective action program as CR 2014-08381 and initiated actions to re-evaluate NRC Bulletin 88-04.

Analysis. The failure to ensure proper evaluation of Bulletin 88-04 to minimize and manage, or eliminate, the potential for auxiliary feedwater pump damage was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The

Significance Determination Process (SDP) for Findings At-Power.” Using IMC 0609, Appendix A, Exhibit 2, “Mitigating Systems Screening Questions,” dated July 1, 2012, the finding was of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee’s maintenance rule program. This finding has a cross-cutting aspect in the area of human performance because the licensee failed to demonstrate a conservative bias in decision making-practices. Specifically, the licensee’s determination that the event is not credible failed to consider documented check valve leakage in the auxiliary feedwater system [H.14].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” requires in part that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in §50.2, and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, as of November 28, 2010, measures established by the licensee did not assure that applicable regulatory requirements and design bases were correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to properly evaluate NRC Bulletin 88-04, “Potential Safety-Related Pump Loss,” for strong pump, weak pump, interaction regarding auxiliary feedwater pumps FW-6 and FW-10, which are considered safety-related pumps. The licensee’s evaluation documented in Calculation FC08310, “Auxiliary Feedwater (AFW) Motor Driven Pump FW-6 and Turbine Driven Pump FW-10 Performance and Runout Evaluation,” Revision 0, failed to consider pump-to-pump interaction that may result due to pump discharge check valve leakage. In addition, the licensee failed to re-evaluate the condition after surveillance testing performed on November 28, 2010, and September 1, 2012, identified leakage past both pump discharge check valves. The licensee entered this issue into the corrective action program as CR 2014-08381. Although this violation is of very low safety significance, the team determined that the licensee did not restore compliance within a reasonable time after NCV 05000285/2013008-36 was issued and had closed Condition Report 2013-4680, Action Item 1, on October 4, 2013, that was written to address the NCV. Therefore, this violation is being cited in a Notice of Violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: VIO 05000285/2014009-10, “Deficient Evaluation of NRC Bulletin 88-04, Strong Pump Weak Pump Due to Failure to Consider the Effect of Auxiliary Feedwater Pumps Discharge Check Valves Leakage.”

k. Failure to Ensure Safe Operations at Design Basis Low River Level

Introduction. A Green cited violation of 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” was identified involving the failure to ensure that the safety-related raw water pumps would be available to ensure safe operations down to the design basis low river level. Specifically, the team identified that the current analysis and abnormal operating procedures would not allow operation of the raw water pumps at the design basis low river water level.



Description. The team reviewed the licensee's corrective actions to address NCV 05000285/2013008-03, "Lack of Safety-Related Equipment for Design Basis Low River Level," which identified that the licensee failed to ensure that raw water cooling was provided down to the design basis low river level of 976'9" mean sea level (msl). Specifically, Procedure AOP-01, "Acts of Nature," Revision 33, instructs operators to secure the raw water pumps at an intake cell level of 976'9. The NRC determined that this procedure step would equate to an actual river level of 976'10" msl or higher because river level does not correspond to intake cell level due to flow losses and holdup within the intake structure. The presence of these components causes intake cell level to be at least 1" lower than the Missouri River, and in some cases more, depending on debris loading of individual components. The NRC also identified that the licensee did not have analysis that demonstrated that the raw water pumps would perform their specified safety function at the design basis low river level 976'9" msl because the vendor had instructed the licensee not to operate the raw water pumps below 976'9" water (cell) level.

The team reviewed Procedure AOP-1 and CR 2013-04169 used to correct the issues identified in NCV 05000285/2013008-03. The team found that the current revision of Procedure AOP-1 still directed securing of the raw water pumps at an intake cell level of 976'9". Additionally, the team noted that CR 2013-04169, Action 1, written to address the NCV was closed on September 27, 2013. Consequently, the team determined that the licensee failed to restore compliance within a reasonable time after the previous NRC violation because they did not ensure that raw water cooling was provided down to the design basis low river level of 976'9" msl. The team noted that the condition report included actions to consult with the raw water pump vendor but that the licensee had not taken actions to contract for this vendor service to update the minimum submergence level analysis for raw water pumps.

The licensee entered this issue into the corrective action program as CR 2014-09159 which included actions to re-evaluate the capability of the raw water pumps to operate at low river levels.

Analysis. The failure to have safety-related equipment to ensure safe operations down to the design basis low river level was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the associated cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the finding was of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's

maintenance rule program. This finding has a cross-cutting aspect in the area of human performance in that the licensee did not ensure that personnel, equipment, procedures, and other resources are available and adequate to support nuclear safety. Specifically, the licensee deferred funding for a vendor analysis of the capabilities of the raw water pumps at the design low river level [H.1].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in §50.2, and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. Licensee's procedure AOP-01, "Acts of Nature," Revision 33, instructs operators to secure the raw water pumps at an intake cell level of 976'9". Contrary to the above, from initial plant operations to present, measures established by the licensee failed to assure that applicable regulatory requirements and the design basis for those components are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to ensure that raw water cooling was provided down to the design basis low river level of 976'9" mean sea level. The intake cell level in the licensee's procedure AOP-01, is not equivalent to mean sea level. As a result, the licensee failed to ensure the associated specifications and procedures support raw water pump operations, which are safety related pumps, to support the plant's cooling systems. The licensee entered this issue into the corrective action program as CR 2014-09159. Although this violation is of very low safety significance, the team determined that the licensee did not restore compliance within a reasonable time after NCV 05000285/2013008-03 was issued and had closed Condition Report 2013-4169, Action Item 1, on September 27, 2013, that was written to address the NCV. Therefore, this violation is being cited in a Notice of Violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: VIO 05000285/2014009-11, "Failure to Ensure Safe Operations at Design Basis Low River Level."

I. Failure to Maintain Effectiveness of an Emergency Plan

Introduction. A Green cited violation of 10 CFR 50.54(q)(2), "Conditions of License," was identified involving the failure to maintain the effectiveness of the site's emergency plan. Specifically, the licensee established an "Alert" low river level emergency classification criteria that was below the raw water pump's minimum suction requirements, contrary to the standard emergency action level scheme.

Description. The team reviewed the licensee's corrective actions to address NCV 05000285/2013008-04, "Non-Conservative Value for Declaring An "Alert" on Low River Level," which identified that the low review level "Alert" emergency action level at 973'9 msl was non-conservative because it would be declared below the minimum suction requirements for the raw water pumps. The raw water pump minimum suction requirement is 973'9 water (cell) level. However, because river level does not correspond to intake cell level due to flow losses and holdup within the intake structure, river level would have to be at least 973'10" msl to provide an adequate suction for the raw water pumps. Additionally, the NRC identified that FCS calculations indicated that vortexing would begin at an intake cell level of 974'10". Thus, NCV 05000285/2013008-04 concluded that the licensee's low river level "Alert" emergency action level was non-conservative since intake cell level would be below suction requirements for the raw water pump. The licensee's emergency action level

scheme is based on the guidance in NEI 99-01, "Methodology for Development of Emergency Action Levels," Revision 5, which describes declaring an "Alert" when the function of a safety system is threatened by hazardous events such as low river level.

The team reviewed CR 2013-04198 that addressed NCV 05000285/2013008-04 and found that the licensee closed the condition report actions items without addressing the condition described in the violation on February 2, 2014. The team also reviewed the current emergency action levels and identified that low river level "Alert" emergency action level at 973'9" msl continues to be non-conservative because it would be declared below the minimum suction requirements for the raw water pumps. Therefore, the team concluded that the licensee failed to restore compliance within a reasonable time after the previous NRC violation and failed to maintain a standard emergency action level scheme in accordance with the requirements of 10 CFR 50.47(b)(4).

The licensee entered this issue into the corrective action program as CR 2014-08757 which included actions to re-evaluate the capability of the raw water pumps to operate at low river levels.

Analysis. The failure to maintain the effectiveness of an emergency plan was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it is associated with the emergency response organization performance attribute of the Emergency Preparedness Cornerstone and affected the associated cornerstone objective to ensure that the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, inaccurate emergency actions levels degrade the licensee's ability to implement adequate measures to protect public health and safety. The finding was evaluated using the Emergency Preparedness Significance Determination Process, and was determined to be of very low safety significance (Green) because the finding was not a lost or degraded risk significant planning function. The planning standard function was not degraded because the emergency classifications would have been declared although potentially in a delayed manner. This finding has a cross-cutting aspect in the area of human performance in that the licensee did not ensure that personnel, equipment, procedures and other resources are available and adequate to support nuclear safety. Specifically, the licensee deferred funding for a vendor analysis of the capabilities of the raw water pumps at the design low river level [H.1].

Enforcement. 10 CFR Part 50.54(q)(2), "Conditions of License," requires, in part, that a nuclear power reactor licensee shall follow and maintain the effectiveness of an emergency plan that meets the requirements of Appendix E to Part 50 and the planning standards of 10 CFR 50.47(b). 10 CFR 50.47(b)(4), requires, in part, that a standard emergency classification and action level scheme, is in use by the nuclear facility licensee. Contrary to the above, as of May 14, 2009, the licensee failed to maintain the effectiveness of the emergency plan, by not maintaining a standard emergency classification and action level scheme. Specifically, the emergency action level scheme was not maintained because emergency action level HA1, "Natural or destructive phenomena affecting the Protected Area," contained an inaccurate river level of 973'9" mean sea level. The river level was inaccurate because the basis document, Procedure TBD-EPIP-OSC-1H, "Recognition Category H – Hazards and Other Conditions Affecting Plant Safety," Revision 2, stated the emergency action level was based on the minimum elevation of the raw water pump suction. Because the river level does not correspond to

intake cell level, then the river level would have to be at least 973'10" mean sea level to provide an adequate suction for the raw water pumps. The licensee entered this issue into the corrective action program as CR 2014-08757. Although this violation is of very low safety significance, the team determined that the licensee did not restore compliance within a reasonable time after NCV 05000285/2013008-04 was issued and had closed Condition Report 2013-4198, Action Item 3, on February 2, 2014, that was written to address the NCV. Therefore, this violation is being cited in a Notice of Violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: VIO 05000285/2014009-12, "Failure to Maintain Effectiveness of an Emergency Plan."

m. Failure to Perform Evaluation for Design Change

Introduction. A Severity Level IV cited violation of 10 CFR Part 50.59, "Changes, Tests, and Experiments," was identified involving the failure to perform an evaluation for a design change that may have required prior NRC review and approval. Specifically, the licensee did not evaluate a change that would permanently substitute a manual action for an automatic action to add water and nitrogen gas to the component cooling water surge tank.

Description. The team reviewed the licensee's corrective actions to address NCV 05000285/2013008-28, "Failure to Perform an Evaluation for a Change to Component Cooling Water Make-Up," which identified that the licensee failed to perform a 10 CFR 50.59 evaluation for a design change that may have required NRC review and approval. Specifically, the non-cited violation identified that the licensee failed to perform a 10 CFR 50.59 evaluation of Engineering Change EC 41455, "CCW Surge Tank Class Boundary Component Upgrades," that replaced an automatic function with a manual action. These changes involved permanent, manual operator actions to isolate valves associated with adding water and nitrogen gas to the component cooling water surge tank during normal operations. The previous NRC inspection noted that Updated Safety Analysis Report, Section 9.7.4.1, stated, in part, that the make-up to the component cooling water system was pumped to the surge tank from the demineralized water system through an automatic open-shut valve which was actuated by a level control switch on the surge tank. In NCV 05000285/2013008-28 the NRC identified manual actions implemented under EC 41455 was an adverse change to the normally automatic design function for the component cooling water system and required a 10 CFR 50.59 evaluation to determine if the change resulted in a more than a minimal increase in the likelihood of occurrence of a malfunction of a system, structure, or component important to safety previously evaluated in the Updated Safety Analysis Report.

The team reviewed CR 2014-04417 initiated by the licensee to correct the issues identified in NCV 05000285/2013008-28. The team identified that the action items associated with this condition report were closed on May 28, 2013, and failed to identify that the change implemented under EC 41455 was adverse and consequently the licensee failed to complete a required 10 CFR 50.59 evaluation. Consequently, the team determined the licensee failed to restore compliance within a reasonable time after the previous NRC violation.

The licensee entered this issue into the corrective action program as CR 2014-09080 and initiated action to evaluate the change to the component cooling water system.

Analysis. The failure to perform an evaluation prior to implementing a proposed change described in the Updated Safety Analysis Report was a violation of 10 CFR 50.59. Because this performance deficiency had the potential to impact the NRC's ability to perform its regulatory function, the team evaluated the performance deficiency using traditional enforcement. In accordance with Part II, Section 2.1.3.E.6 of the NRC Enforcement Manual, the team evaluated this finding using the significance determination process to assess its significance. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the team determined that the finding was of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its technical specification allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program. Therefore, in accordance with Section 6.1.d.2 of the NRC Enforcement Policy, the team characterized this performance deficiency as a Severity Level IV violation. The team determined that a cross-cutting aspect was not applicable to this finding because the issue was strictly associated with a traditional enforcement violation.

Enforcement. 10 CFR Part 50.59(c)(2)(ii), "Changes, Tests, and Experiments," requires, in part, that a licensee shall obtain a license amendment prior to implementing a proposed change, test, or experiment if the change, test, or experiment would result in more than a minimal increase in the likelihood of occurrence of a malfunction of a structure, system, or component important to safety previously evaluated in the final safety analysis report (as updated). 10 CFR 50.59(d)(1) requires, in part, that the licensee shall maintain records of changes in the facility or procedures and that the records must include a written evaluation which provides the bases for the determination that the change does not require a license amendment. Contrary to the above, as of June 2008, the licensee did not perform a written evaluation for a design change that may have required NRC review and approval. Specifically, the licensee did not evaluate a change that would permanently substitute manual actions for an automatic action to add water and nitrogen gas to the component cooling water surge tank, which is an Updated Safety Analysis Report described design function for the component cooling water system. The licensee entered this condition into their corrective action program as CR 2014-09080. Although this violation is of very low safety significance, the team determined that the licensee did not restore compliance within a reasonable time after NCV 05000285/2013008-013 was issued and had closed Condition Report 2013-4417, Action Item 3, on May 28, 2013, that was written to address the NCV. Therefore, this violation is being cited in a Notice of Violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: VIO 05000285/2014009-13, "Failure to Perform Evaluation for Design Change."

n. Failure to Account for Worst Case Diesel Frequency in Fuel Oil Consumption Calculations

Introduction. A Green cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," was identified involving the failure to account for design basis conditions in station calculations. Specifically, the licensee failed to account for worst-case electrical frequency when analyzing diesel fuel oil consumption and storage requirements.

Description. The team reviewed the licensee's corrective actions to address NCV 05000285/2013008-06, "Failure to Account for Worst Case Conditions in Fuel Oil Inventory Calculation," which identified that the licensee failed to account for design basis conditions in their fuel oil consumption calculation. The team noted that Calculation FC08034, "Diesel Fuel Usage During a Severe Flooding Event," and Engineering Analysis FC-92-072, "Diesel Generator Loading Transient Analysis Using Paladin Design Base 4.0," Revision 7, discussed a frequency spectrum of 60.5 +/- 0.3 hertz for the emergency diesel generators but that calculations for fuel consumption did not assume that the diesel generators were run at 60.8 hertz (at the top end of the spectrum) for the entire 7-day period, or even at a higher maximum frequency, if applicable. The licensee's calculation assumes one diesel generator is secured to conserve fuel. The team determined that the emergency diesel generators could initially be operated as high as the 60.8 hertz value and a single failure could make frequency remain there for the entire 7-day mission time. The team noted that assuming worst-case frequency aligned with industry-operating experience in NRC Information Notice 2008-02, "Findings Identified During Component Design Bases Inspections." The information notice described that NRC inspectors identified instances where the emergency diesel generators' loading calculations failed to account for the increased electrical load resulting from operation at the maximum frequency allowed by technical specifications. Assuming a worst-case design frequency would be consistent with design practices.

The licensee initiated CR 2013-04311 and CR 2013-04470 to address NCV 05000285/2013008-06. The team found these condition reports were closed and that the current diesel fuel oil consumption calculations failed to account for emergency diesel generators running at 60.8 hertz (the top end of the spectrum) for the entire 7-day period. Consequently, the team determined that the licensee continued to be in violation of 10 CFR Part 50, Appendix B, Criterion III, for the failure to account for design basis conditions in their fuel oil consumption calculation and had failed to restore compliance within a reasonable time after NCV 05000285/2013008-06 was issued.

The licensee entered this issue into their corrective action program as CR 2014-09157 and initiated action to update station calculations.

Analysis. The failure to control design inputs associated with calculating diesel generator fuel oil consumption was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it affected the design control attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of components that respond to initiating events. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems

Screening Questions,” dated July 1, 2012, this finding is of very low safety significance (Green) because: (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee’s maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance [P.2].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, “Design Control,” requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in §50.2, and as specified in the license application, for those structures, systems, and components to which this appendix applies are correctly translated into specifications, drawings, procedures, and instructions. Engineering Analysis FC-92-072, “Diesel Generator Loading Transient Analysis Using Paladin Design Base 4.0,” Revision 7, discussed a frequency spectrum of 60.5 +/-0.3 hertz for the emergency diesel generators, which are safety-related components. Licensee’s Calculation FC08034, “Diesel Fuel Usage During a Severe Flooding Event,” does not assume that the diesel generators were run at 60.8 hertz for the entire 7-day mission time. Contrary to the above, as of June 2011, measures established by the licensee failed to assure that applicable regulatory requirements and the design basis for those components are correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee’s calculation for fuel consumption did not assume that the diesel generators were run at 60.8 hertz, for the entire 7-day mission time. As a result, the licensee failed to translate the worst-case design emergency diesel generator frequency of 60.8 hertz, which could impact the consumption of fuel oil, into the applicable design documentation. The licensee entered this condition into their corrective action program as CR 2014-09157. Although this violation is of very low safety significance, the team determined that the licensee did not restore compliance within a reasonable time after NCV 05000285/2013008-06 was issued and had closed Condition Report 2013-04311, Action Item 1, on September 30, 2013, that was written to address the NCV. Therefore, this violation is being cited in a Notice of Violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: VIO 05000285/2014009-14, “Failure to Account for Worst Case Diesel Frequency in Fuel Oil Consumption Calculations.”

o. Failure to Promptly Identify and Correct a Condition Adverse to Quality

Introduction. A Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” was identified involving the failure to take corrective actions for a condition adverse to quality. Specifically, the licensee failed to take corrective actions to address multiple issues involving gas voiding of the component cooling water system.

Description. On October 19, 2012, the licensee initiated CR 2012-15877 that documented several issues related to gas voiding in the component cooling water system including the identification of pressure transients and gas voids in the system. The team noted that the licensee initiated the following two actions items to address gas voiding in the component cooling water system. Action Item 1 required the licensee to

revise Procedure OI-CC-1, "Operating Instructions Component Cooling Water System Normal Operation," to include fill and vent steps for the entire system rather than just the component cooling water pumps and containment coolers. Action Item 2 documented the need for a system analysis related to gas coming out of solution. This action item referenced Recovery Item 10.3.5, "Component Cooling Water System Non-Cable Issues," which identified that the component cooling water system did not have an analysis that determined the amount and impact of gas coming out of solution during accident conditions.

The licensee closed CR 2012-15877, Action Item 1, on January 31, 2013, with no changes to Procedure OI-CC-1. The team noted that the current revision of Procedure OI-CC-1 only required venting the containment air coolers and component cooling water pumps, not the entire system. The licensee closed CR 2012-15877, Action Item 2, on November 29, 2013, with the completion of Engineering Analysis EA12-023, "Gas Intrusion into the Component Cooling Water System During Normal Operations," Revision 0. The team reviewed EA 12-023 and Recovery Item 10.3.5 and identified that no analysis existed to analyze performance of the component cooling water system to include the potential for gas formation during accident conditions.

The team identified that the station continued to discover gas voids in the component cooling water system following restoration after maintenance due to inadequate fill and vent activities. Specifically, the team identified the following instances where an inadequate fill and vent of the component cooling water system resulted in subsequent discovery of voiding in that system:

- March 8, 2013, the licensee initiated CR 2013-05280 that identified a loss of component cooling water and entry into the station's abnormal operating procedure due to an open relief valve. The licensee identified that the introduction of air into the system following maintenance was the apparent cause of the relief valve lifting and identified the need for more comprehensive fill and vent procedures.
- August 27, 2013, the licensee initiated CR 2013-16784 that identified component cooling water relief valve AC-286 was leaking. A simple cause evaluation determined that relief valve AC-286 lifted due to an inadequate fill and vent following relief valve leakage.
- September 9, 2013, the licensee initiated CR 2013-17365 that identified a water hammer near relief valve AC-286. While no formal investigation was performed, the licensee suggested that an inadequate fill and vent following maintenance may have been the cause of the water hammer.

Based on the continued discovery of voids in the component cooling water system following restoration from maintenance, the team determined that the licensee's corrective actions did not adequately address the inadequacies with fill and vent Procedure OI-CC-1. Additionally, the team determined that the licensee's corrective actions to address possible gas voiding in the component cooling water system as identified in Recovery Item 10.3.5, "Component Cooling Water System Non-Cable Issues," were inadequate. Specifically, the team identified that the licensee's corrective actions only addressed normal operations and did not demonstrate the component



cooling water system will perform acceptably in service when operating at elevated temperatures such as those experienced during a design basis accident. As immediate corrective action the licensee placed a maintenance hold on the component cooling water system until adequate fill and vent procedures could be developed. Additionally, the licensee initiated corrective actions to analyze the effects of gas accumulation on the component cooling water system. The licensee entered these deficiencies into their corrective action program as CR 2014-08892, CR 2014-09011, and CR 2014-09034.

Analysis. The failure to correct a condition adverse to quality related to voiding in the component cooling water system was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the design control attribute of the Mitigating Systems Cornerstone and affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, the finding was of very low safety significance (Green) because the finding: (1) was not a deficiency affecting the design and qualification of a mitigating structure, system, or component, and did not result in a loss of operability or functionality; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of at least a single train for longer than its allowed outage time, or two separate safety systems out-of-service for longer than their technical specification allowed outage time; and (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program. This finding has a cross-cutting aspect in the area of human performance in that the licensee failed to operate the component cooling water system within design margins and failed to place special attention to minimizing long-standing equipment issues related to gas voiding in that system [H.6].

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 nonconformance's are promptly identified and corrected. Contrary to the above, from October 19, 2012, to the present, the licensee failed to correct a condition adverse to quality. Specifically, the licensee failed to correct inadequate fill and vent Procedure OI-CC-1, "Operating Instructions Component Cooling Water System Normal Operations," Revision 78 and establish an adequate analysis related to the potential for void formation in the component cooling water system during accident conditions. Because this finding was of very low safety significance and entered into the licensee's corrective action program as CR 2014-08892, CR 2014-09011, and CR 2014-09034, this violation is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000285/2014009-15, "Failure to Promptly Identify and Correct a Condition Adverse to Quality."

p. Failure to Correct Longstanding Software Classification Issues

Introduction. A Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified involving the failure to take timely corrective actions for controlling the use of software products used to implement design basis

requirements. Specifically, the team identified multiple instances of uncontrolled software product use at Fort Calhoun Station following identification of similar deficiencies in 2009 and 2011.

Description. On October 6, 2009, Fort Calhoun Station personnel documented the results of a quality assurance (QA) audit in CR 2009-04715. The QA audit found that the Fort Calhoun Station software control program was not being followed and documented over 10 examples where several work groups (including engineering, chemistry and emergency preparedness) were using uncontrolled software. The use of uncontrolled software was contrary to station Procedure NCM-1, "Software Classification and Procurement," Step 4.4 which requires classification of software to ensure the use of properly classified, quality controlled software in safety related applications. The QA audit also identified that in some cases the uncontrolled software produced incorrect results. As a corrective action for these non-conforming conditions, the licensee completed an apparent cause evaluation and implemented several corrective actions to improve the ability to check the classification of the software to ensure the software met QA requirements. On December 13, 2011, QA initiated CR 2011-10137 which identified that the corrective actions from the previous audit documented in CR 2009-04715 were not effective and identified six additional examples of uncontrolled software.

The team reviewed CR 2009-04715 and CR 2011-10137 and identified that the licensee's corrective actions to address deficiencies in the use of software products used to implement design basis requirement were ineffective. Specifically, the team noted that on September 16, 2013, the licensee documented 15 additional condition reports for software classification issues. For each of these condition reports, the licensee identified that software products used to implement design basis requirements were not controlled in accordance with Procedure NCM-1. The team reviewed these 15 condition reports and identified that the licensee failed to take corrective actions for the original condition adverse to quality identified by QA under CR 2009-04715. The licensee entered this issue into their corrective action program as CR 2014-09162 and initiated action to strengthen their software control program.

Analysis. The failure to correct a condition adverse to quality was a performance deficiency. Specifically, the licensee's failure to assure software was properly classified and controlled was a condition adverse to quality. The performance deficiency was more than minor, and therefore a finding, because if left uncorrected, it could lead to a more significant safety concern. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because: (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of human performance in that the licensee failed to provide training and ensure knowledge transfer to maintain a knowledgeable, technically competent workforce, and instill nuclear safety values. Specifically, the apparent cause report for CR 2009-04715 stated that a contributing

cause was “first and foremost [there is] a lack of knowledge associated with the procedural requirements for software control at FCS” [H.9].

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. Contrary to the above, prior to July 25, 2014, the licensee failed to correct a condition adverse to quality. Specifically, the licensee failed to take corrective actions to properly classify and control critical software. Because this violation was of very low safety significance and entered into the licensee’s corrective action program as CR 2014-09162, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000285/2014009-16, “Failure to Correct Longstanding Software Classification Issues.”

q. Inadequate Corrective Actions to Properly Implement Applicable ASME OM Code Requirements

Introduction. A Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, “Corrective Action,” was identified involving the failure to correct a condition adverse to quality associated with classification of check valves in the auxiliary feedwater system. Specifically, the licensee failed to update the inservice testing program to classify auxiliary feedwater discharge check valves as Category A/C valves and include required seat leakage testing.

Description. On March 3, 2013, the licensee initiated CR 2013-04680 to document a possible scenario where a strong auxiliary feedwater pump could cause a weak auxiliary feedwater pump from having enough minimum recirculation flow because of excessive leakage across discharge check valves FW-173 and FW-174. Action Item 3 of CR 2013-04680 required the licensee to revise the station’s surveillance tests to quantify the actual check valve leakage. The licensee addressed Action Item 3 by preparing Calculation FC08310, “Auxiliary Feedwater (AFW) Motor Driven Pump FW-6 and Turbine Driven Pump FW-10 Performance and Runout Evaluation,” Revision A. This calculation concluded that existing testing of auxiliary feedwater check valves was adequate and that no additional testing or procedure changes were required. Specifically, the calculation determined that existing surveillances that verify no pressure rise or pump shaft rotation in an idle pump were adequate to detect check valve leakage and ensure no loss of minimum recirculation flow.

The NRC reviewed the inservice testing requirements of auxiliary feedwater discharge check valves FW-173 and FW-174 in March 2013 and identified in NCV 05000285/2013008-39 that the licensee’s current testing of these check valves was inadequate and that the valves should be Category A/C check valves per the ASME OM Code. Category A/C check valve are those valves that have a specified leak rate limit and are self-actuated in response to a system characteristic. The non-cited violation noted that Calculation FC07536, “FW 6 and FW 10 Suction and Discharge Piping Friction Loss (Proto-Flo Model),” Revision 0, assumes a 1 gallon per minute leakage rate through check valves FW-173 and FW-174 when modeling each of the pumps.

The licensee addressed NCV 05000285/2013008-39 in CR 2013-05514 and concluded that the in-service testing category for the auxiliary feedwater pump discharge check

valves was correct because there is no specific leakage value in the design basis for Fort Calhoun Station and the results of an operability determination concluded that there is no evidence of significant leakage through valves FW-173 and FW-174.

The team reviewed the licensee corrective actions to CR 2013-04680 and CR 2013-05514 and the current in-service testing program, and noted that the discharge check valves were categorized as ASME Category C valves. The team determined that the licensee's corrective actions were inadequate because the licensee's design analysis in Calculation FC07536 specified a leak rate limit for these valve, and therefore the team determined that the auxiliary feedwater discharge check valves should be Category A/C check valves per the ASME OM Code. The team also identified that the licensee's current testing that only checks for a pressure rise and pump shaft rotation in the idle pump was not technically sound and failed to quantify the amount of leakage in the system. Classifying the valves as Category A/C valves would require measuring seat leakage as OM Code requires that seat leakage be limited to a specific maximum amount in the closed position to verify fulfillment of its safety function.

The licensee entered this issue into their corrective action program as CR 2014-08452 and initiated actions to re-assess the current in-service testing methodology of check valves in the auxiliary feedwater system.

Analysis. The failure to correct a condition adverse to quality associated with the characterization and inservice testing requirements of check valves in the auxiliary feedwater system was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because: (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of problem identification and resolution because the licensee failed to thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance. Specifically, the licensee failed to evaluate the function of discharge check valves FW-173 and FW-174 when developing the in-service testing program and addressing previous condition reports [P.2].

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 March 2013, to July 18, 2014, the licensee failed to correct a condition

adverse to quality. Specifically, the licensee failed to correctly classify FW-173 and FW 174 as ASME Category A/C valves and specify a seat leakage limit for these check valves to ensure they were properly tested in accordance with the ASME OM Code. Because this violation was of very low safety significance and entered into the licensee's corrective action program as CR 2014-08452, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC's Enforcement Policy: NCV 05000285/2014009-17, "Inadequate Corrective Actions to Properly Implement Applicable ASME OM Code Requirements."

r. Failure to Complete Corrective Actions in a Timely Manner

Introduction. A Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified involving the failure to take timely corrective actions to address deficiencies in station calculations. Specifically, the licensee failed to update station calculations to incorporate actual test data for sluice gate leakage. Utilizing correct sluice gate leakage values is a critical input parameter for ensuring intake cell level control is maintained because the raw water pumps must remove this leakage during external flooding events to prevent submergence of the pump's motors.

Description. The team reviewed Calculation FC08081, "Sizing and Selection for Intake Cell Flood Water Inlet Valves for the AOP 1 Raw Water Flowpath," Revision 0, completed in December 2012. Calculation FC08081 supported an engineering change that modified the station's mitigation strategy for external flooding by completely closing the sluice gates and relying on flood level valves to regulate water intake cell level. This calculation assumed an inleakage from the river sluice gates of 750 gallons per minute, the value listed in the Updated Safety Analysis Report. In May 2013, the licensee performed a test at the intake structure cells to measure how much river water leaks by the sluice gates when they are fully closed. The results of this test revealed leakage in excess of 750 gallons per minute. When the test data was extrapolated to a river level 14' above cell water level, the licensee calculated an inleakage rate of approximately 4650 gallons per minute.

During external flooding events, intake cell level is maintained at a minimum elevation of 976'9" in order to adequately supply the raw water pumps, however, the river water level elevation in the cells must not exceed 1007' to prevent submerging the motors and rendering them inoperable. Since leakage past the river water sluice gates cannot be eliminated, the actual leakage parameter is important to ensure the intake cell level control strategy is adequate. Consequently, the team determined that the licensee failed to take corrective actions to updated station calculations when new data invalidated the previous leakage assumptions in Calculation FC08081. The licensee entered this issue into their corrective action program as CR 2014-09156 and initiated actions to update Calculation FC08081.

Analysis. The failure to correct a condition adverse to quality associated with engineering calculations was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because if left uncorrected, the finding could become a more significant safety concern. This finding was also more than minor because it was associated with the protection from external events attribute of the Mitigating Systems Cornerstone, and affected the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed an initial screening

of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because: (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; (4) did not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program; and (5) did not involve the loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding or severe weather event. This finding has a cross-cutting aspect in the area of human performance in that the licensee failed to prioritize an update to Calculation FC08081 following completion of the May 2013 in-leakage test [H.5].

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 May 2013 until July 25, 2014, the licensee failed to correct a deficiency in Calculation FC08081, a condition adverse to quality. Specifically, the licensee failed to correct known discrepancies between the assumed sluice gate inleakage values of 750 gallons per minute and inleakage actual test data obtained in May 2013. Because this violation was of very low safety significance and entered into the licensee's corrective action program as CR 2014-09156, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000285/2014009-18, "Failure to Complete Corrective Actions in a Timely Manner."

s. Failure to Maintain B.5.b Equipment in a State of Readiness to Support Mitigation Strategies

Introduction. A Green non-cited violation of 10 CFR 50.54(hh)(2), "Conditions of License," was identified involving the failure to maintain available equipment needed to implement mitigating strategies to maintain or restore core, containment, and spent fuel pool cooling capabilities following large fires or explosions. Specifically, the licensee failed to maintain available a flexible suction hose related to the reactor coolant system heat removal mitigating strategy.

Description. On February 22, 2014, the licensee identified that a storage container with mitigating strategies equipment was unlocked and had a non-collapsible suction hose that was cracked. This mitigating strategies equipment is associated with 10 CFR 50.54(hh)(2), which requires the licensee to implement mitigating strategies needed to maintain or restore core, containment, and spent fuel pool cooling capabilities following large fires or explosions (commonly referred to as B.5.b equipment). The licensee initiated CR 2014-02381 documenting the degraded condition of this non-collapsible suction hose. On March 6, 2014, the licensee completed CR 2014-02381, Action Item 1, to address the damaged non-collapsible suction hose. The closure comments for this action item stated that the B.5.b coordinator examined the damaged hose and verified that the damaged hose is not part of the B.5.b inventory per Procedure OCAG-1, "Operational Contingency Action Guideline," Revision 27,

Attachment 11, "RCS Heat Removal Strategies." Consequently, the licensee did not replace the non-collapsible suction hose in the B.5.b storage container based on the item not appearing on the inventory surveillance.

On, July 17, 2014, the licensee performed a walk-down of B.5.b mitigating strategies with the NRC Senior Resident Inspector and found the flexible suction hose associated with CR 2014-02381 was missing. The licensee subsequently determined that the missing temporary flexible suction hose is needed to implement B.5.b mitigating strategies associated with reactor coolant system heat removal per Procedure OCAG-1, Section 11. The licensee initiated CR 2014-08876 to address this deficiency and initiated action to procure a replacement flexible suction hose.

The team reviewed CR 2014-02381 and CR 2014-08876 and determined that the equipment availability required by 10 CFR 50.54(hh)(2) and license condition B.5.b was degraded because of the missing flexible suction hose originally identified on February 22, 2014. The team determined that the reactor coolant system heat removal mitigating strategy was degraded for approximately five months because of the deficiency in the B.5.b inventory Procedure OCAG-1, Revision 27, Attachment 11, and the licensee's understanding of the equipment needed to implement the B.5.b strategies.

Analysis. The failure to maintain all equipment available to implement mitigating strategies as required by regulations and conditions of their operating license was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone, and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences (i.e. core damage). This finding was of very low safety significance (Green) using NRC Manual Chapter IMC 0609, Appendix L, "B.5.b Significance Determination Process," because it resulted in an unrecoverable unavailability of an individual mitigating strategy but did not result in multiple unavailable mitigating strategies such that reactor coolant system heat removal could not occur. This finding has a cross-cutting aspect in the area of human performance in that the licensee's inadequate B.5.b inventory procedure contributed to the lack of recognition that the degraded flexible suction hose was required to implement mitigating strategies [H.1].

Enforcement. Title 10 CFR 50.54(hh)(2), "Conditions of Licenses," requires, in part, that the licensee develop and implement guidance and strategies intended to maintain or restore core cooling to mitigate fuel damage under the circumstances associated with loss of large areas of the plant due to explosions or fire. Contrary to the above, between February 22 and July 17, 2014, the licensee failed to implement guidance to maintain or restore core cooling to mitigate fuel damage under the circumstances associated with loss of large areas of the plant due to explosions or fire. Specifically, the licensee failed to implement strategies to maintain core cooling associated with the possible loss of large areas of the plant due to explosions or fire because they failed to maintain available all equipment needed to implement Procedure OCAG-1, "Operational Contingency Action Guideline," Section 11, "RCS Heat Removal Strategies." Because this violation was of very low safety significance and entered into the licensee's corrective action program as CR 2014-08876, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC's Enforcement Policy:

NCV 05000285/2014009-19, "Failure to Maintain B.5.b Equipment in a State of Readiness to Support Mitigation Strategies."

t. Failure to Correct Conditions Adverse to Quality in the Diesel Generator Starting Air System

Introduction. A self-revealing Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was identified involving the failure to take timely corrective actions to address service life related degradation of the emergency diesel generator starting air system. Consequently, diesel generator 1 failed to roll during planned surveillance testing due to a degraded diesel starting air valve.

Description. On August 4, 2012, the licensee initiated CR 2012-09424 that identified that diesel generator starting air valves were obsolete, had reached their end-of-service life and needed replacement. Condition Report 2012-09424, Action Item 1, determined that diesel generator starting air valve SA-148 would be removed from the 2011 refueling outage scope under Outage Scope Change Request 11-169. The outage scope change request included an evaluation that justified a deferral of the planned replacement of valve SA-148 to coincide with implementation of Engineering Change (EC) 42846 to upgrade the diesel generator starting air tanks from carbon steel to stainless steel. The outage scope change request evaluation justified performing the modifications proposed under EC 42846 on-line. Consequently, the licensee did not replace starting air valve SA-148.

On February 22, 2013, the licensee initiated CR 2013-04030 documenting that diesel generator 1 failed to roll during planned surveillance testing. Troubleshooting by the licensee determined that one of the two starting air valves, SA-146 or SA-148, had failed to operate. Following replacement of valve SA-148, the licensee performed testing, disassembly, and inspection of the removed valve that revealed a crack in the diaphragm that caused the valve not to operate. The apparent cause of diesel generator 1's failure to roll identified in CR 2013-04030 was age-related degradation of starting air valve SA-148 due to a lack of preventative maintenance. The licensee replaced valve SA-148 and implemented corrective actions for CR 2013-04030 that consisted of development of preventative maintenance strategies for the starting air system following completion of the modifications proposed under EC 42846.

The team reviewed CR 2012-09424 and CR 2013-04030 and identified that the licensee's corrective actions to address obsolescence and service life related issues in the diesel starting air system were untimely and resulted in the failure of diesel generator 1 to roll on February 22, 2013. The licensee entered the issues involving untimely corrective actions into their corrective action program as CR 2014-08452.

Analysis. The failure to correct a condition adverse to quality associated with age related degradation of components in the diesel starting air system was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix G, Attachment 1, "Shutdown Operations Significance Determination Process Phase 1 Initial Screening and Characterization of Findings," Exhibit 3, "Mitigating Systems Screening



Questions,” dated May 9, 2014, the finding was of very low safety significance (Green) because the finding does not represent a loss of system safety function and the finding does not represent an actual loss of safety function of a single train for greater than its technical specification allowed outage time. This finding has a cross-cutting aspect in the area of human performance in that the licensee failed to recognize and plan for the possibility of latent issues and inherent risk, even while expecting successful outcomes when determining the repair schedule for starting air valve SA-148 [H.12].

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. Contrary to the above, prior to February 22, 2013, the licensee failed to correct a condition adverse to quality. Specifically, the licensee failed to correct the condition documented in CR 2012-09424 involving diesel generator starting air valves that had reached their end-of-service life. Because this violation was of very low safety significance and entered into the licensee’s corrective action program as CR 2014-08452, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC’s Enforcement Policy: NCV 05000285/2014009-20, “Failure to Correct Conditions Adverse to Quality in the Diesel Generator Starting Air System.”

u. Failure to Take Timely Corrective Actions for an Unsealed Raw Water System Control Panel

Introduction. A self-revealing Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” was identified involving the failure to take corrective actions to address a design deficiency in the control panel for raw water strainer AC-12B. Consequently, the panel experienced a water intrusion event on August 3, 2014, resulting in an unplanned inoperability of the raw water system.

Description. On February 14, 2013, a fire protection leak of approximately 2-3 gallons per minute leaked onto raw water strainer AC-12B control panel AI-348 causing a trouble alarm. The licensee’s apparent cause evaluation for this event, performed under CR 2013-03301, identified deficiencies in the fluid leak management program as the cause of this event. The licensee’s apparent cause did not identify design deficiencies with panel AI-348 in that the component was susceptible to spraying and wetting. Consequently, the licensee did not take corrective actions to seal or encase panel AI-348.

On June 3, 2014, a severe weather event damaged the intake structure roof resulting in water leakage into panel AI-348. The water in-leakage resulted in a blown fuse and loss of power to the drive motor for strainer AC-12B and unplanned entry into 12 hour shutdown Technical Specification 2.4(2)d, “Containment Cooling.” The licensee’s apparent cause evaluation for this event, performed under CR 2014-06974, identified a contributing cause that Engineering Change (EC) 41587, “Raw Water Strainer Upgrade,” Revision 0, did not consider the many sources of water in the raw water vault when specifying the encasement of the control system. The licensee developed corrective action CA-2 with a due date of August 15, 2014, to prepare engineering changes to upgrade panel AI-348 and its conduits to be waterproof.

On July 9, 2014, the team reviewed CR 2013-03301 and CR 2014-06974 and questioned if more immediate corrective actions were required to prevent additional

water intrusion into panel AI-348. The licensee initiated CR 2014-08430 documenting the team's concern. Similarly, during a plant walkdown on July 23, 2014, the team expressed concern regarding the proximity of fire and circulating water near panel AI-348 and the potential for water intrusion from those non-seismically qualified fluid systems. On July 24, 2014, the team debriefed the licensee that the failure to adequately seal panel AI-348 was a proposed violation of 10 CFR 50, Appendix B, Criterion III, "Design Control" (See NCV 05000285/2014009-06 in Section 4OA2.5.f of this report). Following the team's inspection debrief, the licensee did not take corrective actions to prevent water intrusion into panel AI-348.

On August 1, 2014, the team again expressed concern with the licensee's corrective actions to address potential water intrusion events into panel AI-348 during a conference call with the licensee's system engineer and the NRC Senior Resident Inspector. Following this conference call, the licensee did not take corrective actions to prevent water intrusion into panel AI-348.

On August 3, 2014, an additional event occurred where water leaked through the intake structure roof and onto control panel AI-348. Similar to the previous events, the water intrusion resulted in a blown fuse and loss of power to the drive motor for strainer AC-12B and unplanned entry into 12 hour shutdown Technical Specification 2.4(2)d, "Containment Cooling."

The team determined that the licensee's corrective actions to address the unsealed conduits in control panel AI-348 were untimely and resulted in an additional failure of that panel on August 3, 2014. Following identification of this issue, the licensee implemented corrective actions to seal conduits leading to control panel AI-348 to prevent future water intrusion. The licensee entered this issue into their corrective action program as CR 2014-09572.

Analysis. The failure to correct a condition adverse to quality associated with a design deficiency in the raw water strainer control panel was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the equipment performance attribute of the Mitigating Systems Cornerstone and affected the associated objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The team performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012, this finding is of very low safety significance (Green) because it: (1) was not a deficiency affecting the design or qualification of a mitigating system; (2) did not represent a loss of system and/or function; (3) did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding has a cross-cutting aspect in the area of problem identification and resolution in that the licensee failed to adequately review and provide timely responses to past operating experience that demonstrated that panel AI-348 was susceptible to water intrusion [P.5].

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. Contrary to the above, from February 13, 2013 until August 3, 2014, the licensee failed to correct a condition adverse to quality. Specifically, the licensee failed to correct the condition documented in CR 2013-03301 and CR 2014-06974 involving an unsealed control panel for raw water strainer AC-12B. Because this violation was of very low safety significance and entered into the licensee's corrective action program as CR 2014-09572, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC's Enforcement Policy: NCV 05000285/2014009-21, "Failure to Take Timely Corrective Actions for an Unsealed Raw Water System Control Panel."

#### **4OA3 Follow-up of Events and Notices of Enforcement Discretion (71153)**

.1 (Closed) Licensee Event Report 05000285/2012-009-01, Inoperable Equipment Due to Lack of Environmental Qualifications

On December 13, 2011, the licensee identified that the current analysis of record for a main steam line break inside containment identified a peak temperature of 358.6 degrees Fahrenheit and a maximum exposure period of approximately 160 seconds. The licensee's electrical equipment environmental qualification evaluation assumed a maximum temperature of 401 degrees Fahrenheit but an exposure time less than 160 seconds. The licensee concluded that no evaluation or analysis existed to address why the original environmental assumptions remained valid with the longer exposure time. The licensee identified this condition when Fort Calhoun Station was shutdown and defueled. As corrective action, the licensee performed a thermal lag analysis to determine the impact of the longer exposure time that revealed the longer period did not adversely affect environmental qualification of installed electrical equipment. Based on the updated analysis, the licensee determined that the original condition no longer represents a safety system functional failure and this condition was submitted as a voluntary report. The team reviewed the licensee event report associated with this event and determined that the licensee adequately documented the summary of the event and the potential safety consequences. Since the licensee submitted this licensee event report as a voluntary report, the team did not identify any performance deficiencies or violations of regulatory requirements. This licensee event report is closed.

.2 (Closed) Licensee Event Report 05000285/2013-002-01, CVCS Class 1 & 2 Charging Supports are Unanalyzed

On January 25, 2013, the licensee identified that the original piping supports in the chemical and volume control system had no calculations of record. The licensee discovered this design issue during a planned piping replacement. When the calculations for the replacement piping were completed, the licensee identified an overstress condition for the original piping that made that equipment susceptible to failure during a seismic event. The licensee identified this condition when Fort Calhoun Station was shutdown and defueled and corrective actions were implemented to analyze and modify the supports as required to conform to the piping load requirements of the various operational modes. Since this condition existed since original construction, the licensee determined that the event was reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) and 10 CFR 50.73(a)(2)(v)(C). The team reviewed the

licensee event report associated with this event and determined that the licensee adequately documented the summary of the event and the potential safety consequences. The team documented a licensee identified non-cited violation of 10 CFR Part 50, Appendix B, Criterion III, "Design Control," in Section 4OA7 of this report. This licensee event report is closed.

.3 (Closed) Licensee Event Report 05000285/2012-021-00, HCV-2987, HPSI Alternate Header Isolation Valve

On January 29, 2012, the licensee identified that valve HCV-2987, high pressure safety injection alternate header isolation, would not have been able to fulfill its specified safety function because of unacceptable valve packing friction. Subsequent review by the licensee found that in 2008 valve HCV-2987 exhibited a higher than acceptable valve packing friction such that the valve would not have been able to fulfill its function. Since no corrective action was taken in 2008 to correct the condition on valve HCV-2987, the licensee determined that the valve was inoperable for a period greater than allowed by technical specifications and reportable under 10 CFR 50.73(a)(2)(i)(B) and 10 CFR 50.73(a)(2)(v)(B). The team reviewed the licensee event report associated with this event and determined that the licensee adequately documented the summary of the event and the potential safety consequences. The team documented a licensee identified non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," in Section 4OA7 of this report. This licensee event report is closed.

.4 (Closed) Licensee Event Report 05000285/2013-019-01, Non-Seismic Circulating Water Pipe Could Disable Raw Water Pumps

On December 2, 2013, NRC inspectors identified that a non-safety related circulating water pipe in the raw water vault could fail during a seismic event and potentially flood electrical equipment in the raw water system. On December 3, 2013, the licensee confirmed that internal flooding design vulnerabilities existed and established corrective actions to prevent circulating water from flooding the raw water vault during a seismic event. Because this issue had the potential to impact all raw water pumps, the licensee determined this event was reportable under 10 CFR 50.73(a)(2)(v)(B). The team reviewed the licensee event report associated with this event and determined that the licensee adequately documented the summary of the event and the potential safety consequences. The NRC previously identified non-cited violation NCV 05000285/2013013-14, "Inadequate Corrective Action for Non-Seismic Category 1 Piping," documenting the licensee's failure to correct non-Category 1 (seismic) piping in the intake structure raw water vault. No additional performance deficiencies were identified. This licensee event report is closed.

.5 (Closed) Licensee Event Report 05000285/2013-001-00, Mounting of GE HFA Relays does not Meet Seismic Requirements

On December 21, 2012, the licensee received vendor data that revealed that General Electric model HFA relays did not pass the seismic qualification testing. This issue affected 136 relays installed at Fort Calhoun Station and was attributed to two back plate mounting screws torqued to less than the required 5 foot-pounds. The licensee determined the event was reportable in accordance with 10 CFR 50.73. Since the inadequate torqueing of the screws did not result in actual failure of a system, the condition was of very low safety significance. The inspectors reviewed the licensee

event report and determined that the licensee adequately documented the summary of the event and the potential safety consequences. The NRC previously identified non-cited violation NCV 05000285/2013008-31, "Multiple Examples of Operability Determinations that Lacked Adequate Technical Justification," documenting the licensee's failure to recognize the loss of seismic qualification due to the incorrectly torqued backing screws. The team also reviewed a licensee-identified violation in that Licensee Event Report 2013-001 was submitted greater than 60 days following discovery that these relays had lost their seismic qualification. The enforcement aspects associated with this late report are discussed in Section 4OA7 of this report. This licensee event report is closed.

.6 (Closed) Licensee Event Report 05000285/2014-004-00, Unqualified Limit Switches Render Safety Equipment Inoperable

On April 24, 2014, the licensee identified that the environmentally qualified Namco™ Type EA180 limit switches were not maintained per vendor requirements. Specifically, the vendor manual provided torque values of 20-25 inch-pounds for the top cover screws; whereas, the licensee's maintenance procedure only required a torque value of between 19-21 inch-pounds for the top cover screws. With a switch cover only torqued to 19 inch-pounds, the installed configuration would not match the as-tested condition and there would be no technical basis to support the acceptability of the use of the switch in a harsh environment. The licensee implemented corrective actions to change the applicable plant maintenance procedure and ensured that the limit switch top cover gasket and screw assemblies for all environmentally qualified Namco™ EA180 series limit switches were installed per vendor requirements. The affected limit switches mostly provided component position indication; however, one set of limit switches was required to initiate the filtered air mode on control room ventilation. The team reviewed the licensee event report associated with this event and determined that they adequately documented the summary of the event and the potential safety consequences. The team documented a licensee-identified violation of Technical Specification 5.8.1.a, "Procedures," involving the licensee's failure to provide adequate instructions for performing maintenance on Namco™ Type EA180 limit switches in Section 4OA7. The team also identified that Licensee Event Report 2014-004-00 was submitted greater than 60 days following discovery that these limits switch had lost their environmental qualification. The enforcement aspects associated with this late report are discussed in Section 4OA2.5.h of this report. This licensee event report is closed.

**4OA4 Inspection Manual Chapter (IMC) 0350 Inspection Activities (92702)**

The inspection team conducted NRC IMC 0350 inspection activities, which included an assessment and verification of commitments described in the Confirmatory Action Letter (CAL) issued December 17, 2013. The CAL confirmed the commitments in the December 2, 2013, Omaha Public Power District (OPPD), "Integrated Report to Support Restart of Fort Calhoun Station and Post-Restart Commitments for Sustained Improvement." In the report, OPPD committed to complete actions following restart of the Fort Calhoun Station to ensure the improvements realized during the extended outage remain in place and performance continues to improve at the facility. This report summarized the actions in the 10 Performance Improvement Integrated Matrix (PIIM) Action Plans that were critical to ensuring effective implementation of corrective actions to prevent recurrence of the Restart Checklist items, the safety-significant Fundamental Performance Deficiencies, and other important performance

improvement areas necessary for achieving and sustaining excellence. These plans are as follows:

- Organizational Effectiveness, Safety Culture, and Safety Conscious Work Environment
- Problem Identification and Resolution
- Performance Improvement and Learning Programs
- Design and Licensing Basis Control and Use
- Site Operational Focus
- Procedures
- Equipment Performance
- Programs
- Nuclear Oversight
- Transition to the Exelon Nuclear Management Model and Integration into the Exelon Nuclear Fleet

OPPD characterized these plans as the “Key Drivers for Achieving and Sustaining Excellence.” For each of these plans, the team verified implementation of the associated action items by:

- Verifying that the action item descriptions correspond to the action item descriptions in Enclosure 3 of the December 2, 2013, OPPD letter;
- Reviewing documents produced or revised by the action item and/or records resulting from implementation of the action item;
- Verifying completion of the action item as scheduled;
- Assessing the licensee’s effective use of appropriate performance metrics to demonstrate performance improvement; and
- Where applicable, performed independent verification of improved performance.

Also, for action items which involved developing or revising and delivering training materials, the team not only reviewed the training materials to verify the material content, but also interviewed selected recipients to verify effective delivery of those materials. As the team verified implementation of action items as described above, they compiled observations to describe instances in which the licensee did not complete Action Items (AIs) as originally scheduled and as originally described.

Provided below are sections for each of the PIIM Action Plans; each section is identified by the PIIM Action Plan title in bold text. Within each section are one or more

subsections that correspond to each of the key driver action items that were within the scope of this inspection. Within each subsection are descriptions of (1) the inspection scope, (2) the most notable observations that resulted from inspecting the action item, and (3) the assessment results.

## 1. **Organizational Effectiveness, Safety Culture and Safety Conscious Work Environment**

### Item 1.a: Organizational Effectiveness

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2012-08132-010, Establish initial and continuing leadership development programs that incorporate the attributes of a strong nuclear safety culture and an operationally focused organization.
- AI 2012-08132-021, Perform a self-assessment with a team comprised of station and industry personnel to determine if OPPD has established and implemented the essential attributes of governance and oversight, including the key elements of individual roles, responsibilities, and accountabilities.
- AI 2012-08132-025, Perform a leadership skills assessment in the areas of alignment, accountability and standards.
- AI 2012-03986-049, Perform a self-assessment of development and implementation the Nuclear Safety Culture Monitoring Panel and Corporate Nuclear Oversight policies and leaders are being held accountable to the policies.

#### (2) Observations and Findings

The licensee has completed these action items. Inspection of these items identified the following weaknesses:

- After the licensee closed AI 2012-08132-010 on August 27, 2013, they allowed the performance indicator titled "Leader Development and Assessment," to remain in "white" status for 15 months, because one of the inputs to that performance indicator had been in "red" status and the licensee had failed to address that input during the period. The subject indicator was titled "Monthly IDP Meeting," and measured the percentage of managers who had held monthly discussions with supervisors of the supervisors' individual development plans. When questioned, the licensee asserted that the subject meetings were occurring, but managers were not properly documenting them.

This represented a weakness in problem resolution. The inspectors reviewed the additional documents associated with this issue and consider this AI closed.

- When a leadership skills assessment revealed that leadership performance did not achieve the goals previously set, the licensee revised the goals and closed

the associated action item. Specifically, for AI 2012-08132-025, the licensee had established the acceptance criterion stated as, "A successful improving trend will be measured by 80% of the items measured show a slight to significant increase from six months prior." However, their assessment determined that only 48% of the items measured showed a slight to significant increase from six months prior. Subsequently, the licensee revised the acceptance criterion to, "Success is measured by an overall "significant" increasing trend in the average of the key leadership skills/attributes . . ." and re-performed the assessment. Then, because the number of items measured satisfied the revised acceptance criterion, the licensee closed the follow-up action items.

This represented a weakness in problem resolution. The inspectors reviewed the additional documents associated with this task and consider this task closed

- To address an adverse trend, the licensee implemented corrective actions without completing an evaluation to verify that those corrective actions were both necessary and sufficient. Specifically, when the licensee completed the assessment described in AI 2012-08132-025, they noted that only 48% of the items measured showed a slight to significant increase from six months prior and that two of those items showed a slight to significant decrease. One of the items that had decreased was the score associated with the survey item described as "Use of error reduction tools (procedure use, self -checking, and three-way communication) are reinforced by my supervisor." The licensee did not address this item through their corrective action program, because, without completing a cause evaluation, they considered that near-term implementation of two Exelon human-performance procedures would address the subject decreases. Thus, the licensee failed to evaluate the possibility other factors might have been a cause of the decreases that wouldn't be adequately addressed by the two newly implemented Exelon human performance procedures.

This represented a weakness in problem evaluation. The inspectors reviewed the additional documents associated with this task and consider this task closed

### (3) Assessment Results

The licensee has closed all of the action items associated with this item. Although inspection of these action items revealed weaknesses associated with problem evaluation and resolution, the team considers these action items adequate because the actions were sufficient to fully address the tasks.

The team considers PIIM item 1.a closed.

### Item 1.b: Station Safety Culture/Safety Conscious Work Environment

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2012-03986-049, Perform a self-assessment of development and implementation of the Nuclear Safety Culture Monitoring Panel and Corporate



Nuclear Oversight policies and leaders are being held accountable to the policies.

- AI 2012-04262-057; AI 2012-04262-068; AI 2012-04262-069, Perform an annual assessment by individuals independent of line management of the Fort Calhoun safety culture against industry standards and best practices in 2014, 2015 and 2016.

## (2) Observations and Findings

Inspection of these action items resulted in no notable observations.

## (3) Assessment Results

The licensee completed and closed AI 2012-03986-049 and AI 2012-04262-057. The only remaining action items (AI 2012-04262-068 and AI 2012-04262-069) involve assessments and are scheduled to be completed in 2015 and 2016.

The team considers these action items adequate based on the following provisions: (1) all of these action items involve assessments, (2) the licensee successfully completed two of the assessments, (3) the remaining assessments are currently on schedule such that they will be completed at the due date.

The team considers PIIM item 1.b closed.

## 2. Problem Identification and Resolution

### Item 2.a: Corrective Action Program (CAP) Excellence Plan – Problem Identification

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2013-08675-006, Develop and implement CAP fundamentals, reinforced through an accountability model. The CAP behaviors managed under the accountability model will be defined in the CAP fundamental rules. CAP procedures will be updated to incorporate the CAP fundamentals.
- AI 2013-08675-010, Develop new performance measures for CAP effectiveness.
- AI 2013-08675-046, Perform an effectiveness review of the implementation of CAP fundamentals for problem identification.

#### (2) Observations and Findings

The licensee closed AI 2013-08675-006 without completing it as described. Specifically,

- This action item was to “Develop and implement CAP fundamentals that will be managed under the accountability model and defined in the CAP

Fundamental Rules. CAP procedures will be updated to incorporate the CAP Fundamentals.”

- The team noted that the site accountability model does not include specific CAP fundamentals. In response to the team’s questions, the licensee was not able to provide a list that was designated as CAP fundamentals.

However, in discussions with the team, the licensee stated that they recently realized that the CAP fundamentals to which this action item refers are actually fundamental behaviors associated with applying a questioning attitude and complying with procedural guidance, and that those behaviors were already effectively managed under the site accountability model. The team considered the licensee’s statements to be reasonable, and therefore considers this action item closed.

### (3) Assessment Results

The licensee has closed AI 2013-08675-006, AI 2013-08675-010, and AI 2013-08675-046; no action items associated with this item remain open.

Although the action items associated with this PIIM item are complete and appear reasonable, the team considered the following to determine whether to close this PIIM item:

- The assessment results from the team’s independent verification of improved performance conducted in the area of corrective action program effectiveness (Section 4OA2.1) suggest that CAP effectiveness warrants further improvement;
- Section 4OA2.5 of this report describes multiple violations of 10 CFR Part 50, Appendix B, Criterion XVI, “Corrective Action,” for the licensee’s failure to correct conditions adverse to quality in a timely manner;
- The action items associated with PIIM item 2.a are intended to help correct the programmatic deficiencies which caused or contributed to the issues discussed above;
- As described in AI 2013-08675-010, the licensee developed new performance measures for CAP effectiveness; and
- The subject performance measures have not been in place long enough to demonstrate that CAP effectiveness is improving and will be sustained at a high level.

Based on these considerations, the team determined that PIIM item 2.a will remain open.

### Item 2.b: CAP Excellence Plan – Root Cause and Apparent Cause Quality

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2013-08675-034, Provide Departmental Corrective Action Review Board and Site Corrective Action Review Board members and Corrective Action Program Coordinators (CAPCOs) training on their responsibilities under the CAP. For Site Corrective Action Review Board, include appropriate causal analysis training.
- AI 2013-08675-008, Require Site Corrective Action Review Board to provide Root-Cause Analysis and Apparent-Cause Analysis grading sheets that include specific success criteria prior to approval of cause analyses.
- AI 2013-08675-006, Develop and implement CAP fundamentals, reinforced through an accountability model. The CAP behaviors managed under the accountability model will be defined in the CAP fundamental rules. CAP procedures will be updated to incorporate the CAP fundamentals.
- AI 2013-08675-010, Develop new performance measures for CAP effectiveness.
- AI 2012-03495-033, Perform a focused self-assessment of root cause analysis quality.
- AI 2013-08675-041, Perform an effectiveness review of the Management Review Committee (MRC) oversight function for CAP.

## (2) Observations and Findings

Inspection of these action items resulted in no notable observation.

## (3) Assessment Results

The licensee has closed all of the action items associated with this item, and the inspectors considered all of these action items closed.

Although the action items associated with this PIIM item are complete and appear reasonable, the team considered the following to determine whether to close this PIIM item:

- The assessment results from the team's independent verification of improved performance conducted in the areas of corrective action program effectiveness and self-assessments and audits (Sections 4OA2.1 and 4OA2.3) suggest that CAP effectiveness warrants further improvement;
- Section 4OA2.5 of this report describes multiple violations 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to correct conditions adverse to quality or take adequate corrective actions in a timely manner;
- The action items associated with PIIM item 2.b are intended to help correct the programmatic deficiencies which caused or contributed to the issues discussed above;

Based on these considerations, the team determined that PIIM item 2.b will remain open.

### Item 2.c: CAP Excellence Plan – Corrective Action Closure

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2013-08675-006, Develop and implement CAP fundamentals, reinforced through an accountability model. The CAP behaviors managed under the accountability model will be defined in the CAP fundamental rules. CAP procedures will be updated to incorporate the CAP fundamentals.
- AI 2013-08675-010, Develop new performance measures for CAP effectiveness.
- AI 2013-08675-046, Perform an effectiveness review to determine if the corrective action to prevent recurrence was implemented timely and has been effective.
- AI 2013-08675-047, Perform an effectiveness review of the coding and timeliness of action item closure.

#### (2) Observations and Findings

Inspection of these action items resulted in no notable observation.

#### (3) Assessment Results

The licensee closed AI 2013-08675-006, AI 2013-08675-010, and AI 2013-08675-046. AI 2013-08675-047 involves an assessment and is due September 10, 2014.

Although most of the action items associated with this PIIM item are complete and appear reasonable, the team considered the following to determine whether to close this PIIM item:

- The assessment results from the team's independent verification of improved performance conducted in the areas of corrective action program effectiveness and self-assessments and audits (Sections 4OA2.1 and 4OA2.3) suggest that CAP effectiveness warrants further improvement;
- Section 4OA2.5 of this report describes multiple violations 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to correct conditions adverse to quality or take adequate corrective actions in a timely manner;
- The action items associated with PIIM item 2.c are intended to help correct the programmatic deficiencies which caused or contributed to the issues discussed above;

Based on these considerations, the team determined that PIIM item 2.c will remain open.

### **3. Performance Improvement and Learning Programs**

#### Item 3.a: Performance Improvement

##### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2013-08675-035, Establish tiered trending code structure for condition reports consistent with Exelon nuclear standards.
- AI 2012-08126-018, Revise and issue the Fort Calhoun Station performance improvement implementing procedures to align with the Exelon procedures.
- AI 2012-08126-015, Develop and execute a change management plan for the leadership team regarding the newly revised performance improvement procedures and disseminate the information in related INPO documents.

##### (2) Observations and Findings

Inspection of these action items resulted in no notable observation.

##### (3) Assessment Results

The licensee completed and closed AI 2012-08126-018 and AI 2012-08126-015, and the team considers those AIs closed. AI 2013-08675-035 has a due date of August 29, 2014. This area will remain open until the licensee completes the action to establish a tiered trending code structure for condition reports consistent with Exelon nuclear standards and the NRC reviews that structure.

The team determined that PIIM item 3.a will remain open.

#### Item 3.b: Human Performance

##### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2012-08135-014, Implement the human performance strategy: a. Ensure that the Human Performance (HU) Steering Team oversees the implementation of the human performance strategy; and b. Integrate the human performance strategy into the business plan to ensure that resources are available for improvements.
- AI 2012-08135-015, Evaluate the effectiveness of the human performance strategy.
- AI 2012-08135-008, Develop and implement a human performance strategic plan.

- AI 2012-08135-016, Maintain the right picture of excellence in human performance through monitoring progress in improving human performance via the Human Performance Steering Team, monitoring operating experience and conducting regular benchmarking and self-assessment activities, updating the human performance strategic plan as needed, and using change management to guide the implementation of improvement initiatives.
- AI 2012-08135-026, Interim Effectiveness Review: On a 3-month basis, monitor the implementation success of the HU Strategic Plan (that stages are effective and on schedule), assess for initial trend moving towards negative followed by subsequent sustained positive trend.
- AI 2012-08135-027, Interim Effectiveness Review: On a 3-month basis, monitor the implementation success of the HU Strategic Plan (that stages are effective and on schedule), assess for initial trend moving towards negative followed by subsequent sustained positive trend.
- AI 2012-08135-028, Perform quarterly review of human performance indicators through 4<sup>th</sup> quarter 2013.
- AI 2012-08135-029, Conduct a self-assessment with industry peers to ensure program meets industry best practices.

## (2) Observations and Findings

Inspection of these action items resulted in no notable observation.

## (3) Assessment Results

The licensee has closed all of the action items associated with this item. The team considers these action items closed based upon the following provisions: (1) the actions associated with the action items fully address the task, and (2) the action items are all complete.

The team considers PIIM item 3.b closed.

## 4. Design and Licensing Basis Control and Use

### Item 4.a: Design And Licensing Basis

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2013-05570-025, Complete Phase 2 of the key calculation identification and improvement process. Phase 2 of the process evaluates the critical calculation's defined purpose and methodology, defined acceptance criteria, and appropriateness of the results and conclusions.

- AI 2013-05570-091, Perform a technical assessment of modifications performed between January 1, 1989, and January 1, 2007, on a population of the top six risk significant systems that provides a 95/95 confidence level that no nuclear safety issues have been introduced into the plant.
- AI 2013-05570-010, Strengthen the Engineering Assurance Group to improve the oversight of engineering products that affect the design or licensing basis.
- AI 2013-05570-079, Decide the appropriate Design Basis Document (DBD) model for Fort Calhoun Station.
- AI 2013-05570-092, Complete Phase 3 of the Key Calculation Project. Phase 3 consists of revising any deficient critical calculation or engineering analysis identified from Phase 2, as needed.
- AI 2013-05570-057, Develop performance metrics to trend and trigger action on the performance of the use, implementation, and identification of design and licensing bases issues such as, effective and ineffective 50.59 evaluations, and procedure inadequacies related to design and licensing bases.
- AI 2013-05570-067, Develop and implement an aggregate station performance indicator to measure the effectiveness of maintenance and use of licensing and design bases information.
- AI 2013-05570-049, Modify engineering support personnel initial and continuing training addressing the design and licensing basis record types and retrieval.
- AI 2013-05570-052, Deliver the modified training to the engineering support personnel.
- AI 2013-17439-003, Ensure Design Engineering performs at least one engineering self-assessment on a risk significant system in 2014.
- AI 2013-17439-004, Ensure Design Engineering performs at least one engineering self-assessment on a risk significant system in 2015.
- AI 2013-17439-005, Assign condition reports to ensure Design Engineering continues to perform an engineering self-assessment on risk significant systems each year.
- AI 2013-05570-026, Identify and define the current licensing bases and assure licensing bases documentation remains current, accurate, complete, and retrievable.
- AI 2013-05570-076, Identify and define the design bases and assure design bases documentation remains current, accurate, complete, and retrievable.
- AI 2013-05570-093, Validate the design and licensing basis has been translated into plant operation by verifying that the operation, surveillance, and maintenance

of the safety-related components do not compromise the design and licensing basis.

## (2) Observations and Findings

When the licensee completed AI 2013-05570-057, they established a performance indicator that was not effective. Specifically, they established a performance indicator to indicate performance with respect to 10 CFR 50.59 evaluations which tracked the number of records to which certain trend codes had been assigned, but the licensee did not instruct the staff about how to properly assign those trend codes. Consequently, the staff did not properly assign the trend codes, and the performance indicator did not effectively indicate the intended performance. The licensee identified two records to which the subject trend codes were not assigned, but should have been. Additionally, the team identified several more instances where trend codes should have been assigned. The team determined that if the licensee had properly assigned the subject trend codes to the affected records, and if the licensee had properly identified the resulting trend, they would have placed the performance indicator in “red” (needing attention) status. In response to the team’s observation, the licensee initiated CR 2014-08532 to correct the affected records and instruct the staff about how to properly assign trend codes.

The licensee determined that they could not complete AI 2013-05570-049 (which involved training addressing the design and licensing basis record types and retrieval methods) until after the Design and Licensing Basis Reconstitution Project had finalized decisions about record types and retrieval methods. Through other action items, the licensee subsequently developed a Request for Training to incorporate the subject training into their Engineering Support Training Five-Year Plan.

## (3) Assessment Results

The licensee completed and closed AIs 2013-05570-010, -025, -067, -079, and -091. The team considers these AIs closed.

This licensee is implementing AI 2013-05570-092 with a due date of March 15, 2015. The licensee initiated action under CR 2014-08532 to ensure that the performance indicator established under AI 2013-05570-057 is effective. Through other action items, the licensee plans to complete the action described in AI 2013-05570-049.

AI 2013-17439-003, AI 2013-17439-004, AI 2013-17439-005 are scheduled to complete assessments in 2014, 2015, & 2016, and AI 2013-05570-026, AI 2013-05570-076, and AI 2013-05570-093 are scheduled to be completed in 2018.

Because the key activities associated with AIs 2013-05570-026, -057, -076, and -093 are not complete, the team determined that PIIM item 4.a will remain open.



## 5. Site Operational Focus

### Item 5.a: Site Operational Focus, Operational Decision Making and Anticipating System Response

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

AI 2012-08132-010, Develop initial and continuing leadership development program for management that incorporates the attributes of a strong nuclear safety culture and an operationally focused organization.

AI 2013-17442-001, Monitor the Organizational Effectiveness Recovery Metric (Operational Focused) for a successful overall “green” or “white” color with an improving trend for three consecutive months.

#### (2) Observations and Findings

Inspection of AI 2012-08132-010 is discussed above in Item 1.a.

Inspection of AI 2013-17442-001 resulted in no notable observation.

#### (3) Assessment Results

As documented above, the team considers AI 2012-08132-010 closed. The team considers AI 2013-17442-001 closed, so the team considers this PIIM item closed.

## 6. Procedures

### Item 6.a: Procedure Quality and Procedure Management

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2012-18351-001, Evaluate and determine the procedures requiring upgrade.
- AI 2012-08136-014, Institute a comprehensive Procedure Upgrade Project to ensure that Fort Calhoun Station procedures are rigorous in support of safe, reliable plant operations and are of sufficient detail to prevent overreliance on knowledge, experience, judgment, or memory.
- AI 2012-08136-022, Institute a validation and verification review process for corrective maintenance work order instructions.
- AI 2012-08136-023; AI 2012-08136-024, Perform assessments in 2013 and 2014 by individuals independent of line management to confirm that procedure management policies meet industry standards and regulatory requirements, and are effectively implemented.

(2) Observations and Findings

On February 6, 2014, the licensee approved a technical change to AI 2012-08136-024, so they cancelled it and initiated AI 2012-08136-028 with the revised wording. They closed AI 2012-08136-028 on February 20, 2014, consistent with the original due date for AI 2012-08136-024.

(3) Assessment Results

The licensee completed and closed AI 2012-18351-001 and AIs 2012-08136-014, -022, and -023. Via AI 2012-08136-028, the licensee completed the action described in AI 2012-08136-024.

The team considers these action items closed because: (1) the actions associated with the action items are sufficient to fully address the tasks, and (2) the actions are all complete.

Therefore, the team considers PIIM item 6.a closed.

Item 6.b: Abnormal and Emergency Operating Procedures

(1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2013-09711-006, Revise and issue all procedures identified during the abnormal and emergency operating procedures extent of condition review.
- AI 2013-09711-005, Complete the extent of condition upgrade of all station alarm response procedures.
- AI 2011-3016-048, Review the corrective action system for six months and evaluate the frequency of operating procedure inadequacies.
- AI 2010-2387-072, Ensure adequate technical basis for abnormal operating procedures addressing acts of nature other than flooding.

(2) Observations and Findings

The licensee transferred the actions described in AI 2010-2387-072 to the Design/Licensing Basis Reconstitution project, and is now tracking the actions by AI 2013-05570-026 and AI 2013-05570-076 and CR 2014-06973.

(3) Assessment Results

The team considers these action items closed based upon the following provisions: (1) the actions associated with the action items are sufficient to fully address the tasks, (2) except for AI 2010-2387-072, which describes actions the licensee had transferred to the Design/Licensing Basis Reconstitution project, the licensee has closed all of the action items associated with this item, and (3) the actions transferred

to the Design/Licensing Basis Reconstitution project will be reviewed by the NRC during their review of that project.

Therefore, the team considers PIIM item 6.b closed.

Item 6.c: Transition to the Exelon Nuclear Management Model and Integration into the Exelon Nuclear Fleet

(1) Inspection Scope

The team reviewed the implementation of the following action item:

- AI 2013-17434-003, Phase V – Exelon Nuclear Management Model Transition Implementation.

(2) Observations and Findings

See the discussion associated with Item 10.a.

(3) Assessment Results

The team considers PIIM item 6.c closed.

**7. Equipment Performance**

Item 7.a: Tornado Protection

(1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2013-04266-007, Complete modifications to adequately protect required equipment from tornado missiles.
- AI 2013-04266-014, Revise Updated Safety Analysis Report and other design basis documents.
- AI 2013-04266-016, Verify that design and licensing basis documents have been adequately updated and reviewed under the 10 CFR 50.59 process.

(2) Observations and Findings

Inspection of these action items resulted in no notable observation.

(3) Assessment Results

The licensee has completed and closed all of these action items. The team considers these action items closed based upon the following provisions: (1) the actions associated with the action items are sufficient to fully address the tasks, and (2) the licensee has closed all of the action items associated with this item.

The team considers PIIM item 7.a closed.

## Item 7.b: Equipment Service Life

### (1) Inspection Scope

The team reviewed the implementation of the following action items:

AI 2012-08134-012, Establish a comprehensive Equipment Reliability Restoration Plan (ERRP) to be approved by the Plant Health Committee.

AI 2012-08134-013, Review Condition Reports generated during the 4<sup>th</sup> Quarter 2014 specifically for age-related degradation of components.

AI 2012-08134-019, Establish a requirement for an annual self-assessment of station equipment reliability processes and programs for review by the Plant Health Committee.

AI 2012-08134-024, Establish a comprehensive and sustainable system and component Performance Monitoring Program benchmarking against Exelon Nuclear practices.

AI 2012-08134-039, Perform a self-assessment of equipment reliability programs and Plant Health Committee oversight or programs.

AI 2012-09491-014, Provide supplemental resources in preventative maintenance planning to reduce the backlog of end-of-service-life work orders and other preventative maintenance basis requirements.

AI 2012-09491-015, Review Condition Reports generated during the 3<sup>rd</sup> Quarter 2014 specifically for age-related degradation of components.

AI 2012-09491-020, Train system, program and procurement engineers on equipment condition assessment including cause and failure analysis, failure modes and effects analysis, aging management, and life cycle management.

AI 2012 15357-001, Update the preventative maintenance program basis document and procedure.

AI 2013-09491-023, Perform final effectiveness assessment of equipment reliability, preventative maintenance and performance monitoring programs, including the Plant Health Committee oversight of equipment reliability.

AI 2013-09658-001, Review Condition Reports generated during the 2<sup>nd</sup> Quarter 2013 specifically for age-related degradation of components.

AI 2013-09658-002, Review Condition Reports generated during the 3<sup>rd</sup> Quarter 2013 specifically for age-related degradation of components.

AI 2013-09658-003, Review Condition Reports generated during the 4<sup>th</sup> Quarter 2013 specifically for age-related degradation of components.

AI 2013-09658-004, Review Condition Reports generated during the 1<sup>st</sup> Quarter 2014 specifically for age-related degradation of components.

AI 2013-09658-005, Perform reviews of the approximately 10,000 preventive-maintenance (PM) tasks and components that must be evaluated and analyzed post-restart for end-of-service life concerns.

AI 2013-09658-006, Review condition reports generated July 1 through September 30, 2014, to determine if any age-related equipment failures occurred with Critical Quality Element (CQE) Functional Importance Determination classification 1 or Functional Importance Determination classification N2 components whose replacement was justified to be at a later date. Determine if adjustments to the component replacement strategies implemented for the end-of-service life recovery phase project are warranted.

## (2) Observations and Findings

The licensee closed an action item without fully completing the required actions. Specifically, the action described in AI 2012-15357-001 was to issue Procedure PED-SEI-50 to replace Procedure PED-SEI-13. The licensee closed that action item on October 30, 2013. The team identified that although the licensee had issued Procedure PED-SEI-50, they had not retired Procedure PED-SEI-13. Thus, two conflicting procedures covered the same area at the same time. In response to the team's observation, the licensee initiated CR 2014-08881 to address this issue.

This represents a weakness in problem resolution.

## (3) Assessment Results

The licensee has completed and closed all of the action items associated with this item, except for AIs 2012-08134-013 and -039, and AIs 2012-09491-015 and -023. The team considers these action items closed based upon the following provisions: (1) the actions associated with the action items are sufficient to fully address the tasks, (2) the action items currently open are on schedule such that they will be completed at the due date, (3) the action items currently open involve only reviews or assessments, and (4) the licensee has demonstrated that they can successfully complete reviews and assessments.

Therefore, the team considers PIIM item 7.b closed.

### Item 7.d: Equipment Reliability/Equipment Performance

#### (1) Inspection Scope

The team reviewed the implementation of the following action item:

AI 2012-08134-040, Perform a final effectiveness review of the Plant Health Committee process and performance.

## (2) Observations and Findings

On June 24, 2014, the licensee approved a request to extend the due date for this action item from June 25 until September 25, 2014.

## (3) Assessment Results

Because the licensee extended the due date for this action item, the team determined that PIIM item 7.d will remain open.

### Item 7.e: Electrical Equipment Qualification (EEQ)/High Energy Line Break

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2013-02857-014, Provide a documented basis that demonstrates all EEQ Equipment is installed and configured in accordance with the requirements of the associated "HARSH" files. (The "HARSH" files are documents that describe the environmental conditions to which EEQ Equipment must be qualified.)
- AI 2013-02857-016, Revise all EEQ procedures such that all EEQ engineering activities are performed under the PED-QP-2 configuration change control process.
- AI 2013-02857-009, Fully implement the engineering analyses that form the basis of the EEQ Program including the affected documents.
- AI 2013-02857-019, Perform an effectiveness review of 20 work orders for maintenance on EEQ equipment and 10 engineering changes for EEQ completed within a six-month period to verify the material used in EEQ maintenance is properly documented in maintenance work packages and all EEQ requirements are met in the engineering changes.
- AI 2013-02857-015, Perform an assessment by individuals independent of line management evaluating Fort Calhoun Station against INPO EPG-02 and NRC Temporary Instruction 2515/76 to ensure compliance with 10 CFR 50.49 and industry standards.

#### (2) Observations and Findings

The licensee closed AI 2013-02857-014 with one component designated as EEQ Equipment not configured in accordance with the requirements of the associated HARSH files. Specifically, after the licensee closed the action item, they discovered that the motor operator for valve HCV-348 (a shutdown cooling motor-operated valve) was not installed in its tested configuration for EEQ. To address this issue, the licensee initiated CR 2013-6620. They performed an Operability Evaluation which determined that the valve was operable but non-conforming. They closed CR 2013-6620 and initiated CR 2013-08434 to track restoring the operator to its tested configuration. Condition Report 2013-08434 has a due date of September 1, 2015.

### (3) Assessment Results

The licensee completed and closed AI 2013-02857-016. The licensee closed AI 2013-02857-014 without installing the motor operator on valve HCV-348 in its tested configuration. The action to track restoration of the operator to its tested configuration is in CR 2013-08434, and has a due date of September 1, 2015. AI 2013-02857-019 and AI 2013-02857-015 involve effectiveness reviews and are scheduled to be completed late in 2014.

The team considers these action items closed based upon the following provisions: (1) the actions associated with the action items are sufficient to fully address the tasks, (2) although the licensee closed AI 2013-02857-014 with one component not properly configured, the licensee is taking action to restore that component to its proper configuration in its corrective action program, (3) the action items currently open all involve effectiveness reviews, and (4) the licensee has demonstrated that they can successfully complete effectiveness reviews.

Therefore, the team considers PIIM item 7.e closed.

#### Item 7.f: Safety System Functional Failures

##### (1) Inspection Scope

The team reviewed the implementation of the following action item:

- AI 2011-2677-008, Perform an effectiveness assessment of safety system performance/functional failures.

##### (2) Observations and Findings

Inspection of this action item resulted in no notable observation.

##### (3) Assessment Results

The team considers PIIM item 7.f closed.

#### Item 7.g: Cables and Connections

##### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2012-08617-011, Provide procedural expectations and guidance to electrical craft for handling aged electrical cables.
- AI 2012-03544-014, Develop a change management plan to implement the cables and connections program.
- AI 2012-08134-026, Execute plans to recover the EEQ and cable aging management programs.

- AI 2009-4216-020, Perform an effectiveness review of the strategy for maintaining dry those safety-related and important-to-safety cables susceptible to wetting.
- AI 2013-17441-001, Complete an assessment report on Cables and Connections Program.
- AI 2013-17441-002, Complete an assessment report on Verification of Material Condition of Medium & Low Voltage Safety Related Cables Submerged.

## (2) Observations and Findings

- The licensee closed AI 2012-08617-011 without completing some of the required actions. Specifically, the action item description says to provide procedural expectations and guidance such that work orders address three issues that can arise when electrical craft personnel handle aged electrical cable installations. The licensee provided procedural expectations and guidance that addressed only one of those issues and closed the action item. (They did not address replacement of cables when maintenance activities require manual movement or repositioning of cable installations, or work instructions inclusion of techniques and tools to effectively detect and record signs of physical deterioration.)

A licensee assessment team identified this error, and the licensee initiated CR 2014-06939 to provide procedural expectations and guidance that addressed the missing issues. At the time of this inspection, the licensee had scheduled CR 2014-06939 for management review on July 29, 2014.

- The licensee closed AI 2012-08134-026 without completing some of the required actions. Specifically, the action item description includes the item “Adequate staffing and qualifications,” and the close comments stated, “Currently, the Program Owner for the Cables and EEQ is the only qualified staffing, but backups in Design engineering have been identified for both programs.” However, the team determined that although the licensee had identified the two backups for the EEQ program and the one backup for the Cable program, and although training of those backups was underway, by July 11, 2014, those backups had not completed their qualifications. In response to the team’s observation, the licensee initiated CR 2014-9499 to address this issue.
- The licensee failed to accurately transcribe an action item from their December 2, 2014, letter to the NRC (ADAMs Accession Number ML13336A785) into a condition report. Specifically, the subject letter states that the action item associated with AI 2009-4216-020 was, “Perform an effectiveness review of the strategy for maintaining dry those safety-related and important-to-safety cables susceptible to wetting.” However, the team noted that the action item description stated, “Ensure the long term strategy for the subject cables is in place per AI-17, any action item arose from AI-18 is completed and no subjected cables have failed, and strategy to keep the subject manholes dry is in place.” In response to the team’s question, the licensee initiated CR 2014-09009 to document that no action item had implemented the subject effectiveness review.



### (3) Assessment Results

The licensee developed a change management plan to implement the cables and connections program (AI 2012-03544-014). However, they did not successfully provide procedural expectations and guidance to electrical craft for handling aged electrical cables (AI 2012-08617-011) or completely execute plans to recover the EEQ and cable aging management programs (AI 2012-08134-026); for those actions, follow-up condition reports are tracking the recovery actions. Also, the licensee has not yet completed an effectiveness review of the strategy for maintaining dry those safety-related and important-to-safety cables susceptible to wetting (AI 2009-4216-020). Action Item 2013-17441-001 and AI 2013-17441-002 both involve assessments and are scheduled to be completed later in 2014.

Because the licensee has successfully completed only one of the action items associated with this item, the team determined that PIIM item 7.g will remain open.

## 8. Programs

### Item 8.a: Engineering Rigor

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2012-08125-008, Implement a new engineering organizational structure consistent with industry best practices.
- AI 2012-08125-027, Develop and implement a plan to increase the depth of design and licensing basis knowledge for engineers and engineering leaders.
- AI 2013-05570-049, Improve the engineering support personnel training regarding the design and licensing basis.
- AI 2013-05570-064, Maintain the Engineering Assurance Group (EAG) in accordance with FCSG-71. The complete list of documents types to be reviewed shall be updated following the identification of the document types in Corrective Actions to Prevent Recurrence 1 and 2, and FCSG-71 shall be revised if needed.

#### (2) Observations and Findings

The licensee is scheduled to change to a new engineering organizational structure consistent with industry best practices (AI 2012-08125-008) by December 19, 2014.

Action Item 2013-05570-064 indicates that the licensee is scheduled to maintain the Engineering Assurance Group nominally through June 1, 2016. However, the action item also describes three criteria that, if satisfied, could result in disbanding the Engineering Assurance Group at an earlier date.

### (3) Assessment Results

The licensee closed AI 2012-08125-008 and AI 2012-08125-027 and is scheduled to complete AI 2013-05570-049 and AI 2013-05570-064.

The team considers these action items closed based upon the following provisions: (1) the actions associated with the action items are sufficient to fully address the tasks, (2) the action items are currently on schedule such that they will be completed at the due date, and (3) upon final closure of the action items, the NRC will review them for adequacy.

Therefore, the team considers PIIM item 8.a closed.

#### Item 8.b: Equipment Safety Classification and Safety Related Equipment Maintenance

##### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2013-05570-011, Evaluate CQE boundaries against ANSI/ANS-52.1.
- AI 2012-05615-009, Conduct an assessment by individuals independent of line management of: (1) Condition Reports to look for on-CQE parts installed in a CQE application; and (2) Quality of work orders with respect to materials/parts classification.
- AI 2012-05615-018, Prepare/validate system and component level safety classification analyses for safety related systems.
- AI 2012-05615-019, Validate/Prepare System and Component Level Safety Classification Analysis Document for non-safety related systems.
- AI 2012-05615-013, Create a Bill of Materials for critical equipment.
- AI 2012-05615-017, Submit a revision to the Updated Safety Analysis Report to reflect the change in nomenclature.
- AI 2012-05615-016, Revise the QA Plan to reflect the change in nomenclature.
- AI 2012-05615-014, Convert the CQE List to the QList Manual.
- AI 2012-05615-011, Conduct an assessment by individuals independent of line management of: (1) CRs to look for on-CQE parts installed in a CQE application; and (2) Quality of work orders with respect to materials/parts classification.
- AI 2013-05570-117, Develop a detailed project plan for Re-Constitution of Component Safety Classification.

##### (2) Observations and Findings

Inspection of these action items resulted in no notable observation.

### (3) Assessment Results

The licensee has closed AI 2012-05615-009, AI 2012-05615-011, and AI 2012-05615-011. The remaining AI (2012-05615-013 through 2012-05615-019) are scheduled to be completed between November 28, 2014, and March 18, 2015.

The team considers these action items closed based upon the following provisions: (1) the actions associated with the action items are sufficient to fully address the tasks, (2) the action items are currently on schedule such that they will be completed at the due date, and (3) upon final closure of the action items, the NRC will review them for adequacy.

Therefore, the team considers PIIM item 8.b closed.

### Item 8.c: Electrical Bus Modifications and Maintenance

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2011-6621-038, Perform an effectiveness review of modifications created/implemented within the past 18 months to determine if new/different failure modes were introduced by features not part of original equipment.
- AI 2011-5414-045, Utilize the revised maintenance procedures to inspect the 480 volt switchgear during the next refueling outage.
- AI 2011-5414-046, Perform an effectiveness review of the completion of work requests to inspect all 480 volt NLI breakers during the next refueling outage. Inspections should include a check on resistance values, finger cluster discoloration, loose bolting, and other signs of breaker/bus stab degradation.

#### (2) Observations and Findings

Inspection of these action items resulted in no notable observation.

#### (3) Assessment Results

AI 2011-6621-038 is closed. AI 2011-5414-045 and AI 2011-414-046 are scheduled to be completed by June 30, 2015.

The team considers these action items closed based upon the following provisions: (1) the actions associated with the action items are sufficient to fully address the tasks, (2) the action items are currently on schedule such that they will be completed at the due date.

Therefore, the team considers PIIM item 8.c closed.

Item 8.d: Deficiencies in Design and Implementation of Fundamental Regulatory Required Processes

(1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2012-08137-012, Perform a review by individuals independent of line management of station application of technical specifications during plant mode changes.
- AI 2012-08137-031, Design, develop and implement training to close knowledge and performance gaps for operators regarding the nature, scope and importance of the current licensing basis, the 10 CFR 50.59 process, the degraded/nonconforming and operability determination processes, and the reportability determination process.
- AI 2012-08137-032, Design, develop and implement training to close knowledge and performance gaps for engineers regarding the nature, scope and importance of the current licensing basis, the 10 CFR 50.59 process, the degraded/nonconforming and operability determination processes, and the reportability determination process.
- AI 2011-1719-037, Complete cost study of implementing Improved Standard Technical Specifications (ISTS) conversion performed by contract 192356 and present results to the budget review committee.
- AI 2012-09494-012, Perform a self-assessment of the department and station standards consistent with industry best practices for screening of degraded/non-conforming conditions, operability determinations, functionality evaluations, timely resolution of degraded/non-conforming conditions and effective operational decision making regarding degraded plant components or conditions.
- AI 2012-08137-035, Perform a self-assessment of screening of degraded/non-conforming conditions, operability determinations, reportability determination and technical specification compliance.

(2) Observations and Findings

The licensee incorrectly closed AI 2012-08137-031. Specifically, the AI's description stated, in part, that the licensee was to implement and evaluate training to eliminate certain operations department performance and knowledge gaps. Regarding 10 CFR 50.59 Screener Training, the close comments state, in part, "All individuals passed 10 question open book quiz prior to be given credit for course." However, the team identified that one of the individuals who took that quiz did not pass. In response to the team's observation, the licensee initiated CR 2014-08298 to address this issue.

A licensee effectiveness review determined that AI 2012-09494-012 had not been effective. The action item describes an assessment of station performance using condition report data for the period April 1 through May 31, 2014, and the

assessment determined that the effectiveness review had failed due to a non-cited violation associated with degraded/non-conforming and operability determination process. The licensee initiated CR 2014-08044 to address this issue.

The licensee failed to process a due date extension for AI 2012-08137-035 in accordance with CAP procedures. The licensee extended its due date from December 2, 2013, until May 30, 2014, but, contrary to step 4.3.4 of Procedure FCSG-24-6, the licensee did not prepare and process form FCSG 24.6.1 for that extension. The licensee later closed the action item on May 19, 2014.

### (3) Assessment Results

The licensee has closed all of the action items associated with this item.

Despite the observations noted above, the team considers these action items closed based upon the following provisions: (1) the team reviewed the additional documents associated with these observations, (2) the actions associated with the action items are sufficient to fully address the task, and (3) the licensee has closed all of the action items associated with this item.

The team considered that closure of these action items justified closing PIIM item 8.d. However, the team noted that several of its associated AIs involve the licensee's operability determination process, and that sections 4OA2.5.b and 4OA2.5.c describe violations associated with the licensee's performance related to operability determinations. Further consideration revealed that the performance deficiencies associated with the subject violations had occurred before the licensee had completed the subject action items, and noted that the NRC will inspect the licensee's response to the subject violations, regardless of whether PIIM item 8.d is closed. Therefore, because closure of the associated action items justified closing PIIM item 8.d, and because the violations described in sections 4OA2.5.b and 4OA2.5.c did not justify leaving PIIM item 8.d open, the team considers PIIM item 8.d closed.

### Item 8.e: Design Change 10 CFR 50.59 Practices

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2012-08177-028, Revise the 10 CFR 72.48 training to reflect industry best practices and to include Independent Spent Fuel Storage Installation (ISFSI) licensing basis requirements for 10 CFR 72.48 screeners.
- AI 2012-08177-027, Revise the 10 CFR 50.59 training to reflect industry best practices and to include mentoring as part of the qualification process for 10 CFR 50.59 screeners.
- AI 2012-08177-020, Develop and incorporate specific audit directions to assess 10 CFR 50.59 and 10 CFR 72.48 process and documentation quality using NRC Inspection Procedure Attachment 71111.02, "Evaluations of Changes, Test, or Experiments."

- AI 2011-01719-037, Complete cost study of implementing Improved Standard Technical Specifications (ISTS) conversion performed by contract 192356 and present results to the budget review committee.
- AI 2013-05570-057, Develop performance metrics to trend and trigger action on the performance of the use, implementation, and identification of design and licensing bases issues such as, effective 10 CFR 50.59 evaluations, and procedure adequacy related to design and licensing bases.
- AI 2013-05570-068, Develop and implement performance metrics regarding 10 CFR 50.59.

(2) Observations and Findings

Inspection of these action items resulted in no notable observation.

(3) Assessment Results

The licensee has closed all of the action items associated with this item. The team considers these action items closed based upon the following provisions: (1) the actions associated with the action items are sufficient to fully address the task, and (2) the licensee has closed all of the action items associated with this item.

Therefore, the team considers PIIM item 8.e closed.

Item 8.f: Piping Code and System Classification and Analysis

(1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2012-07724-025, Review the United States of America Standard (USAS) B31.7 and ASME III code reconciliation and correct any code discrepancies.
- AI 2012-07724-023, Provide calculations documenting thermal fatigue analysis on the Class I piping systems for primary plant sampling, reactor coolant gas vent, reactor coolant, safety injection, and waste disposal in accordance with USAS B31.7 Draft 1968.
- AI 2012-07724-022, Review all Class I piping modifications since April 8, 1994, and document the effectiveness of the procedure for ensuring that thermal fatigue analysis was performed.

(2) Observations and Findings

The licensee has determined that they cannot complete AI 2012-07724-023 until the NRC completes its review of Licensee Amendment Request 14-04, which the licensee submitted on May 16, 2014.

### (3) Assessment Results

The licensee has closed AI 2012-07724-025 and AI 2012-07724-022. To complete AI 2012-07724-023, the licensee will wait until after the NRC reviews Licensee Amendment Request 14-04.

Although the team considers AIs 2012-07724-025 and -022 closed based upon their assessment that the actions associated with the action items are sufficient to fully address the tasks, AI 2012-07724-023 is not scheduled to be completed before a particular due date, and is in fact contingent on NRC approval of Licensee Amendment Request 14-04.

Until the uncertainties associated with AI 2012-07724-023 are resolved, the team determined that PIIM item 8.f will remain open.

### Item 8.g: Vendor Manual and Vendor Information Control Program

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2012-09227-010, Revise engineering procedures to reflect vendor manual control process changes.
- AI 2012-09227-017, Revise lists, tables, and vendor supplied documents to reflect vendor manual control process changes.
- AI 2013-17444-002, Perform a self-assessment regarding governance, oversight, and implementation of the vendor manual program.

#### (2) Observations and Findings

The licensee closed AI 2012-09227-010 without completing it. Specifically, the action item described revising engineering procedures involving vendor manual information control activities to include certain information. The licensee closed the action item on August 15, 2013, but prior to this inspection, the licensee's inspection-readiness assessment team determined that the licensee had incorporated the subject information into only 8 of the targeted 10 engineering procedures. In response to that team's observation, the licensee initiated CR 2013-20840.

#### (3) Assessment Results

The licensee has closed AI 2012-09227-010 and AI 2012-09227-017. They are scheduled to complete AI 2013-17444-002 by September 29, 2014.

Despite the observation noted above, the team considers these action items closed based upon the following provisions: (1) the actions associated with the action items are sufficient to fully address the task, (2) the action items are currently on schedule such that they will be completed at the due date.

Therefore, the team considers PIIM item 8.g closed.

## Item 8.h: Safeguards Information Digital Storage Control

### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2012-05931-026, Perform an effectiveness assessment of corrective actions to prevent recurrence including 10 random surveys of safeguards information qualified personnel to ensure they understand the requirements for procuring safeguards information digital storage devices, the approved use location, and the new procedures describing the process of working with safeguards information.
- AI 2012-05931-034, Perform a drill on effective purchase of a safeguards information digital storage device.
- AI 2013-17431-001, Perform a self-assessment of safeguards information control.

### (2) Observations and Findings

Inspection of these action items resulted in no notable observation.

### (3) Assessment Results

The licensee has closed all of the action items associated with this item.

The team considers these action items closed based upon the following provisions: (1) the actions associated with the action items are sufficient to fully address the task, and (2) the licensee has closed all of the action items associated with this item.

Therefore, the team considers PIIM item 8.h closed.

## Item 8.i: Operability Determination

### (1) Inspection Scope

The team reviewed the implementation of the following action items:

AIs 2013-19752-001, -037; -038; -039; and -040; as part of the quarterly training curriculum review committee agenda, review operability determination performance indicators from the Engineering Assurance Group and the Operability Determination Quality Review Board. This will be a repeated action through 2014.

AI 2013-19752-002, Conduct oral boards of all operators who make immediate operability determinations or screen condition reports.

AI 2013-19752-005, Develop interim guidance for resolving unclear operability references. Include relating the use of prompt operability determinations with CAP, and current procedure direction, and its level of detail.



AI 2013-19752-006, Formalize the Operability Determination Quality Review Board into a Fort Calhoun Station procedure.

AI 2013-19752-007, Develop a method for ensuring that immediate operability determinations which fail the minimum Operability Determination Quality Review Board acceptance criterion (<70% unsupported operability determination) are re-performed by the On-Shift Crew.

AI 2013-09494-036, Institute a change to NOD-QP-31 (or equivalent Exelon document) which incorporates clear and complete directions for completion of each applicable step of supporting process forms.

AI 2013-19752-010, Develop specific guidance that directs personnel screening plant conditions or equipment failures to ensure actions are taken as required by the technical specifications (What to do when “this fails” procedure).

AI 2013-19752-011, Screen the population of Fort Calhoun Station surveillances and relate these to the associated limiting condition for operations they support.

AI 2013-19752-012, Review existing testing criteria, direction, or methodologies against industry norms.

AI 2013-19752-013, Review material previously contained in Technical Data Book (TDB) VIII to ensure it resides in other documents that are clearly linked to the associated technical specification limiting condition for operations.

AI 2013-19752-021, -022, -023, and -024; Conduct a common factors analysis of immediate operability determinations quarterly with results and actions approved by the MRC. Action will be on-going through 2014.

AI 2013-19752-025, -026, -027, and -028; Conduct a common factors analysis of prompt operability determinations quarterly with results and actions approved by the MRC. Action will be on-going through 2014.

AI 2013-19752-029, -030, -031, and -032; Present to Plant Review Committee (PRC) licensee event reports, results of operability determination performance metrics, and common factor analysis no less than semi-annually. Action will be on-going through 2014.

AI 2013-19752-033, Immediate Operability Determination Engineering Assurance Group Assessment Performance Indicator of “green” with no more than one immediate operability determinations score greater than 2.0 per month (on average) for the period of June 1 through December 31, 2014.

AI 2013-19752-034, Immediate Operability Determination Engineering Assurance Group Failure Rate Performance Indicator of “green” with no more than one immediate operability determinations failure per month (on average) for the period of June 1 through December 31, 2014.

AI 2013-19752-035, Operability Determination Quality Review Board Operability Determination Performance Indicator of “green” with average Immediate Operability Determination (IOD)/Immediate Functionality Assessment (IFA) score > 90% per month for a period of June 1 through December 31, 2014.

AI 2013-19752-036, Operability Determination Quality Review Board Operability Determination Failure Rate Indicator “green” with < 1 failure per month (on average) for a period of June 1 through December 31, 2014.

## (2) Observations and Findings

Inspection of these action items resulted in no notable observation.

## (3) Assessment Results

The licensee has closed all of the action items associated with this item, except for AI 2013-19752-022, -023, -024, -026, -027, -028, -030, -031, -032, -033, -034, -035, -036, -038, -039, and -040, all of which involve assessments that are due on future dates. The team considers all of the action items closed by the licensee to be closed.

Although numerous action items associated with this PIIM item are complete and appear reasonable, the team considered the following to determine whether to close this PIIM item:

- Section 4OA2.1.b.2 of this report describes multiple examples in which the licensee performed operability determinations for degraded or non-conforming conditions that lacked adequate technical justification as to why the affected structures, systems, or components would perform their specified safety functions;
- Section 4OA2.5.b of this report describes multiple-examples of a violation in which the licensee either failed to make an immediate determination of operability for a degraded or non-conforming condition or failed to make an immediate determination of operability based on a detailed examination of the deficiency;
- The action items associated with PIIM item 8.i are intended to correct the programmatic deficiencies which caused or contributed to the issues discussed in Sections 4OA2.1.b.2 and 4OA2.5.b of this report;
- The subject action items have not been in place long enough to demonstrate that they have effectively corrected the deficiencies associated with this PIIM item; and
- Assessments are scheduled to determine whether the completed action items have been effective.

Based on these considerations, the team determined that PIIM item 8.i will remain open.

## 9. Nuclear Oversight

### Item 9.a: Nuclear Oversight Effectiveness

#### (1) Inspection Scope

The team reviewed the implementation of the following action item:

- AI 2012-08142-030, Perform an effectiveness review to include: (1) Actions implemented and verify that they remain active/in place by reviewing Nuclear Oversight (NOS) procedures to ensure expectations for trending, benchmarking, self-assessment, missed opportunity reviews, and observations have been identified; verifying agenda and attendance sheets for face-to-face meetings are complete and accurate; verifying completion of scheduled monthly reinforcement of expectations by NOS management; and verifying revision of OPPD Policy No. 3.06 includes the requirement to provide a quarterly report on NOS improvements that resulted from trending, benchmarking, self- assessments, missed opportunity review, and observations; (2) NOS Manager quarterly reports to the Vice President of Energy Delivery and Chief Compliance Officer to verify that NOS department improvements have been realized.

#### (2) Observations and Findings

Inspection of this action item resulted in no notable observation.

#### (3) Assessment Results

The licensee completed and closed this AI, and the team considers this AI closed.

Therefore, the team considers PIIM item 9.a closed.

## 10. Transition to the Exelon Nuclear Management Model and Integration into the Exelon Nuclear Fleet

### Item 10.a: Transition to the Exelon Nuclear Management Model and Integration into the Exelon Nuclear Fleet

#### (1) Inspection Scope

The team reviewed the implementation of the following action items:

- AI 2013-17434-001, Phase III – Exelon Nuclear Management Model Transition Implementation Design.
- AI 2013-17434-002, Phase IV – Exelon Nuclear Management Model Transition Implementation Planning.
- AI 2013-17434-003, Phase V – Exelon Nuclear Management Model Transition Implementation.

- AI 2013-17434-004, OPPD Chief Nuclear Officer and Exelon Senior Vice President conduct regular periodic performance challenge meetings to assure transition and integration activities are progressing and effective.

## (2) Observations and Findings

The licensee failed to process a due date extension for AI 2013-17434-003 and AI 2013-17434-004 in accordance with CAP procedures. The due date associated with these action items reflected the original (Revision 0) integration schedule, which was projected to be completed by March 31, 2015. The team noted that as the integration schedule was refined and resource loaded, some actions in the integration schedule were assigned due dates beyond March 31, 2015. The team reviewed the current integration schedule and noted that all actions will be completed by September 29, 2016. Based on the team's observation, the licensee initiated CR 2014-09043 to extend the due dates associated with these action items to reflect the current integration schedule.

The team concluded that the bases for the due date extension was reasonable.

## (3) Assessment Results

AI 2013-17434-001 and AI 2013-17434-002 have been completed.

AI 2013-17434-003 and AI 2013-17434-004 were reviewed, and the team considers these action items closed based upon the following provisions: (1) the actions associated with the action items are sufficient to fully address the task, (2) the action items are currently on schedule such that they will be completed at the due date, (3) upon final closure of the action items, the NRC will review them for adequacy.

## 40A5 Other Activities

### .1 (Closed) VIO 05000285/2013017-01, Failure to Ensure Tornado Missile Protection for Site Components

The team reviewed the licensee's corrective actions to address deficiencies related to tornado missile protection and specifically, Fort Calhoun Station's action to address VIO 05000285/2013017-01, "Failure to Ensure Tornado Missile Protection for Site Components." This issue was identified and resolved by the station during the extended shutdown period and while under increased oversight of the Inspection Manual Chapter 0350 Process. The NRC concluded in Inspection Report 05000285/2013017 (ADAMs Accession Number ML14115A411) that the information regarding the reason for the violation, the corrective actions implemented to correct the violation and prevent recurrence was obtained by the NRC during our inspection activities. The team verified that these corrective actions were implemented and performed walkdowns of several plant modification used to correct deficiencies related to tornado missile protection. The team found that the corrective actions adequately address the violation; therefore, VIO 05000285/2013017-01 is closed.

.2 (Closed) VIO 05000285/2014002-05, Untimely Submittal of Required Licensee Event Reports

The team reviewed the licensee's corrective actions to address weakness in their ability to evaluate and make required reports to the NRC. Specifically, the team reviewed the licensee corrective actions to address NRC Violation VIO 05000285/2014002-05, "Untimely Submittal of Required Licensee Event Reports." The licensee's corrective actions to address this violation are documented in a letter to the NRC dated May 8, 2014, (ADAMs Accession Number ML14128A341). During extent of condition review of the issues identified in VIO 05000285/2014002-05, the licensee identified three additional examples of late licensee event reports. The team determined that these late reports constituted a licensee identified violation of 10 CFR 50.73 that is discussed in Section 4OA7 of this report.

The team reviewed the licensee's corrective actions and identified one additional example where the licensee failed to make a required licensee event report within the time limits specified in NRC regulations. Specifically, the team identified that the licensee failed to report, a loss of environmental qualifications of Namco™ limit switches. The licensee identified this condition on May 3, 2012, but did not submit a licensee event report until June 20, 2014. The team determined that this particular example was similar in nature to the late reports identified in VIO 05000285/2014002-05 but that the performance issue related to the late report occurred prior to this violation. Therefore, the team determined that licensee's failure to submit a licensee event report within the required time limits specified in regulations was a Severity Level IV non-cited violation of 10 CFR 50.73(a)(1), which is discussed further in Section 4OA2.5.h of this report.

The team found no other instances where a required licensee event report was submitted beyond the time limits specified in 10 CFR 50.73(a)(1). Based on the licensee's corrective actions to restore compliance following the identified late licensee events report and their actions to address the cause of these violations, VIO 05000285/2014002-05 is closed.

#### **4OA6 Meetings, Including Exit**

##### Exit Meeting Summary

On September 12, 2014, the inspectors presented the inspection results to Mr. Louis P. Cortopassi, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

#### **4OA7 Licensee-Identified Violations**

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

- Title 10 CFR Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures shall be established to assure that applicable regulatory requirements and the design basis for those structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, from initial

construction until January 13, 2013, the licensee failed to establish measures to assure that applicable regulatory requirements and the design basis were correctly translated into specifications, drawings, procedures, and instructions. Specifically, the licensee failed to control the design inputs to ensure that piping in the chemical and volume control system would perform acceptably during a seismic event. This finding is of very low safety significance (Green) because a chemical and volume control system piping failure event is enveloped by the small break loss of coolant accident as described in Updated Safety Analysis Report Section 14.5.5. This issue was entered into the licensee's corrective action program as CR 2013-01796.

- 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. Contrary to the above, on June 2, 2008, the licensee completed flow scan valve testing for the high pressure safety injection alternate header isolation valve (HCV-2987) that showed a much higher stem friction value than previously analyzed, but failed to promptly identify and correct the condition adverse to quality until CR 2012-01601 was initiated on February 29, 2012. This finding is of very low safety significance (Green) because valve HCV-2987's failure did not represent an actual loss of safety function of a single train for greater than the technical specification allowed outage time in that "EOP/AOP Attachments," Revision 13, dated November 19, 2002, requires operators to also close downstream valves that would back up the closure function of valve HCV-2987. This issue was entered into the licensee's corrective action program as CR 2012-01601.
- Title 10 CFR 50.73(a)(1) requires, in part, that licensees shall submit a licensee event report for any event of the type described in this paragraph within 60 days after the discovery of the event. Contrary to the above, on February 5, 2012, November 15, 2011, and February 19, 2013, the licensee failed to submit a licensee event report for an event meeting the requirements for reporting specified in 10 CFR 50.73. Specifically, the licensee submitted Licensee Event Reports 2012-013, 2012-015 and 2013-001 greater than 60 days following discovery of a reportable event. In accordance with Section 6.9 of the NRC Enforcement Policy, this violation was determined to be a Severity Level IV, non-cited violation. The licensee entered this issue into their corrective action program as CR 2014-02792.
- Technical Specification 5.8.1.a, requires, in part, that written procedures be established, implemented, and maintained as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Regulatory Guide 1.33, Paragraph 9.a, requires that maintenance that can affect the performance of safety-related equipment should be properly preplanned and performed in accordance with written procedures, documented instructions, or drawings appropriate to the circumstances. Contrary to the above, the licensee failed to establish procedures for maintenance that can affect the performance of safety related equipment as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Specifically, prior to May 3, 2013, the licensee's maintenance procedure for Namco™ Type EA 180 limit switches did not specify the correct torque values for the switch top cover to maintain the component's environmental qualifications. This finding was determined to be of very low safety significance because the affected limits switches only affected the radiological barrier provided for by the control room. This issue was entered into the licensee's corrective action program as CR 2012-03651.

Attachment 1: Supplemental Information

Attachment 2: Notification of Inspection and Request for Information

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

S. Andersen, Manager, Design Engineering  
C. Beck, Supervisor Technical Training  
C. Cameron, Supervisor, Regulatory Compliance  
J. Cate, Supervisor Nuclear Engineering  
H. Childs, Supervisor, Access Authorization  
K. Erdman, Supervisor, Nuclear Engineering - Programs  
M. Ferm, Manager, System Engineering  
M. Frans, Manager, Special Assignment  
C. Gotschall, Corrective Action Program Coordinator  
W. Gregory, Nuclear Engineer I  
R. Haug, Senior Consultant  
C. Heimes, Corrective Action Program Coordinator  
T. Herman, Supervisor, Security Training  
C. Hooker, Nuclear Engineer I, Design Engineer-Mechanical  
C. Johnson, Performance Improvement Coordinator  
A. Koenig, System Engineering  
K. Mann, Engineer, Regulatory Assurance  
E. Matzke, Senior Nuclear Licensing Engineer  
M. McIntosh, Senior Designer and Vendor Manual Coordinator  
J. Mise, Engineering Instructor, Training  
J. Mitchell, Senior Nuclear Design Engineer-Electrical  
J. Mulkey, Site Industrial Safety Coordinator  
B. Obermeyer, Manager, Corrective Action Group  
R. Odom, Nuclear Engineer I, Design Engineer-Electrical  
B. Pence, Operations Engineer, Corrective Action Group  
B. Phillips, Supervisor Nuclear Engineering  
D. Pier, Shift Manager  
G. Riva, Superintendent, Maintenance  
T. Robinson, Supervisor, Corrective Action Group  
C. Rosenblad, System Engineering  
C. Scofield, Senior Nuclear Design Engineer-Mechanical  
J. Shuck, System Engineering Supervisor-Primary Systems  
T. Simpkin, Manager, Site Regulatory Assurance  
J. Smidt, Senior Designer  
M. Swan, System Engineer, Electrical  
T. Uehling, Assistant Plant Manager, Operations  
A. Van Nimwegen, Nuclear Engineer, Engineering Assurance Group  
K. Wells, Senior Nuclear Design Engineer-Electrical



## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

### Opened

05000285/2014009-10	VIO	Deficient Evaluation of NRC Bulletin 88-04, Strong Pump Weak Pump Due to Failure to Consider the Effect of Auxiliary Feedwater Pumps Discharge Check Valves Leakage (Section 4OA2.5.j)
05000285/2014009-11	VIO	Failure to Ensure Safe Operations at Design Basis Low River Level (Section 4OA2.5.k)
05000285/2014009-12	VIO	Failure to Maintain Effectiveness of an Emergency Plan (Section 4OA2.5.l)
05000285/2014009-13	VIO	Failure to Perform Evaluation for Design Change (Section 4OA2.5.m)
05000285/2014009-14	VIO	Failure to Account for Worst Case Diesel Frequency in Fuel Oil Consumption Calculations (Section 4OA2.5.n)

### Opened and Closed

05000285/2014009-01	NCV	Failure to Initiate Condition Reports for Gaps Identified in Resolving NRC Non-Cited Violations (Section 4OA2.5.a)
05000285/2014009-02	NCV	Multiple Examples of Failure to Evaluate Operability of Degraded or Non-Conforming Conditions (Section 4OA2.5.b)
05000285/2014009-03	NCV	Failure to Adequately Perform an Operability Evaluation and a 50.59 Evaluation (Section 4OA2.5.c)
05000285/2014009-04	NCV	Failure to Perform an Evaluation for a New Operator Manual Action to Refill Component Cooling Water System During Post-Accident Conditions (Section 4OA2.5.d)
05000285/2014009-05	NCV	Inadequate Design Inputs into Safety Injection Piping Stress Calculation (Section 4OA2.5.e)
05000285/2014009-06	NCV	Failure to Maintain Design Control of Raw Water Strainer Control Panel (Section 4OA2.5.f)
05000285/2014009-07	NCV	Failure to Accurately Model Flow Path for External Flood Mitigation (Section 4OA2.5.g)
05000285/2014009-08	NCV	Failure to Report Loss of Environmental Qualification of Safety Related Limit Switches within Required Time Limits (Section 4OA2.5.h)
05000285/2014009-09	NCV	Failure to Incorporate Design Requirements for Switchgear Room Cooling (Section 4OA2.5.i)
05000285/2014009-15	NCV	Failure to Promptly Identify and Correct a Condition Adverse to Quality (Section 4OA2.5.o)
05000285/2014009-16	NCV	Failure to Correct Longstanding Software Classification Issues (Section 4OA2.5.p)
05000285/2014009-17	NCV	Inadequate Corrective Actions to Properly Implement Applicable ASME OM Code Requirements (Section 4OA2.5.q)

### Opened and Closed

05000285/2014009-18	NCV	Failure to Complete Corrective Actions in a Timely Manner (Section 4OA2.5.r)
05000285/2014009-19	NCV	Failure to Maintain B.5.b Equipment in a State of Readiness to Support Mitigation Strategies (Section 4OA2.5.s)
05000285/2014009-20	NCV	Failure to Correct Conditions Adverse to Quality in the Diesel Generator Staging Air System (Section 4OA2.5.t)
05000285/2014009-21	NCV	Failure to Take Timely Corrective Actions for an Unsealed Raw Water System Control Panel (Section 4OA2.u)

### Closed

05000285/2012-009-01	LER	Inoperable Equipment due to Lack of Environmental Qualifications (Section 4OA3.1)
05000285/2013-002-01	LER	CVCS Class 1 & 2 Charging Supports are Unanalyzed (Section 4OA3.2)
05000285/2012-021-00	LER	HCV-2987, HPSI Alternate Header Isolation Valve (Section 4OA3.3)
05000285/2013-019-01	LER	Non-Seismic Circulating Water Pipe Could Disable Raw Water Pumps (Section 4OA3.4)
05000285/2013-001-00	LER	Mounting of GE HFA Relays does not Meet Seismic Requirements (Section 4OA3.5)
05000285/2014-004-00	LER	Unqualified Limit Switches Render Safety Equipment Inoperable (Section 4OA3.6)
05000285/2013017-01	VIO	Failure to Ensure Tornado Missile Protection for Site Components (Section 4OA5.1)
05000285/2014-002-05	VIO	Untimely Submittal of Required Licensee Event Reports (Section 4OA5.2)

## **LIST OF DOCUMENTS REVIEWED**

### **4OA2 Problem Identification and Resolution**

#### Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FC05158	CQE Instrument Rack Analysis	0
FC07100	Ft. Calhoun RCS Equipment Support Modifications due to SSSRP	8
FC07240	Finite Element Analysis of 12 x 8 reducing Tee in Seismic Subsystem SI-201A to Determine Stress Intensification Factor	0
FC07285	Replacement Steam Generator (RSG) and Reactor Coolant Pump (RCP) Snubber Anchorage Upgrade Analysis	8

### Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FC 08030	Intake Structure Cell Level Control Using the Intake Structure Sluice Gates	0
FC 08172	Seismic Analysis of Racks AI-140A, AI-140B and AI-140C	0
FC 08310	Auxiliary Feedwater (AFW) Motor Driven Pump FW-6 and Turbine Driven Pump FW-10 Performance and Runout Evaluation	0
FC 06821	Site Boundary and Control Room Doses following a Main Steam Line Break Accident Using Alternative Source Terms	1
FC 06904	Category 1 Air Operated Valve (AOV) Operator Margin Analysis	7

### Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
11405-M-97 Sheet 1	Misc. Heating, Ventilating and Air Conditioning Flow Diagram P & ID	66
11405-M-10, Sheet 2	Auxiliary Coolant Component Cooling System Flow Diagram P & ID	19
11405-M-42, Sheet 1	Nitrogen, Hydrogen, Methane, Propane, and Oxygen Gas Flow Diagram P & ID	97
B-4334, Sheet 1	Penetration Typical Drawing	9
D-5185, Sheet 1	Auxiliary Building – Condenser Units Tornado Missile Protection Partial Roof Plans	0
D-5185, Sheet 2	Auxiliary Building – Condenser Units Tornado Missile Protection Elevation and Section	0
D-5185, Sheet 3	Auxiliary Building Tornado Missile Protection Sections and Details (1 of 4)	0
D-5185, Sheet 4	Auxiliary Building Tornado Missile Protection Sections and Details (2 of 4)	0
D-5185, Sheet 5	Auxiliary Building Tornado Missile Protection Sections and Details (3 of 4)	0
D-5185, Sheet 6	Auxiliary Building Tornado Missile Protection Sections and Details (4 of 4)	0

### Engineering Analysis

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EA 91-014	Effects of Loss of Cooling Water on SI/CS Pumps	1

EA 92-072	Diesel Generator Loading Transient Analysis Using Paladin Design Base 4.0	7
EA 13-020	Response of the Service Building Subjected to the Design Basis Earthquake and Maximum Hypothetical Earthquake	0
EA 12-023	Gas Intrusion into the CCW System During Normal Operations	0
EA 06-032	Environmental Parameters for Electrical Equipment Qualification	1
EA 13-014	Tornado Safe Shutdown Analysis	17
EA 13-040	Evaluation of Valves with Teflon Subcomponents Located in Radiation Areas	0
EA 12-023	Gas Intrusion into the CCW System During Normal Operations	0
EA 08-010	Internal Flooding	0

Engineering Change

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EC 50248	Replacement Relay for Obsolete GE Part# CR120A26241	0
EC 55394	Raw Water Pump Operation and Safety Classification of Components During a Flood	0
EC 57139	Upgrade Actuator Elastomers and/or Filter Regulators on HCV-238, 240, 438A, 438B, 438C, & 438D	3
EC 60138	Intake Structure Missile Protection	0
EC 60137	Fuel Oil Storage Tank FO-1 and FO-10 Missile Protections	0
EC 60136	Tornado Missile Protection - Control Room HVAC Condensers	0
EC 55394	Raw Water Pump Operation and Safety Classification of Components During a Flood	0
EC 53392	Circulating Water System Normal Operation	0
EC 59382	Install High Temperature Elastomers in Fisher Valve Air Operators	0
EC 60946	Replace Valve Operator Filter Regulators with Fisher 67 CFR Filter Regulators	0
EC 57139	Upgrade Actuator Elastomers and/or Filter Regulators on HCV-238, 239, 240, 438A, 438B, 438C, and 438D	3
EC 41587	Raw Water Strainer Upgrade	0
EC 59252	Incorporate CCW System Leakage Criteria into Procedures	0

EC 41455	CCW Surge Tank Class Boundary Component Upgrades	0
<u>Procedures</u>		
AOP-01	Acts of Nature	40
AOP-11	Loss of Component Cooling Water	16
EM-PM-RC-1000	General Inspection of General Electric Reactor Coolant Pump Motors	21
ER-AA-430-1001	Guidelines for Flow Accelerated Corrosion Activities	9
FCSG-24-1	Condition Report Initiation	6
FCSG-24-3	Condition Report Screening	12a
FCSG-24-4	Condition Report and Cause Evaluation	8a
FCSG-24-5	Cause Evaluation Manual	7a
FCSG-24-6	Corrective Action Implementation and Condition Report Closure	12a
FCSG-24-7	Effectiveness Review of Corrective Actions to Prevent Recurrence (CAPRs)	3
FCSG-24-8	Departmental Corrective Action Review Board	11
OI-VA-2	Auxiliary Building Normal Ventilation System Normal Operation	44
OP-FC-108-115	Operability Determinations	0a
OP-PM-AFW-0001	Auxiliary Feedwater System Flow Path Verification using FW-6	14
OP-PM-AFW-0003	Auxiliary Feedwater System Flow Path Verification using FW-10	0
OP-ST-AFW-3009	Auxiliary Feedwater Pump FW-6, Recirculation Valve and Check Valve Tests	27
OPD-4-23	System Drain and Fill Plans	2
OPD-4-23	System Drain and Fill Plans	1
PED-SEI-34	Maintenance Rule Program	9
SE-PFT-CCE-001	Component Cooling Water Heat Exchangers Performance Test	15
SE-PM-AE-1000	Containment Corrosion and Protective Coatings Inspection	4
SE-PM-AE-1001	Auxiliary Building Structural Inspection	12
SE-PM-AE-1002	Intake Building and Miscellaneous Structures Inspection	10
SE-PM-AE-1003	Turbine Building Structure Inspection	8

SE-PM-AE-1003	Containment Building Structural Inspection	8
SO-G-107	Storage of Transient Equipment and Material to Prevent Seismic Interactions or Tornado Pressurization	10
TBD-EPIP-OSC-1A	Recognition Category A – Abnormal Rad Levels/Radiological Effluents	2a
TBD-EPIP-OSC-1H	Recognition Category H – Hazards and Other Conditions Affecting Plant Safety	2

#### Self-Assessment

<u>Number</u>	<u>Title</u>	<u>Date</u>
RA 2013-0454	Governance and Oversight Self-Assessment	March 15, 2013
RA 2013-1147	Focused Area Self-Assessment System Engineer AP 913	April 21, 2014
RA 2013-1562	In-Service Testing (IST) Focused Area Check-In	August 2, 2013
RA 2013-3600	2014 Safety Culture Assessment of Fort Calhoun	March 3, 2014
RA 2013-3590	Air Operated Valve Program Check-In Self-Assessment	February 21, 2014
RA-2014-0601	Preparation for 2014 NRC Problem Identification and Resolution (PI&R) Inspection	May 2, 2014

#### Nuclear Oversight Audits

<u>Number</u>	<u>Title</u>	<u>Date</u>
13-NOS-029	NOS Audit Report No. 4 Emergency Preparedness	March 13, 2013
13-NOS-053	SARC Audit Report No. 45 Corrective Action	April 12, 2013
NOSA-FCS-14-03	Emergency Preparedness Functional Area Audit Report	March 28, 2014
NOSA-FCS-14-01	Maintenance Functional Area Audit Report	March 3, 2014
NOSA-FCS-13-72	Engineering Design Control Audit Report	August 23, 2013
NOSA-FCS-13-29/61	Operations Functional Area Audit Report	September 20, 2013
NOSA-FCS-13-24	Maintenance Functional Area Audit Report	October 15, 2013
NOSA-FCS-13-25	Fire Protection Program Audit Report	November 12, 2013

#### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Annual Fatigue Reporting Form for the EIE General Submission Portal	February 20, 2014

	Nuclear Oversight (NOS) First Level Elevation – Engineering has not Taken Appropriate Actions to Correct CAP Behaviors	August 30, 2013
Cause Determination Number 23041311	Evaluation for Putting Rooms 81 & 82 in 50.65a(1)	November 21, 2013
RA 2013-1147-004	Focused Area Self-Assessment	0
13-NOS-061	Nuclear Oversight (NOS) Elevation – Ineffective Actions for Correcting Missed Quality Control (QC) Hold Points	May 17, 2013
13-NOS-077	Nuclear Oversight (NOS) Elevation – Engineering has not Taken Appropriate Actions to Correct CAP Behaviors	June, 21, 2013
LAR 13-03	License Amendment Request (LAR)	August 16, 2013
Recovery Checklist Item 10.3.5	CCW Non-Calc Issues	
NED-14-063 DEN	Voiding of EA12-024	0

Condition Reports (CRs)

2008-01579	2008-02682	2010-3438	2009-04579	2011-06365
2011-06910	2011-07157	2011-07306	2011-09945	2011-10000
2011-10129	2011-10302	2012-01601	2012-02063	2012-03140
2012-03651	2012-03800	2012-03886	2012-03955	2012-04008
2012-04299	2012-04392	2012-04832	2012-04973	2012-07724
2012-08136	2012-10465	2012-10480	2012-15218	2012-15592
2012-15703	2012-15877	2012-16023	2012-16137	2012-16746
2012-18013	2012-19036	2012-19055	2012-19072	2012-19214
2012-19356	2012-19388	2012-19394	2012-19396	2012-19661
2012-19781	2012-19782	2012-19861	2012-19897	2012-20055
2012-20057	2012-20183	2012-20273	2012-20309	2012-20411
2012-20423	2012-20435	2012-20436	2012-20790	2012-20811
2012-20857	2012-20964	2013-00131	2013-00157	2013-00160
2013-00165	2013-00203	2013-00273	2013-00410	2013-00606
2013-00677	2013-00681	2013-00687	2013-00739	2013-00821

2013-00826	2013-01009	2013-01212	2013-01255	2013-01256
2013-01257	2013-01339	2013-01396	2013-01430	2013-01472
2013-01820	2013-01906	2013-02131	2013-02512	2013-02532
2013-02590	2013-02611	2013-02670	2013-02837	2013-02857
2013-02943	2013-03089	2013-03108	2013-03247	2013-03260
2013-03261	2013-03262	2013-03301	2013-03313	2013-03372
2013-03451	2013-03492	2013-03493	2013-03526	2013-03669
2013-03672	2013-03754	2013-03858	2013-03866	2013-03886
2013-03928	2013-04030	2013-04075	2013-04141	2013-04173
2013-04179	2013-04193	2013-04198	2013-04239	2013-04365
2013-04608	2013-04633	2013-04636	2013-04647	2013-04680
2013-04695	2013-04713	2013-04716	2013-04720	2013-04723
2013-04824	2013-05018	2013-05026	2013-05280	2013-05359
2013-05450	2013-05511	2013-05566	2013-05568	2013-05620
2013-05630	2013-05678	2013-05790	2013-06262	2013-06312
2013-06344	2013-06525	2013-06680	2013-06985	2013-07202
2013-07232	2013-07253	2013-07317	2013-07387	2013-07464
2013-07515	2013-07554	2013-07690	2013-07952	2013-08079
2013-08097	2013-08158	2013-08173	2013-08454	2013-08530
2013-08586	2013-08759	2013-08856	2013-09024	2013-09129
2013-09169	2013-09185	2013-09229	2013-09256	2013-09289
2013-09614	2013-09752	2013-09844	2013-09863	2013-10017
2013-10217	2013-10331	2013-10465	2013-10658	2013-10661
2013-10688	2013-10744	2013-10766	2013-10783	2013-10804
2013-10806	2013-10809	2013-10811	2013-10865	2013-10867
2013-10871	2013-10872	2013-10880	2013-10952	2013-11116
2013-11190	2013-11390	2013-11537	2013-11801	2013-11889
2013-11920	2013-11927	2013-11968	2013-11977	2013-11985
2013-11992	2013-12039	2013-12088	2013-12095	2013-12115



2013-12276	2013-12408	2013-12425	2013-12451	2013-12527
2013-12696	2013-12847	2013-12920	2013-13100	2013-13410
2013-13415	2013-13715	2013-13775	2013-13870	2013-14015
2013-14017	2013-14113	2013-14116	2013-14255	2013-14280
2013-14363	2013-14477	2013-14682	2013-14697	2013-14712
2013-14723	2013-14781	2013-14904	2013-15047	2013-15122
2013-15199	2013-15474	2013-15703	2013-15744	2013-16041
2013-16386	2013-16392	2013-16494	2013-16525	2013-16545
2013-16597	2013-16689	2013-16764	2013-16784	2013-16851
2013-16916	2013-16926	2013-17059	2013-17288	2013-17365
2013-17863	2013-17885	2013-18466	2013-18472	2013-18490
2013-18548	2013-18626	2013-18678	2013-18752	2013-18810
2013-19018	2013-19107	2013-19254	2013-19429	2013-19497
2013-19537	2013-19722	2013-20079	2013-20281	2013-20550
2013-20675	2013-20903	2013-20950	2013-21070	2013-21082
2013-21295	2013-21335	2013-21356	2013-21453	2013-21517
2013-21567	2013-21599	2013-21786	2013-22030	2013-22134
2013-22170	2013-22296	2013-22412	2013-22627	2013-22632
2013-22695	2013-22777	2013-22858	2013-22875	2013-22937
2013-23007	2013-23069	2013-23267	2013-23299	2013-23310
2013-23360	2013-23373	2013-23379	2014-00110	2014-00231
2014-00318	2014-00390	2014-00605	2014-00661	2014-00946
2014-01017	2014-01205	2014-01452	2014-01464	2014-01574
2014-01886	2014-01908	2014-02009	2014-02019	2014-02194
2014-02242	2014-02332	2014-02360	2014-02363	2014-02432
2014-02435	2014-02497	2014-02536	2014-02537	2014-02582
2014-02591	2014-02591	2014-02696	2014-02747	2014-02900
2014-02941	2014-03079	2014-03206	2014-03238	2014-03338
2014-03356	2014-03368	2014-03394	2014-03397	2014-03642

2014-03862	2014-04067	2014-04330	2014-04380	2014-04385
2014-04462	2014-04797	2014-04920	2014-04940	2014-05006
2014-05019	2014-05114	2014-05128	2014-05221	2014-05237
2014-05246	2014-05317	2014-05394	2014-05519	2014-05578
2014-05630	2014-05785	2014-05796	2014-05846	2014-05863
2014-05901	2014-05944	2014-05955	2014-06052	2014-06214
2014-06336	2014-06456	2014-06500	2014-06825	2014-06892
2014-06974	2014-07052	2014-07169	2014-07229	2014-07833
2014-08136	2014-08230	2014-08317	2014-08381	2014-08423
2014-08430	2014-08475	2014-08476	2014-08479	2014-08512
2014-08515	2014-08564	2014-08639	2014-08799	2014-08892
2014-09011	2014-09034	2014-09104	2014-09110	

**40A4 IMC 0350 Inspection Activities**

**Section 1. Organizational Effectiveness, Safety Culture and Safety Conscious Work Environment**

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
HU-AA-101	Human Performance Tools And Verification Practices	8
HU-AA-102	Technical Human Performance Practices	7

Condition Reports (CRs)

2014-08683	2013-02314	2014-04970	2014-04945
2014-08685	2014-04963	2014-04165	

Action Items (AIs)

2012-03986-049 2012-04262-057 2013-03600-004

**Section 2. Problem Identification and Resolution**

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CAPCO01	Corrective Action Program Coordinator Qualification Checklist	8

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
DCARB01	Department Corrective Action Review Board Qualification Checklist	5
MRC01	Management Review Committee Qualification Checklist	1
CCCAP 009	Nuclear Training Corrective Action Program, Station Corrective Action Review Board (initial)	1
FSG-24-9	Management Review Committee	9
SO-R-2	Condition Reporting and Corrective Action	53b

Other Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Qualification Group Qualified Employee List MRC01 Management Review Committee	June 27, 2014
	Qualification Group Qualified Employee List DCARB01 Dept Correct Action Review Board	June 27, 2014
	List of Current Fort Calhoun Station CAPCOs	June 27, 2014
FSG-24-9 Attachment 2	Management Review Committee, completed Root Cause and Apparent Cause Grading Sheets	September 5, 2013 - May 19, 2014
	Performance Measures Charts: MRC Rejection Rate, MRC Total (RCA Evaluations), MRC Total (Effectiveness Reviews), MRC Total (ACA Evaluations), MRC (analysis green sheet rejections), MRC Rejection Rate	July 1, 2013 – June 30, 2014
3.06	Omaha Public Power District Corporate Policy	May 1, 2014
	The Right Picture	
	Weekly Leadership Alignment Meeting	October 8, 2012
	Corrective Action Program	July 26, 2012

Condition Reports (CRs)

2012-03495      2011-10135      2013-08675

Action Items (AIs)

2013-08675-034    2013-08675-006    2013-08675-008    2013-08675-010    2012-03495-033  
2013-08675-041    2013-08675-055    2013-08675-055

### Section 3. Performance Improvement and Learning Programs

#### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FCSG-24-7	Effectiveness Review of Corrective Actions to Prevent Recurrence (CAPRs)	3

#### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	FCS Weekly Leadership Alignment Meeting Presentation	June 30, 2014
	OPPD 2013-2015 Business Unit Plan for Nuclear	March 30, 2013
	Safety and Human Performance Standards Accountability Policy	0
	2014 Human Performance Strategic Plan	January 10, 2014
	FCS Plan of the Day	December 17, 2013
	OPPD: Fort Calhoun Station Human Performance Indicators	July 1, 2013 - June 30, 2014
PIIM 2013-0015	PIIM Summary - 2013-0015 Performance Improvement (FPD)	May 30, 2013
PI-FS-1	Performance Improvement	0
FCSG-70	Performance Improvement Integrated Matrix	0
PIIM 2013-0045	PIIM Summary – 2013-0045 System Engineering Excellence Plan (EP)	February 27, 2013
	Excellence Plan – Fort Calhoun Station – System Engineering	
PIIM 2013-0101	PIIM Summary – 2013-0101 Engineering Design Control/Configuration Control Quality Process Improvement	July 2, 2013

#### Condition Reports (CRs)

2012-08135      2012-18702      2012-08126      2012-03986      2013-08675

#### Action Items (AIs)

2012-08135-014    2012-08135-015    2012-08135-008    2012-08135-016    2012-08135-026  
 2012-08135-027    2012-08135-028    2012-08135-029

## Section 4. Design and Licensing Basis Control and Use

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ERPG-EAG-02	Engineering Assurance Group (EAG) Review Task Familiarization Guide – Assessing DNC Conditions, Operability Determinations, Functionality Assessments, and Reportable Conditions.	0
ERPG-EAG-03	Engineering Assurance Group (EAG) Review Task Familiarization Guide – Assessing 50.59 Applicability Determinations, 50.59 Screenings, 50.59 Evaluations, 72.48 Applicability Determinations, 72.48 Screenings, and 72.48 Evaluations.	1
ERPG-EAG-03	Engineering Assurance Group (EAG) Review Task Familiarization Guide – Assessing Modifications and Engineering Changes.	1
FCSG-71	Engineering Assurance Group	1

### Condition Reports (CRs)

2013-11695	2013-01299	2013-02036	2013-14128	2013-14129
2013-14131	2013-17281	2014-00533	2014-00955	2014-01116
2014-01177	2014-01227	2014-01324	2014-01886	2014-01896
2014-02129	2014-03735	2014-04366	2014-05724	2014-05724
2014-07767	2014-00344	2014-01387	2014-01857	2014-03599
2014-03718	2014-03772	2014-04344	2014-05807	2014-06354
2014-07124	2014-07749	2014-02122	2014-08532	2014-02976
2014-01287	2014-04752			

### Action Items (AIs)

2013-05570-010	2013-05570-049	2013-05570-052	2013-05570-057	2013-05570-067
2013-05570-079	2013-05570-091	2013-05570-092	2014-02122-002	2013-05570-074
2013-05570-061	2013-05570-119	2013-05570-122	2013-05570-123	

### Other Documents

<u>Type</u>	<u>Number</u>	<u>Title</u>	<u>Revision</u>
Procedure	MM-PM-MX-1001	Preventive Maintenance – V-Belt cleaning, Inspection, and Adjustment	4
USAR section	9.1	Auxiliary Systems – Heating, Ventilating and Air Conditioning System	32

## Other Documents

<u>Type</u>	<u>Number</u>	<u>Title</u>	<u>Revision</u>
Drawing	D-5185	Auxiliary Building – Condenser Units Tornado Missile Protection Condenser Air Deflectors – Sections (Sheets 1-2, 5-9)	0
Work Order	480935		
Engineering Change	60136		

## **Section 6. Procedures**

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ARP-AI-100/A50	Annunciator Response Procedure A50 Local Annunciator A50, Waste Disposal	13
ARP-AI-66A/A66A	Annunciator Response Procedure A66A Control Room Annunciator A66a, AFWAS/DSS	19
ARP-AI-66B/A66B	Annunciator Response Procedure A66b Control Room Annunciator A66b, AFWAS/DSS	28
ARP-CB-1,2,3/A1	Annunciator Response Procedure A1 Control Room Annunciator A1	38
ARP-AI-65A/A65A	Annunciator Response Procedure A65a Control Room Annunciator A65a Containment/RCGVS	22
ARP-AI-106B/A106B	Annunciator Response Procedure A106b Control Room Annunciator A106b Control Room Ventilation	19
ARP-CB-10,11/A10	Annunciator Response Procedure A10 Control Room Annunciator A10	17
ARP-AI-30B/A34-2	Annunciator Response Procedure A34-2 Control Room Annunciator A34-2 Engineered Safeguards	26

### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	Procedure Review List and Status	
	Verification Process to Address Procedure Quality Concerns (TC “6.0 Procedure Verification Program”)	May 30, 2013
	Condition Report Listing for OI, OP, EOP, AOP or ARPs related trend codes	August 24, 2013 -: February 22, 2014
PIIM 2013-0012	PIIM Summary – 2013-0012 FCS Procedure Quality and Procedure Management (FPD)	April 14, 2011

## Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
RCA 2012-08136	Root Cause Analysis Report – Procedure Quality/Procedure Management	0
AD-FC-1	Document Usage and Administration	0
NPM-1.18	Hierarchy of Documents	0
AD-FC-10	Administration Program Description	0
Policy Number 3.06	Corporate Governance, Oversight, Support, and Perform (GOSP) Model of Fort Calhoun Station	July 15, 2013
PIIM 2013-0021	PIIM summary – 2013-0021 Equipment Design Qualifications / EEQ-HELB (RS)	March 1, 2013
PIIM 2013-0088	PIIM Summary – 2013-0088 0350 Checklist Item 3.d.2, Equipment Service Life (ESL)	July 3, 2013
V-EC-1869	Applicability of BWROG Magnesium Rotor Inspection Report to PWRs	2
PBD-19	Electrical Equipment Qualification Program	6

## Condition Reports (CRs)

2010-02387	2011-03016	2013-09711	2013-08856	2014-06973
2014-08542	2012-18351	2012-08136	2013-08856	2014-00822
2013-02857	2013-18306	2013-19907	2013-18702	2012-18392
2014-08327				

## Action Item (AI)

2013-09711-006	2013-09711-005	2011-03016-048	2010-02387-072	2013-05570-026
2013-05570-076	2011-1484-028			

## **Section 7. Equipment Performance**

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FCSG-68-6	Functional Importance Determination (FID) Process	0
PED-GEI-24	Safety Classification of System, Structure, Components and Sub-components.	6
PED-SEI-13	Preventive Maintenance Program – Technical Basis	15
FCSG-4	Performance of Self-Assessment	24

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
PI-AA-126	Self-assessment and Benchmark Program	0
ER-AA-2002	System Health Monitoring	16
ER-AA-2001	Plant Health Committee	17
EC 63045	FCS Issue Prioritization and Plant Health Committee Process	19a & 20
AP-913	Equipment Reliability Process Description	4
PED-SEI-50	Equipment Reliability Strategy Development and Preventive Maintenance Basis	0
PED-GEI-88	Key Calculation Identification and Improvement	0

Other

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
PIIM 2013-0056	PIIM Summary - 2013-0056 Safety System Functional Failures - NRC White (RS)	June 4, 2013
FCS-203087-PP	FCS Design and Licensing Bases Reconstitution Project Plan	0
FCS- 203087-PM	FCS Design and Licensing Bases Reconstitution Project Manual	0
FCS-203087-P-005	Components Reclassification	0
PIIM 2013-0033	PIIM Summary 2013-0033 Cables and Connectors	May 31, 2013
MD-AD-0004	Maintenance Work Instructions Writer's Guide	37

Condition Reports (CRs)

2014-08881	2014-09058	2014-09025	2014-04709	2014-00976
2013-02857	2013-18306	2013-19907	2013-18702	2012-18392
2014-08327	2012-08617	2012-03544	2009-04216	

Action Items (AIs)

2012-08131-012	2012-08131-019	2012-08131-024	2012-08131-039	2012-09491-014
2012-09491-020	2012-15357-001	2013-09658-001	2013-09658-002	2013-09658-003
2013-09658-004	2013-09658-005			



## Section 8. Programs

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OP-FC-108-115-AD-ODQRB	Operability Determination Oversight and Monitoring	0
FCSG-24-7	Effectiveness Review of Corrective Actions to Prevent Recurrence (CAPRs)	3
LS-AA-114-1006	Exelon 72.48 Training and Qualification	1
TAP-42	Training Administrative Procedure – 42 Mentoring	3
LS-AA-104-1006	Exelon 50.59 Training and Qualification	4
NOD-QP-3	10 CFR 50.59 and 10 CFR 72.48 Reviews	34
NOD-QP-3.2	10 CFR 50.59 Evaluator Qualifications (ES58checklist)	4
NOD-QP-3.1	10 CFR 50.59 Screener Qualifications (ES57checklist)	3
NOD-QP-37.1	Performance Indicator/Goal Change Request Title: Design & Licensing Bases Evaluation & Procedure Issues	3
NOD-QP-14	Protection of Safeguards Information	36
MD-AD-0004	Exelon Procedure, Maintenance Work Instructions Writers Guide	33
PED-GEI-28	Preparation of Construction Work Orders	28
SO-M-101	Maintenance Work Control	95
PED-SEI-31	Vendor Manual Configuration Changes	9
PED-GEI-51	Design Document Correction Request Evaluations	13
PED-GEI-56	Configuration Change Closeout	30
PED-GEI- 60	Preparation Substitute Replacement Items	46
PED-QP-2	Configuration Change Control	61
SO-G-21	Modification Control	96
SO-G-62	Control of Vendor Manuals	15

### Condition Reports (CRs)

2014-08298	2014-08044	2012-08125	2013-05570	2013-17444
2013-19131	2013-19073	2011-6621	2011-5414	2011-9296
2012-08177	2013-05570	2012-05616	2012-07724	2013-05206

2012-19988	1012-19956	2012-09227
2013-17444	2012-19988	1012-19956

Other Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
NOSA-FCS-13-24	Maintenance Functional Area Audit Report	September 30 – October 11, 2013
NOSA-FCS-14-01	Maintenance Functional Area Audit Report	February 10 – February 25, 2014
	Qualification Group Qualified Employees Mentoring Mentoring Process	July 21, 2014
	10 CFR 50.59 AD Average Performance Indicator	March 21, 2014 – June 6, 2014
	10 CFR 50.59 AD Failure Rate Performance Indicator	March 21, 2014 – June 6, 2014
	10 CFR 50.59 Screening Average Performance Indicator	March 21, 2014 – June 6, 2014
	10 CFR 50.59 Screening Failure Rate Performance Indicator	March 21, 2014 – June 6, 2014
	10 CFR 50.59 Evaluation Average Performance Indicator	March 21, 2014 – June 6, 2014
	10 CFR 50.59 Evaluation Failure Rate Performance Indicator	March 21, 2014 – June 6, 2014
	10 CFR 72.48 AD Average Performance Indicator	March 21, 2014 – June 6, 2014
	10 CFR 72.48 AD Failure Rate Performance Indicator	March 21, 2014 – June 6, 2014
	PI Title: Design & Licensing Bases Evaluation & Procedure Issues	December 1, 2013 – April 30, 2014
Memorandum 2014-NSRB-3	Fort Calhoun Station NSRB Meeting April 23-24, 2014 (meeting agenda)	April 14, 2014
	Fort Calhoun Station OE-MRM (presentation)	July 18, 2014
	Nuclear Safety review Board, fort Calhoun (presentation)	August 7, 2014
	Audit Template Engineering Design Control Design Control	0

## Other Documents

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
Lesson Plan ESCT1302A	Design & Licensing Basis Reset Training – Phase I	
Lesson Plan ESCT1303E	Design & Licensing Basis Reset Training – Phase II	
ESCT1303H	Design & Licensing Basis Reset Training – Phase III Lesson Plan	
PIIM 2013-016	PIIM Summary – 2013-0016 Electrical Bus Modifications and Maintenance; Bus Fire Red Finding (RS)	June 7, 2011
WMCT-1301	Maintenance Planning Lesson Plan	
EA 91-054	Code Reconciliation of original design code on record USAS B31.7 (Draft February 1968) to ASME section III 1974 edition and 1980 edition with Summer 81 Addenda.	June 1, 1992
LAR 14-04	Revise Current Licensing Basis to Adopt American Society of Mechanical Engineers Boiler and Pressure Vessel Code, Section III, 1980, (no Addenda) as an Alternative to Current Code of Record.	May 16, 2014
	New Employee Orientation Lesson Plan	
	Computer Based Training Course for Safeguards Information (18 pages)	
	Drill, [Safeguards Information] Laptop Configuration	October 22, 1013
	[Safeguards Information] Drill 2012-05931-34AI, Training Record, 2 Examples	October 22, 2013

## **Section 9. Nuclear Oversight**

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FCSG-24-4	Condition Report and Cause Evaluation	8a
FCSG-24-7	Effectiveness Review of Corrective Actions to Prevent Recurrence (CAPRs)	3



**UNITED STATES  
NUCLEAR REGULATORY COMMISSION**  
REGION IV  
1600 E. LAMAR BLVD.  
ARLINGTON, TX 76011-4511

May 30, 2014

Lou Cortopassi, 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 – NOTIFICATION OF INSPECTION  
(NRC INSPECTION REPORT 05000285/2014009) AND REQUEST  
FOR INFORMATION**

Dear Mr. Cortopassi:

On July 7, 2014, inspectors from the Nuclear Regulatory Commission's (NRC) will perform an inspection as part of its oversight of Fort Calhoun Station (FCS) in accordance with Inspection Manual Chapter (IMC) 0350, using applicable portions of NRC Inspection Procedures 71152 and 92702. This inspection supports the assessment and verification of the commitments described in the Confirmatory Action Letter issued to FCS on December 17, 2013, and other selected areas to inform the NRC's assessment of the safety, organizational, and programmatic issues at FCS. This inspection will assist the NRC in assessing if the licensee's performance improvement initiatives are being effectively implemented and monitored and provide the agency assessment input regarding the decision to move the station back into the Reactor Oversight Process.

This inspection is a part of the IMC 0350 oversight inspection activities. Experience has shown that this inspection is a resource intensive inspection both for the NRC inspectors and your staff. The inspection will include 2-weeks of on-site inspections by the team. The current inspection schedule is as follows:

Preparation week: June 23, 2014  
Onsite weeks: July 7, 2014, and July 21, 2014

In order to minimize the impact to your on-site resources and to ensure a productive inspection, we have enclosed a request for documents and resources needed for this inspection. It is important that all of these documents are up-to-date and complete in order to minimize the number of additional documents requested during the preparation and/or onsite portions of the inspection.

We have discussed the schedule for these inspection activities with your staff and understand that our regulatory contact for this inspection will be Mr. Corey Cameron, Supervisor Regulatory Compliance. If there are any questions about this inspection or the material requested, please contact the lead inspector, Greg Warnick, at (949) 492-2641 (Greg.Warnick@nrc.gov).

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0018. The NRC may not conduct or sponsor, and a person is not required to respond to, a request for information or an information collection requirement unless the requesting document displays a currently valid Office of Management and Budget control number.

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

Sincerely,

*/RA/*

Michael C. Hay, Chief  
Reactor Projects Branch F  
Division of Reactor Projects

Docket: 50-285  
License: DPR-40

Enclosure:  
Fort Calhoun Station CAL Follow-up and  
PI&R Inspection – Request for Information

cc w/enclosure: Electronic Distribution for Fort Calhoun Station

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**Fort Calhoun Station CAL Follow-up and PI&R Inspection – Request for Information**

TO: Corey Cameron  
Supervisor Regulatory Compliance  
(402)-533-7337

FROM: Greg Warnick  
Team Leader, CAL Follow-up, and PI&R Inspection  
949-492-2641

SUBJECT: INFORMATION REQUEST TO SUPPORT JULY 2014 CAL FOLLOW-UP AND  
PI&R TEAM INSPECTION (IPS 71152 AND 92702)

The following information is requested in order to support inspection preparation activities starting June 23, 2014:

- Electronically accessible files on Certrec website for: Greg Warnick, Bob Hagar, Jeremy Groom, Bradley Davis, Chris Smith, Christopher Henderson, Megan Williams, Ellery Coffman, David Holman, John Mateychick, LaDonna Suggs, Isaac Anchondo, and Wesley Deschaine.
- Closure Books for the following PIIM action items, with corresponding Action Item Numbers:  
1.a – Organizational Effectiveness

2012-08132-021  
2012-03986-049  
2012-08132-010  
2012-08132-025

1.b – Station Safety Culture/Safety Conscious Work Environment

2012-03986-049  
2012-04262-057  
2012-04262-068  
2012-04262-069

2.a – CAP Excellence Plan – Problem Identification

2013-08675-006  
2013-08675-010  
2013-08675-046

2.b - CAP Excellence Plan – Root Cause and Apparent Cause Quality

2013-08675-034  
2013-08675-008  
2013-08675-006

2013-08675-010  
2012-03495-033  
2013-08675-041

2.c - CAP Excellence Plan – Corrective Action Closure

2013-08675-006  
2013-08675-010  
2013-08675-043  
2013-08675-046  
2013-08675-047

3.a - Performance Improvement

2013-08675-035  
2012-08126-018  
2012-08126-015

3.b – Human Performance

2012-08135-014  
2012-08135-015  
2012-08135-008  
2012-08135-016  
2012-08135-026  
2012-08135-027  
2012-08135-028  
2012-08135-029

4.a – Design And Licensing Basis

2013-05570-025  
2013-05570-091  
2013-05570-010  
2013-05570-079  
2013-05570-092  
2013-05570-057  
2013-05570-067  
2013-05570-049  
2013-05570-052

5.a – Site Operational Focus, Operational Decision Making and Anticipating System Response

2012-08132-010  
2013-17442-001



6.a – Procedure Quality and Procedure Management

2012-18351-001  
2012-08136-014  
2012-08136-022  
2012-08136-023  
2012-08136-024

6.b – Abnormal and Emergency Operating Procedures

2013-09711-006  
2013-09711-005  
2011-3016-048  
2010-2387-072

7.a – Tornado Protection

2013-04266-007  
2013-04266-014  
2013-04266-016

7.b – Equipment Service Life

2012-08134-012  
2012-08134-024  
2013-09658-001  
2012-15357-001  
2012-08134-019  
2012-09491-020  
2013-09658-002  
2012-09491-014  
2013-09658-003  
2012-08134-039  
2013-09658-004  
2013-09658-005

7.e – Electrical Equipment Qualification/High Energy Line Break

2013-02857-014  
2013-02857-016  
2013-02857-009  
2013-02857-019

7.f – Safety System Functional Failures

2011-2677-008

7.g – Cables and Connections

2012-08617-011

2012-03544-014

2012-08134-026

2009-04216-020

8.a – Engineering Rigor

2012-08125-027

2013-05570-049

2013-05570-064

8.b – Equipment Safety Classification and Safety Related Equipment Maintenance

2013-05570-011

2012-05615-009

8.c – Electrical Bus Modifications and Maintenance

2011-6621-038

8.d – Deficiencies in Design and Implementation of Fundamental Regulatory Required Processes

2012-08137-031

2012-08137-012

2012-08137-032

8.e – Design Change 10 CFR 50.59 Practices

2012-08177-027

2012-08177-020

2013-05570-057

2013-05570-068

8.f – Piping Code and System Classification and Analysis

2012-07724-025

2012-07724-022

8.g – Vendor Manual and Vendor Information Control Program

2012-09227-010  
2012-09227-017

8.h – Safeguards Information Digital Storage Control

2012-05931-026  
2012-05931-034  
2013-17431-001

8.i – Operability Determination

2013-19752-001  
2013-19752-037  
2013-19752-002  
2013-19752-005  
2013-19752-006  
2013-19752-007  
2012-09494-036  
2013-19752-010  
2013-19752-012  
2013-19752-013  
2013-19752-021  
2013-19752-025  
2013-19752-026  
2013-19752-029

9.a – Nuclear Oversight Effectiveness

2012-08142-030

10.a – Transition to the Exelon Nuclear Management Model and Integration into the Exelon Nuclear Fleet

2013-17434-001  
2013-17434-002

- Corrective Action Program Review

This review will cover the period from February 2013 through the present. 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.

## 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. NCVs and Violations issued to Fort Calhoun Station
  - ii. LERs 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

Inspector Contact Information:

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