



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

March 12, 2015

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, PROBLEM IDENTIFICATION AND RESOLUTION, AND  
SUPPLEMENTAL INSPECTION REPORT 05000285/2015008**

Dear Mr. Cortopassi:

On January 30, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at the Fort Calhoun Station (FCS) and discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

The scope of this inspection included (1) verification that the station had corrected deficiencies identified by the NRC's problem identification and resolution inspection team in July and August of 2014 and documented in NRC Inspection Report 201500285/2014009 (ADAMS Accession No. ML14261A455); (2) review of the station's progress in satisfying commitments made in your December 2, 2013, letter (ML13336A785) and confirmed in the NRC's December 17, 2013, Confirmatory Action Letter (CAL) (ML13351A395); (3) review of the station's actions and cause analyses performed in response to a White performance indicator for unplanned scrams per 7,000 hours, which occurred during the second quarter of 2014; (4) review of the station's plan to address backlogs of degraded or nonconforming conditions; and (5) verification that the station had corrected deficiencies related to your operations department's processes for determining the operability of degraded or nonconforming conditions.

Overall, based on the results of this inspection, the NRC noted that implementation of the station corrective action program has improved. Your leadership team is focused on reinforcing the station standards for sustained improvement and is holding people accountable to those standards. Although the station has a number of areas for continuing improvement, you and your leadership team are putting appropriate emphasis on these efforts, including adding resources as necessary.

The inspection team reviewed the corrective action program-related actions you committed to in your December 2, 2013, letter and determined that the station has adequately completed these actions. Additionally, the team reviewed the completion of actions associated with your commitments related to performance improvement and operability determinations and determined that these commitments had been satisfied. Based on these determinations, the NRC considers these CAL items closed.

Though the station has adequately completed the actions you committed to take to improve your operability determination processes for degraded or nonconforming conditions, the inspection team noted that your operations staff continues to experience challenges with the implementation of these processes. These challenges include failures to recognize degraded or nonconforming conditions, failures to promptly engage other departments when outside expertise is needed to determine whether a degraded or nonconforming condition meets the criteria for operability, and failures to recognize the appropriate authority for making operability determinations.

The NRC plans to conduct a full-scope biennial problem identification and resolution inspection in November and December of this year to verify continued improvement in the performance of your corrective action program. This inspection will include a focused review of the station's documentation and decision-making processes for determining the operability of degraded or nonconforming conditions.

NRC inspectors documented two findings of very low safety significance (Green) in this report. Both of these findings involved violations of NRC requirements. Additionally, NRC inspectors documented one Severity Level IV violation with no associated finding.

If you contest the violations or significance of these non-cited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the 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 the 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 the Fort Calhoun Station.

L. Cortopassi

- 3 -

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 enclosure, 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/**

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

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

Enclosure:  
NRC Inspection Report 05000285/2015008  
w/ Attachment: Supplemental Information

cc w/ encl: Electronic Distribution

L. Cortopassi

- 3 -

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Sincerely,

**/RA/**

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

Docket Nos. 50-285  
License Nos. DPR-40

Enclosure:  
NRC Inspection Report 05000285/2015008  
w/ Attachment: Supplemental Information

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Letter to Louis P. Cortopassi from Michael C. Hay, dated March 12, 2015

SUBJECT: FORT CALHOUN STATION – NRC CONFIRMATORY ACTION LETTER  
FOLLOW-UP, PROBLEM IDENTIFICATION AND RESOLUTION, AND  
SUPPLEMENTAL INSPECTION REPORT 05000285/2015008

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 05000285

License: DPR-40

Report: 05000285/2015008

Licensee: Omaha Public Power District

Facility: Fort Calhoun Station

Location: 9610 Power Lane  
Blair, NE 68008

Dates: January 26-30, 2015

Inspectors: E. Ruesch, J.D., Branch Chief (Acting), Team Lead  
C. Alldredge, Project Engineer  
J. Braisted, Ph.D., Reactor Inspector  
M. Hayes, Operations Engineer  
D. Reinert, Ph.D., Resident Inspector  
B. Tharakan, CHP, Regional Agreement State Program Officer  
L. Brandt, Project Engineer

Approved By: Michael C. Hay  
Chief, Reactor Projects Branch D  
Division of Reactor Projects

## SUMMARY

IR 05000285/2015008; 01/26/2015 – 01/30/2015; FORT CALHOUN STATION; Follow-up of Events and Notices of Enforcement Discretion, Operability Determinations and Functionality Assessments, Problem Identification and Resolution

The inspection activities described in this report were performed between January 26 and January 30, 2015, by inspectors from the Nuclear Regulatory Commission's Region IV office. Two findings of very low safety significance (Green) are documented in this report. Both of these findings involved violations of NRC requirements. Additionally, NRC inspectors documented in this report one Severity Level IV violation with no associated finding. 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, "Aspects 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."

### Cornerstone: Mitigating Systems

- Green. The team identified a Green non-cited violation of 10 CFR 50, Appendix B, Criterion V, for the failure to perform an operability determination in accordance with documented procedures. Specifically, the licensee failed to complete an operability determination related to Condition Report 2014-13202 in accordance with Procedure OP-FC-108-115, "Operability Determinations," Revision 1. Consequently, after discovering dry boric acid accumulation at a welded joint on the high pressure safety injection pump discharge casing vent valve piping, the licensee exited the operability determination procedure prematurely, without performing an engineering evaluation for potentially degraded safety-related piping.

The failure to perform operability determinations in accordance with documented procedures is a performance deficiency. This performance deficiency is more than minor, and therefore a finding, because it affected the human performance attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the team determined that the finding was of very low safety significance (Green) because all questions in Exhibit 2 could be answered in the negative. The team determined that the most significant contributor to the finding was that the licensee failed to stop when faced with the uncertain condition of the boric acid accumulation on the pump vent valve piping and resolve the issue prior to continuing (H.11). (Section 1R15)

- Green. The team reviewed a self-revealing Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly identify a condition adverse to quality. On October 27, 2014, a condition report was written to investigate dry boric acid on the high pressure safety injection Pump SI-2B vent valve piping. The initial investigation concluded that no degraded or nonconforming

condition existed. On October 29, 2014, the Boric Acid Corrosion Control Program engineer conducted a review of the dry boric acid residue. The engineer identified the boric acid appeared to originate from a weld and needed to be cleaned and repaired; however, the engineer failed to initiate a condition report documenting this condition adverse to quality.

The failure to promptly identify and correct a condition adverse to quality in accordance with 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," was a performance deficiency. Specifically, the licensee failed to write a condition report when there was evidence of a boric acid leak on the high pressure safety injection pump casing. This performance deficiency was of more-than-minor safety significance because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and it adversely affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609 Appendix A, Exhibit 2, the finding was of very low safety significance (Green) because all questions in Exhibit 2 could be answered in the negative. The finding had a cross-cutting aspect in the procedure adherence component of the human performance cross-cutting area because the individual failed to write a condition report as required by procedure after identifying a condition adverse to quality (H.8). (Section 4OA2)

#### **Other Findings and Violations**

- Severity Level IV. The team identified a Severity Level IV non-cited violation of 10 CFR 50.73(a)(2)(v)(B) for the failure to make a licensee event report to the NRC. Specifically, the licensee failed to include the loss of the auxiliary feedwater system as a safety system functional failure when reporting a condition prohibited by technical specifications on May 2, 2014. The licensee subsequently made a revision to and submitted a revised licensee event report to the NRC on January 29, 2015. The licensee entered the issue in its corrective action program as Condition Report CR 2015-010903.

The failure to submit a required report within the time requirements specified in Part 50.73(a)(2)(v)(B) is a performance deficiency. The NRC relies on licensees to identify and report conditions or events meeting the criteria specified in the regulations in order to perform its regulatory function. Using Inspection Manual Chapter 0612, the team determined that this performance deficiency was not appropriate to evaluate using the NRC's Significance Determination Process due to the finding only affecting the NRC's ability to perform its regulatory oversight function. As a result, this performance deficiency was evaluated for traditional enforcement in accordance with the NRC Enforcement Policy. This performance deficiency was determined to be a Severity Level IV violation in accordance with Sections 6.9.d.9 and 6.9.d.10 of the NRC Enforcement Policy, dated July 9, 2013. The team determined that assigning a cross-cutting aspect was not applicable to this performance deficiency due to the performance deficiency being screened exclusively using the traditional enforcement process. (Section 4OA3)



## REPORT DETAILS

### 1. REACTOR SAFETY

#### Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

#### 1R15 Operability Determinations and Functionality Assessments (71111.15)

##### a. Inspection Scope

The team reviewed the following 29 operability determinations that the licensee performed for degraded or nonconforming structures, systems, or components (SSCs):

- March 14, 2012, operability determination of Intake Structure Traveling Screen Sluice Gates CW-14A/B/C/D/E/F and Circulator Pump Sluice Gates CW-15A/B/C, CR-2011-10302
- July 11, 2012, operability determination of the discrepancy between the instrument uncertainty calculation and the technical specification basis for the auxiliary feedwater low steam generator delta pressure trip, CR-2012-7088
- July 16, 2012, operability determination of main steam, feedwater, containment cooling/raw water, auxiliary feedwater/emergency feedwater storage tank, and control room hvac systems, CR-2014-07534
- December 19, 2012, operability determination of Gaseous Radiation Monitors RM-051 and RM-052, CR-2011-9836
- January 7, 2013, operability determination of Raw Water Pump Motor AC-10C-M, CR-2013-00273
- April 24, 2013, operability determination of Auxiliary Steam System, CR-2011-5244
- July 25, 2013, operability determination of Containment Spray Pumps I-3A and SI-3B, CR-2013-19722
- July 30, 2013, operability determination of Main Steam Bypass Valve HCV-1041C, Feedwater Regulating Valve HCV-1103, Steam Generator Feedwater Regulating Valve HCV-1104, Steam Generator Inlet Isolation Valve HCV-1385, and Steam Generator Inlet Isolation Valve HCV-1386, CR-2013-15250
- July 31, 2013, functionality assessment of Main and Auxiliary System Cross Connect Valve Motor HCV-1384-M, CR-2013-15250

- October 25, 2013, operability determination of chemical and volume control system, steam generator blowdown, electrical distribution (480v), safety injection system, auxiliary building ventilation, fire protection barrier (Door 989-7), and radiological barrier (Door 989-7), CR-2013-19962
- October 29, 2013, operability determination of Auxiliary Feedwater System Recirculation Valve FCV-1369/FW-10, CR-2012-15755
- November 27, 2013, operability determination of Reactor Coolant System Charging Line Stop Valves HCV-238 and HCV-239, CR-2013-22212
- February 6, 2014, operability determination of raw water system components in the intake structure (AC-10A/AB/C/D and AC-12A/B), CR-2011-5244
- April 10, 2014, operability determination of Low Pressure Safety Injection Pumps SI-1A and SI-1B and Containment Spray Pumps SI-3A, SI-3B, and SI-3C, CR-2013-07317
- May 28, 2014, operability determination of Engineered Safety Features Auxiliary Feedwater Actuation Signal Steam Generator Differential Pressure Instruments A/DPS-913/914-1, A/DPS-914/913-1, B/DPS-913/914-1, B/DPS-914/913-1, C/DPS-913/914-1, C/DPS-914/913-1, D/DPS-913/914-1, D/DPS-914/913-1, CR-2014-06182
- July 3, 2014, operability determination of Component Cooling Water Pump AC-3A, CR-2014-07833
- July 10, 2014, operability determination of A/JI-007Y (AI-NI), Power Margin and Setpoint Dual Meter (Channel A), AI-31A-AW15 (AI-RPS), Axial Power Distribution Trip Calculator, Reactor Protection System Trip Channel AI-31A-A/TU-01 (AI-RPS), Channel A High Power Level, CR-2014-07629
- August 13, 2014, operability determination of Raw Water Pump Motor AC-10C-M, CR-2014-09104
- September 6, 2014, operability determination of Component Cooling Water Surge Tank AC-2 inventory under accident conditions, CR-2014-11071
- October 14, 2014, operability determination of Safety Injection Tanks Fill/Drain Line Isolation Valve SI-410, CR-2014-12420
- October 23, 2014, operability determination of Containment Spray Header Locations CS-4 and CS-5, CR-2014-12370
- October 27, 2014, operability determination of boric acid residue identified on high pressure safety injection vent valve SI-339, CR-2014-13202

- November 2, 2014, operability determination of raw water system, CR-2014-13370
- November 6, 2014, functionality assessment of diesel-driven auxiliary feedwater pump engine speed out of tolerance low, CR-2014-13659
- November 6, 2014, operability determination of Essential Switchgear Room Ventilation (VA-87, 88, 89, 90, 45A, 45B, 41) and OI-VA-2 Supplementary Cooling Fans during high energy line break, CR-2014-11223
- November 11, 2014, operability determination of emergency diesel generator fuel oil consumption rate, CR-2014-11069
- January 28, 2015, operability determination for air void discovered in containment spray (CS) system at location CS-4, CR-2014-12370
- January 29, 2015, operability determination for the variable overpower trip setpoint spikes greater than 10 percent above rated power, CR-2014-7629
- January 29, 2015, operability determination for gas vented from standby component cooling water pump, CR-2014-7833

The team reviewed the timeliness and technical adequacy of the licensee's evaluations. Where the licensee determined the SSC to be operable but degraded, the team verified that the licensee's compensatory measures were appropriate to provide reasonable assurance of operability. The team verified that the licensee had considered the effect of other degraded conditions on the operability of the degraded SSC.

These activities constitute completion of 29 operability and functionality review samples as defined in Inspection Procedure 71111.15.

b. Observations and Assessment

Since the previous problem identification and resolution inspection in July and August 2014, the licensee had implemented significant and preliminarily effective corrective actions to ensure that operators had adequate information to fully understand documented problems, to make well-informed determinations as to the operability of degraded or nonconforming structures, systems, and components, and to improve the quality of operators' documentation of these operability determinations. These improvements included the addition of templates to the corrective action reporting process so that a condition report initiator was provided with guidance as to the type and detail of information needed by operations personnel.

However, the team noted that the licensee continued to have some challenges in the implementation of its operability determination processes. Most significantly, operations personnel appeared challenged to understand the roles and responsibilities associated with the operability determination process. During discussions with the team regarding a

high-pressure safety injection pump leak, the licensee's operations director stated that operators had "banked on" a boric acid corrosion control program engineering review as a "backup" to the operators' immediate determination of operability of the safety-related system. The operations director further stated that because the condition was evaluated late at night, it was likely that the shift manager "engaged with his STA," but did not contact engineering for input despite potential through-wall degradation of an ASME Code Class 2 component. Finally, senior operations management provided the team with a white paper (see Attachment 3) stating that the shift technical advisor—who is not a licensed operator and thus not authorized to make operability declarations—"declared the pump 'operable with no [degraded or nonconforming condition]' with the concurrence of the Shift Manager." The team noted that it was inappropriate for operators to exit the operability determination process without obtaining an engineering review, and that operations management appeared to lack understanding of the requirement that only licensed operators could make determinations of operability. The team concluded that some operations personnel appeared to have a continued lack of understanding of the operability process, and of roles and responsibilities associated with that process. The operations department's failure to follow the operability determination process in this case is documented as a non-cited violation in Section 1R15.c.1 below.

c. Findings

The team identified one finding with an associated violation and documented one unresolved item. Additional observations are discussed in Section 4OA5 below.

1. Failure to Follow Procedure during an Operability Determination

Introduction. The team identified a Green, non-cited violation of 10 CFR 50, Appendix B, Criterion V, for the failure to complete an operability determination in accordance with documented procedures.

Description. On October 27, 2014, a station radiation protection technician discovered dried boric acid near high pressure safety injection Pump 2B discharge casing vent Valve 339. The technician initiated Condition Report CR-2014-13202 and described the condition as "SI-339 has dried boric acid at the weld joint to casing and vent valve piping." As a result, the licensee performed an immediate operability determination for the condition, as required by Procedure OP-FC-108-115, "Operability Determinations," Revision 1. The licensee cleaned the boric from the weld joint. The shift technical advisor examined the piping and did not identify any obvious cracking or corrosion. On October 28, 2014, operations shift management concluded that no degraded or nonconforming condition existed and declared the high pressure safety injection pump to be operable.

Procedure OP-FC-108-115, Step 4.1.8, describes that a prompt determination of structure, system, or component operability is a follow-up to the immediate determination of component operability made by operations shift management. This determination is warranted when additional information, such as supporting analysis, is needed to confirm the immediate determination. Despite the accumulation of dried boric acid at the weld joint location, the licensee exited the operability process and did not initiate a prompt operability determination to request further analysis in order

to fully characterize the potential degraded condition. The team noted that per the licensee's procedure, further structural analysis should have been performed to fully characterize the structural integrity of the weld joint before declaring the system operable.

On January 23, 2015, during a scheduled surveillance test of high pressure safety injection Pump 2B, a licensee technician noted an active leak from the same weld joint on the vent valve piping. In response to the active leak, the licensee declared the affected train of safety injection inoperable and performed immediate repairs to correct the leaking piping.

The licensee initiated Condition Report CR-2015-01277 to document that plant operators had prematurely exited the immediate operability determination process on October 28, 2014.

Analysis. The failure to perform operability determinations in accordance with documented procedures was a performance deficiency. This performance deficiency was more than minor, and therefore a finding, because it was associated with the human 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. Using Inspection Manual Chapter (IMC) 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," the team determined that the finding was of very low safety significance (Green) because all questions in Exhibit 2 could be answered in the negative. The team determined that the most significant contributor to the finding was that the licensee failed to stop and evaluate and manage the risks before proceeding when faced with the uncertain condition of the boric acid accumulation on vent Valve 339 piping (H.11).

Enforcement. Title 10 CFR, Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," requires, in part, that activities affecting quality shall be accomplished in accordance with prescribed instructions, procedures, and drawings. Procedure OP-FC-108-115, "Operability Determinations," Revision 1, provided guidelines and instructions for evaluating the operability of safety-related structures, systems, or components when degraded and non-conforming conditions were identified. Step 4.1.8 describes that a prompt determination of operability is warranted when additional information, such as supporting analysis, is needed to confirm the immediate operability determination. Contrary to the above, on October 28, 2014, the licensee failed to accomplish an activity affecting quality in accordance with documented procedures. Specifically, the licensee failed to complete a prompt operability determination related to Condition Report CR-2014-13202 in accordance with Procedure OP-FC-108-115, "Operability Determinations." Consequently, after discovering dried boric acid indicating potential degradation of a weld joint on the high pressure safety injection pump discharge casing vent valve piping, the licensee failed to initiate actions to evaluate and correct the degraded piping. Because this finding is of very low safety significance and has been entered into the licensee's corrective action program as Condition Report CR 2015-01277, this violation is being treated as a non-cited violation in accordance with

Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000285/2015008-01, "Failure to Follow Procedure During an Operability Determination."

2. Unresolved Item associated with the weld repair of SI-339 vent pipe leakage

Introduction: The team identified an unresolved item associated with the repair of leakage through the weld on the pipe between the high pressure safety injection (HPSI) Pump 2B casing and vent Valve SI-339. The NRC will review the licensee's corrective actions to determine if the repair was completed in accordance with the requirements of 10 CFR 50.55a and Section XI of the ASME code, or if a performance deficiency occurred.

Description: On January 23, 2015, during a surveillance test of HPSI Pump 2B, a water leak was discovered at the seal weld between the pump casing and the half-inch ASME Class 2 pipe connected to discharge vent Valve SI-339. The leak rate was approximately 2 drips per minute. The licensee declared the pump inoperable and proceeded to repair the weld. The licensee performed visual and dye penetrant testing to identify a pinhole flaw in the seal weld. The testing did not reveal any flaws on the pump casing or the vent pipe. The pressure boundary for the safety injection system at this location is the threaded pipe connection to the pump casing. The seal weld is applied for leak tightness of the system. The licensee removed half of the seal weld around the pipe and did not observe any additional flaws on the pipe or casing. The licensee did not remove the pipe or perform additional testing on the pipe threads to evaluate if degradation of the threads led to the leakage or if the structural integrity of threaded connection remained intact. The seal weld was repaired and the HPSI pump was restored to operable status following post-maintenance testing.

The NRC will review the actions taken by the licensee to determine if the structural integrity of the threaded pipe connection should have been further evaluated through additional testing or analyses. Until completion of this review, this issue will be tracked as unresolved item (URI) 05000285/2015008-02.

4. **OTHER ACTIVITIES**

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

40A2 **Problem Identification and Resolution (71152)**

.1 Evaluation of Corrective Action Program Effectiveness

The team performed an assessment of the effectiveness of the licensee's corrective action program. The team based the following conclusions on a sample of corrective action documents that were open during the assessment period, which ranged from January 1, 2014, to the end of the on-site portion of this inspection on January 30, 2015.

a. Inspection Scope

The team reviewed approximately 200 condition reports (CRs), including associated root cause analyses and apparent cause evaluations, from approximately 16,000 that the licensee had initiated or closed between January 1, 2014, and January 30, 2015. The inspection sample focused on higher-significance condition reports for which the licensee evaluated and took actions to address the cause of the condition. In performing its review, the team evaluated whether the licensee had properly identified, characterized, and entered issues into the corrective action program, and whether the licensee had appropriately evaluated and resolved the issues in accordance with established programs, processes, and procedures. The team also reviewed these programs, processes, and procedures to determine if any issues existed that may impair their effectiveness.

The team reviewed a sample of operability determinations, self-assessments, trending reports and metrics, and various other documents related to the licensee's corrective action program. The team used many of these reviews to assess both the licensee's corrective action program performance and its operability determination process. The results of the review of the operability determination process are discussed in Section 1R15 above.

The team evaluated the licensee's efforts in determining the scope of problems by reviewing selected work orders, self-assessment results, audits, and performance improvement matrices. The team reviewed daily CRs and attended the licensee's Station Ownership Committee (SOC) and Management Review Committee (MRC) meetings to assess the reporting threshold and prioritization efforts, and to observe the corrective action program's interfaces with the operability assessment and work control processes. The team's review included an evaluation of whether the licensee considered the full extent of cause and extent of condition for problems, as well as a review of how the licensee assessed generic implications and previous occurrences of issues. The team assessed the timeliness and effectiveness of corrective actions, completed or planned, and looked for additional examples of problems similar to those the licensee had previously addressed. The team reviewed corrective action documents that addressed past NRC-identified violations to evaluate whether corrective actions adequately addressed the issues.

The team reviewed the licensee's progress in addressing issues identified during a previous problem identification and resolution inspection. During that previous inspection in July and August 2014, the NRC identified significant weaknesses in the licensee's identification, prioritization, and evaluation processes, as documented in NRC Inspection Report 2014009. During that inspection, the NRC identified a number of deficiencies involving inadequate evaluations of degraded or nonconforming conditions that had been entered into the licensee's corrective action program. These included documentation of operability determinations that lacked adequate technical justification. The 2014 team also identified several examples of the licensee's failure to perform immediate operability determinations of degraded or nonconforming conditions due to licensee personnel's failure to recognize that such a condition existed. The 2014 inspection team noted that these inspection results were similar to those

identified in a June 2013 inspection and documented in NRC Inspection Report 05000285/2013008.

b. Observations and Assessments

Overall, the team identified that the licensee had made significant progress in improving its corrective action program performance. However, as noted in Section 1R15 above, the licensee's operations staff continues to experience challenges with the implementation of the operability determination processes. These challenges include failures to recognize degraded or nonconforming conditions, failures to promptly engage other departments when outside expertise is needed to determine whether a degraded or nonconforming condition meets the criteria for operability, and failures to recognize the appropriate authority for making operability determinations. The team noted that these challenges affected the station's ability to identify problems at a low threshold and to promptly correct conditions adverse to quality.

Licensee leadership had begun to implement changes in expectations and new communications initiatives that appeared to be successful in improving the station's corrective action program performance. Periodic surveys indicated that these efforts had yet to be fully successful in engaging the licensee staff and effecting sustained improvement. However, the team concluded based on its observations that if licensee leadership continues to implement and make progress in the performance improvement and staff engagement initiatives, the efforts appear likely to succeed.

1. Effectiveness of Problem Identification

Between January 1, 2014, and January 28, 2015, licensee personnel initiated 16,918 CRs or approximately 1,301 CRs per month with no significant change in trend. Of the total number of CRs initiated during that period, the licensee identified 14 CRs were initiated due to CRs not being generated when required and 225 CRs were initiated due to improper closure. The monthly totals for these types of CRs remained approximately the same. Licensee personnel also closed approximately 1,588 CRs per month during the same period, indicating that the backlog of open CRs has been reduced. The team also reviewed the licensee's performance indicators associated with problem identification and concluded that the licensee had demonstrated improving performance and sustained performance at a high level.

However, the team identified that licensee personnel continued to be challenged to recognize potential degraded or nonconforming conditions. For example, on October 27, 2014, a licensee radiation protection technician discovered dried boric acid near high pressure safety injection pump 2B discharge casing vent Valve 339. The technician initiated Condition Report CR-2014-13202, describing the condition as "dried boric acid at the weld joint to casing and vent valve piping." Operations personnel then performed an immediate operability determination for the condition and cleaned the boric from the weld joint. As discussed in Section 1R15, after examining the piping, a shift technical advisor, who does not hold a license, "declared the pump 'operable with no DNC' with the concurrence of the Shift Manager." Later, after the boric acid control program engineer reviewed the



condition and identified it as a degraded or nonconforming condition, he failed to initiate a new condition report.

Additionally, the team reviewed two previously-issued NCVs that involved voiding issues in the containment spray and component cooling water systems. On January 28, 2015, FCS generated Condition Report CR 2015-01155 to evaluate potential voiding vulnerabilities, particularly in those systems not currently scoped into the station's program for managing gas accumulation (e.g., raw water, auxiliary feed water, component cooling water, and spent fuel pool cooling), and address them as necessary. While the team viewed the time it took for the licensee to initiate a broader review of voiding issues to be a negative, the team viewed the current initiative to be a positive indicator of the station's progress in problem identification.

The team reviewed the licensee's performance indicators specifically associated with the problem identification area of the CAP. The licensee assigns colors (red, yellow, white, green) to the performance indicators based upon their performance level, with green associated with the highest performance level. The licensee updates these performance indicators on a monthly basis. Since January 2014, nine of the licensee's fourteen indicators have remained almost exclusively green. Four of these indicators are currently white, but show an improving trend. The team determined that enough historical performance indicator data was available to conclude that the licensee had demonstrated improving performance and sustained performance at a high level within the problem identification area of the CAP.

Overall, the team concluded that the licensee generally maintained a low threshold for the formal identification of problems and entry into the corrective action program for evaluation. However, continued efforts are warranted by licensee leadership to communicate to their staff—and operations staff in particular—what degraded or nonconforming conditions are and how they must be addressed.

## 2. Effectiveness of Prioritization and Evaluation of Issues

The sample of CRs 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 also reviewed a number of condition reports that included or should have included immediate operability determinations to assess the quality, timeliness, and prioritization of these determinations.

Overall, the team determined that since the previous inspection, the licensee had substantially improved its program for prioritizing and evaluating issues identified in the corrective action program. Station management had taken action to ensure a more rigorous review of evaluation products, which appeared to have led to higher quality documentation and more robust evaluation. The team noted that the licensee continued to experience some challenges in this area, but that improvements were ongoing. These improvements appeared effective in improving the quality of evaluation products developed under the corrective action program. However, as

discussed in Section 1R15 above, the team had continued concerns about the operations department's evaluation and prioritization of degraded or nonconforming conditions. While the operability determination process is outside of the corrective action program, it is an important contributor to the evaluation of conditions adversely affecting safety-related systems and the prioritization of their repairs. The team's concerns particularly related to operators' understanding of their roles and responsibilities related to operability determinations and the processes for obtaining engineering input when needed.

### 3. Effectiveness of Corrective Actions

Overall, the team concluded that the licensee generally identified effective corrective actions for the problems evaluated in the corrective action program. The licensee generally implemented these corrective actions in a timely manner, commensurate with their safety significance, and reviewed the effectiveness of the corrective actions appropriately.

The team noted that the licensee previously had some substantial challenges developing and executing timely and effective corrective actions. These challenges had resulted in a substantial backlog of actions to correct identified conditions for which the licensee had initiated a "CAP Recovery Project." The team reviewed the licensee's plan for reducing this backlog and determined that the plan appeared reasonable and the station's prioritization scheme for implementing outstanding actions appeared appropriate. Though the licensee's performance indicators related to corrective actions were red and did not necessarily indicate improving trends, this was because the station had established processes to ensure that newly identified more-significant conditions were corrected prior to latent less-significant ones. The team noted that the licensee's decision to use a logical approach rather than "managing the metric" was indicative of a positive change to the licensee's safety culture and indicated an overall improvement in corrective action program performance.

#### c. Findings

##### Failure to Promptly Identify and Correct a Condition Adverse to Quality

Introduction. The team reviewed a self-revealing, Green non-cited violation of 10 CFR 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly identify and correct a condition adverse to quality.

Description. On October 27, 2014, Condition Report CR 2014-13202 was written to investigate dry boric acid on the high pressure safety injection Pump SI-2B vent valve piping. The initial investigation concluded that no degraded or nonconforming condition existed. On October 29, 2014, the Boric Acid Corrosion Control Program engineer conducted a review of the dry boric acid residue and completed a FC-1389 boric acid screening per Procedure PBD-10, "Boric Acid Corrosion Control Program," Revision 17. The engineer identified that the boric acid appeared to originate from a weld and needed to be cleaned and repaired; however, the engineer failed to initiate

a condition report documenting this condition. During this inspection, the licensee identified that the engineer was using the station procedure instead of the fleet Procedure ER-AP-331-1002, "Boric Acid Corrosion Control Program Identification, Screening, and Evaluation," which would have directed him to initiate a condition report during his evaluation of the boric acid leak. Failing to write a condition report left the condition uncorrected which led to an active boric acid leak on January 23, 2015, rendering the high pressure safety injection pump inoperable.

Analysis. The failure to promptly identify and correct a condition adverse to quality as required by 10 CFR Part 50, Appendix B, Criterion XVI, was a performance deficiency. This performance deficiency was of more-than-minor safety significance because it was associated with the equipment performance attribute of the mitigating systems cornerstone and it adversely affected the cornerstone objective to ensure availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Specifically, the licensee failed to write a condition report when there was evidence of a boric acid leak on the high pressure safety injection pump casing, which indicated potential degradation of safety-related piping. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, the finding was of very low safety significance (Green) because all questions in Exhibit 2 could be answered in the negative. The finding had a cross-cutting aspect in the procedure adherence component of the human performance cross-cutting area because the individual failed to write a condition report as required by procedure after identifying a condition adverse to quality (H.8).

Enforcement. Title 10 CFR 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 this requirement, on October 29, 2014, the licensee failed to promptly identify and correct a condition adverse to quality. Specifically, the licensee failed to write a condition report when there was evidence of a boric acid leak on the high pressure safety injection pump casing. The high pressure safety injection system is a structure, system, or component important to safety previously evaluated in the final safety analysis report (as updated). Failing to write a condition report left the condition uncorrected which led to an active boric acid leak on January 23, 2015, rendering the high pressure safety injection pump inoperable.

Because this finding was of very low safety significance (Green) and the issue was entered into the licensee's corrective action program as Condition Report CR 2015-01013, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000285/2015008-03, "Failure to Promptly Identify and Correct a Condition Adverse to Quality."

.2 Follow-up of Selected Issues

a. Inspection Scope

The team selected four previously documented issues for in-depth follow-up. Each of these had been cited in a Notice of Violation. These activities constitute completion of four annual follow-up samples as defined in Inspection Procedure 71152.

b. Assessment

(Closed) VIO 05000285/2014002-06, Failure to Restore Compliance for Containment Spray Runout Conditions

The team reviewed the licensee's corrective actions to address deficiencies related to VIO 05000285/2014002-06, "Failure to Restore Compliance for Containment Spray Runout Conditions." The NRC concluded in Inspection Report 05000285/2014002 (ADAMS Accession No. ML14078A666) that temporary corrective actions taken on November 24, 2013, restored FCS to compliance. The team found these corrective actions to be sufficient to adequately address the violation. The team also reviewed corrective actions scheduled to occur in the upcoming refueling outage and found them to be adequate to permanently correct the deficiency; therefore, VIO 05000285/2014002-06 is closed.

(Closed) 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

The team reviewed the licensee's corrective actions to address deficiencies related to 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." The licensee's corrective actions are documented in a letter to the NRC, dated October 20, 2014 (ML14293A237). The team reviewed these corrective actions and determined them to be adequate to correct the deficiency; therefore, VIO 05000285/2014009-10 is closed.

(Closed) VIO 05000285/2013013-20 Failure to Provide Complete and Accurate Information to the NRC

The team reviewed the licensee's corrective actions to address deficiencies related to VIO 05000285/2013013-20, "Failure to Provide Complete and Accurate Information to the NRC." The licensee's corrective actions are documented in a letter to the NRC, dated October 8, 2013 (ML13282A557). Specifically, the letter documents that inaccurate information was provided to the NRC and clarifies the inaccurate information. The team reviewed these corrective actions and determined them to be adequate to correct the deficiency; therefore, VIO 05000285/2013013-20 is closed.

(Closed) VIO 05000285/2013008-14, Failure to Promptly Identify and Correct a Condition Adverse to Quality

The inspection team reviewed the licensee's corrective actions to address VIO 05000285/2013008-14, "Failure to Promptly Identify and Correct a Condition Adverse to Quality," involving a breaker/fuse coordination study and potential vulnerabilities of the 4160-volt and 480-volt electrical distribution systems. The licensee entered this condition into their corrective action program as Condition Report CR 2013-05631. The team reviewed re-evaluations of the study performed by the licensee and a contractor, changes to breaker and bus inspection and preventive maintenance procedures, changes to control circuit testing procedures, and verified that breaker and bus inspection activities were scoped into the next refueling outage. The team found that the corrective actions adequately addressed the violation; therefore, VIO 05000285/2013008-14 is closed.

c. Findings

No findings were identified.

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

a. Inspection Scope

The team reviewed two licensee event reports (LERs) to verify the licensee had taken appropriate corrective actions to resolve the reported issue. These activities constitute completion of two event follow-up samples, as defined in Inspection Procedure 71153.

b. Observations and Assessments

(Closed) Licensee Event Report 05000285/2014-003-00, Reactor Trip Due to Stator Water Cooling Leak During Maintenance

The LER documented a turbine trip and subsequent reactor trip. The trip occurred when main generator stator cooling system inventory was lost while maintenance was in progress. The loss of inventory occurred during the removal of a generator stator water cooling conductivity electrode, as part of its calibration. By design, when the electrode is removed with the system in operation, a safety knob should prevent the electrode seals from backing out to the point of leakage. However, on March 17, 2014, the installed safety knob did not prevent the probe from being removed from the system, which caused a stator cooling water leak. Technicians were unable to isolate the leak in time to prevent a turbine trip, which led to a reactor trip from 100 percent power. Corrective actions were generated to replace all three electrodes in the generator stator water cooling system with a more robust design. These corrective actions are scheduled to be completed during the upcoming outage. A root cause analysis was completed on this reactor trip. The root cause was that a combination of station personnel mindset and behavior issues allowed ineffective identification and mitigation of station operational risk. Corrective actions, including transition to Exelon risk management procedures, were generated to correct the root cause. An interim effectiveness review assessed the effectiveness of the corrective actions and determined that the success criteria were not

met. A second interim effectiveness review and a final effectiveness review are scheduled to ensure that the corrective actions from the root cause evaluation correct the issues with the station's operational risk assessment process. This licensee event report is closed.

(Closed) Licensee Event Report 05000285/2013-014-02, Unqualified Components used in Safety System Control Circuit

On October 18, 2012, the licensee identified that auxiliary feedwater recirculation Valve, FCV-1369, could cause damage to the steam driven auxiliary feedwater Pump FW-10, if it failed closed coincident with the steam driven auxiliary feedwater inlet and outlet valves failing closed. Since the control circuit for the auxiliary feedwater recirculation valve was installed with non-safety related parts, it could not be relied upon for performing its safety function. The licensee determined this issue was reportable as a condition prohibited by technical specifications in Revisions 0 and 1. The team reviewing the LER determined that in addition to a condition prohibited by technical specifications, a condition that could have prevented the fulfillment of the safety function of systems that are needed to remove residual heat also occurred. The enforcement actions associated with the failure to prevent a condition that could have prevented the fulfillment of the safety function of systems that are needed to remove residual heat are discussed in Section 4OA3.c below. The licensee submitted Revision 2 of this LER on January 29, 2015, to include the missed reporting criteria. No additional performance deficiencies were identified. This licensee event report is closed.

c. Findings

Failure to Make Required Licensee Event Report

Introduction: The team identified a Severity Level IV non-cited violation of 10 CFR 50.73(a)(2)(v)(B) for the failure to make a required report to the NRC. Specifically, the licensee failed to include the loss of the auxiliary feedwater system as a safety system functional failure when reporting a condition prohibited by technical specifications on May 2, 2014.

Description: On January 26, 2015, the team reviewed licensee event report (LER) 2013-014, Revision 1. LER 2013-014, Revision 1, was submitted due to the licensee installing non-safety-related parts in the auxiliary feedwater control system rendering both safety-related trains of auxiliary feedwater inoperable for periods of time. The team reviewed the LER to ensure all reporting criteria were met and that any performance deficiencies were appropriately documented. During the review the team noted the 10 CFR 50.73(a)(2)(v)(B) reporting criterion was not checked. Title 10 CFR 50.73(a)(2)(v)(B) requires licensees to report any condition that could have prevented the fulfillment of the safety function of systems that are needed to remove residual heat. The team reviewed the apparent cause and reportability evaluation associated with Condition Report CR-2013-18752. The team noted in the apparent cause and reportability evaluations, the licensee determined that the condition could have prevented fulfillment of a safety function. The team reviewed the draft LER submittal and noted the licensee had checked that this condition could have prevented

fulfillment of a safety function; however, when Revision 0 of LER 2013-014 was submitted, the reporting criterion was not marked. The team presented its concerns to the licensee on January 26, 2015, and the licensee initiated CR 2015-010903 to document the concerns. The licensee subsequently made a revision to and submitted a revision to the LER to the NRC on January 29, 2015.

Analysis: The failure to submit a required report within the time requirements specified in Part 50.73(a)(2)(v)(B) was a performance deficiency. The NRC relies on licensees to identify and report conditions or events meeting the criteria specified in the regulations in order to perform its regulatory function. Using Inspection Manual Chapter 0612, the team determined that this performance deficiency was not appropriate to evaluate using the NRC's Significance Determination Process due to the finding only affecting the NRC's ability to perform its regulatory oversight function. As a result, this performance deficiency was evaluated for traditional enforcement in accordance with the NRC Enforcement Policy. This performance deficiency was determined to be a Severity Level IV violation in accordance with Sections 6.9.d.9 and 6.9.d.10 of the NRC Enforcement Policy, dated July 9, 2013. The team determined that assigning a cross-cutting aspect was not applicable to this performance deficiency due to the performance deficiency being screened exclusively using the traditional enforcement process.

Enforcement: Title 10 CFR Part 50.73(a)(2)(v)(B), "Licensee Event Report System," requires, in part, that licensees shall submit a licensee event report for any event of the type described in the paragraph within 60 days after the discovery of the event. Contrary to the above, on May 2, 2014, the licensee failed to submit an LER for an event meeting the requirements for reporting specified in 10 CFR 50.73(a)(2)(v)(B). On January 29, 2015, the licensee submitted Revision 2 to LER 2013-014 to restore compliance. There were no actual or potential safety consequences associated with this violation. Because this violation was placed into the licensee's corrective action program as Condition Report CR-2015-01093, compliance was restored within a reasonable amount of time, and the violation was not repetitive. This Severity Level IV violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000285/2015008-04, "Failure to Make Required Licensee Event Report."

#### **40A4 Equipment Performance, Testing, and Maintenance**

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

FCS performance indicator for Unplanned Scrams per 7,000 Critical Hours crossed the green/white threshold in the second quarter of 2014, due to two unplanned scrams in January and March 2014. The NRC staff performed this supplemental inspection in accordance with Inspection Procedure (IP) 95001 to assess the licensee's evaluation of the White performance indicator, which affected the initiating events cornerstone in the reactor safety strategic performance area. The inspection objectives were to

- provide assurance that the root and contributing causes of risk-significant issues were understood,

- provide assurance that the extent of condition and extent of cause of risk-significant issues were identified, and
- provide assurance that the licensee's corrective actions for risk-significant issues were or will be sufficient to address the root and contributing causes and to preclude repetition.

In preparation for the inspection, the licensee performed an apparent cause evaluation (ACE) to identify weaknesses that led to the January 2014 unplanned reactor trip and a root cause evaluation (RCE) to identify weaknesses that led to the March 2014 unplanned reactor trip. These evaluations also evaluated the organizational attributes that resulted in the issues.

The team reviewed the licensee's ACE and RCE in addition to other evaluations conducted in support of and as a result of the ACE and RCE. The team reviewed corrective actions that were taken or planned to address the identified causes. The team also held discussions with licensee personnel to ensure that the root and contributing causes and the contribution of safety culture components were understood and corrective actions taken or planned were appropriate to address the causes and preclude repetition.

b. Evaluation of the Inspection Requirements

1. Problem Identification

Inspection Procedure 95001 requires that the inspection staff determine whether the licensee's evaluation of the issue documents who identified the issue (i.e., licensee-identified, self-revealing, or NRC-identified) and the conditions under which the issue was identified. The team concluded that the licensee appropriately evaluated who identified the issue and the conditions under which the issue was identified.

- On January 12, 2014, during power ascension, the control room attempted to reduce the rate of power ascension by inserting Group 4 control element assemblies (CEAs). One CEA (RC-10-41) in Group 4 did not insert and eventually a 10-inch deviation between the remaining Group 4 CEAs and RC-10-41 was created. Power continued to rise and the control room operators conservatively tripped the reactor. The team verified that this information was documented in the licensee's ACE.
- On March 17, 2014, a turbine trip and subsequent reactor trip occurred while maintenance was in progress on the generator stator cooling system. System inventory was lost during the removal of a generator stator water cooling conductivity electrode, as part of its calibration. The operations department responded per procedures and considered the trip uncomplicated. The team verified that this information was documented in the licensee's RCE.



Inspection Procedure 95001 requires that the inspection staff determine whether the licensee's evaluation of the issue documents how long the issue existed and prior opportunities for identification. The team concluded that the licensee appropriately evaluated the issue and documented how long the issue existed and prior opportunities for identification.

- The ACE for the January 2014 trip identified that a blown fuse in the control element drive control circuit of rectifier RC-10-41 prevented it from inserting on demand. Fort Calhoun replaced all but 11 of the rectifiers in 1999. Rectifier RC-10-41 was not replaced in 1999.
- The RCE for the March 2014 trip documented that once the generator stator cooling system began leaking the technicians were unable to isolate the leak to prevent a turbine trip. The leak was isolated shortly after the trip based on system engineering's recommendations.
- The team verified that the ACE for the January trip and the RCE for the March trip both contained timelines that described the events. Both described when the problem was identified and what was done in response to the problem leading up to the trip. They also both described any applicable prior opportunities for identification.

Inspection Procedure 95001 requires that the inspection staff determine whether the licensee's evaluation documents the plant specific risk consequences, as applicable, and compliance concerns associated with the issues. The team concluded that the licensee appropriately documented the risk consequences and compliance concerns associated with the issues.

- The licensee's ACE and RCE documented that the consequences of the issues in January and March 2014 were a manual and automatic trip, respectively. No compliance concerns were identified in the licensee's evaluations.

## 2. Root Cause, Extent of Condition, and Extent of Cause Evaluation

Inspection Procedure 95001 requires that the inspection staff determine whether the licensee evaluated the issue using a systematic methodology to identify the root and contributing causes. The team determined that the licensee evaluated the issues using a systematic methodology to identify root and contributing causes.

- The licensee used the following systematic methods to complete its apparent cause analysis for the January 2014 trip:
  - fault tree analysis
  - support/refute methodology

- The licensee used the following systematic methods to complete its RCE for the March 2014 trip:
  - data gathering through interviews and document review
  - human performance review
  - events and causal factor charting
  - control barrier analysis

Inspection Procedure 95001 requires that the inspection staff determine whether the licensee's evaluation was conducted to a level of detail commensurate with the significance of the issue. Based on the extensive work performed for these evaluations, the team concluded that the evaluations were conducted to a level of detail commensurate with the significance of the problem.

- The licensee's ACE and RCE both derived causes to a point where any further evaluation would put the cause out of the station's control. The ACE for the January trip also references an RCE which was conducted on preventative maintenance and component replacement. The RCE concluded that senior management failed to ensure that corrective actions were taken to address safety issues, adverse trends, and assessment-revealed issues that were identified in equipment reliability programs and processes. This was credited as the underlying issue relevant to the apparent cause in the ACE: the failure to identify replacement intervals for the rectifier in control element drive mechanisms.

Inspection Procedure 95001 requires that the inspection staff determine whether the licensee's RCE included a consideration of prior occurrences of the issue and knowledge of operating experience (OE). Based on the licensee's evaluation and conclusions, the team determined that the licensee's evaluations included a consideration of prior occurrences of the problem and knowledge of prior OE.

- The licensee's RCE and ACE both included an evaluation of internal and external OE. The licensee considered prior occurrences and OE.
- In the ACE for the January trip, the licensee determined that from 1985 to 1995 there were four examples of OE which dealt with failed rectifiers at FCS. All but 11 rectifiers were replaced in 1999 and there was no documentation supporting a basis for not replacing the remaining 11. The ACE contained a corrective action to replace those 11 rectifiers.
- The licensee identified a deficiency with the evaluation of OE for the RCE through the check-in self-assessment process. Specifically, the self-assessment identified that the search timeframe was too narrowly focused because it evaluated the previous 3 years, which were all during the extended shutdown period. This could not possibly identify any OE associated with the generator stator cooling system procedure being performed online. A condition report was written about this observation, which documented that the search timeframe was

within procedural guidance. However, another search was performed with a wider timeframe and no additional relevant OE was found.

Inspection Procedure 95001 requires that the inspection staff determine whether the licensee's evaluation addresses the extent of condition and extent of cause of the issue(s). The team concluded that the licensee's RCE and ACE addressed the extent of condition and the extent of cause of the issue.

- The licensee's RCE considered a thorough extent of condition associated with both the component being worked on and the governing document for that component. The extent of condition identified that there are three conductivity elements of the same design in the stator cooling water system, but there are no other conductivity probes used in other plant systems that could lead to a plant transient. The corrective action to cover the extent of condition was to include all three conductivity probes in EC 53639 to install a more robust safety knob design. This is planned for the upcoming outage. The extent of cause identified that the operational risk not effectively being identified or mitigated by individuals throughout the organization could affect other processes or trigger similar behaviors in other areas of risk management. The implementation of Exelon's Integrated Risk Management procedure was identified as a corrective action to prevent recurrence with respect to the extent of cause.
- The licensee's self-assessment identified two issues with the extent of condition associated with the ACE. Specifically, it was narrowly focused to other CEDM rectifiers and did not specifically state whether rectifiers of the same type are used in other applications in the plant. A condition report was written and concluded that no other plant components use rectifiers of the same type. The self-assessment also identified that the extent of cause is more aligned with the corrective action to the apparent cause, instead of with the apparent cause itself. A condition report was written based on this observation.

Inspection Procedure 95001 requires that the inspection staff determine whether the licensee's root cause, extent of condition, and extent of cause evaluations appropriately considered the safety culture components as described in IMC 0305. The team determined that the licensee's RCE included a proper consideration of whether a weakness in any safety culture component was a root cause or a significant contributing cause of the issue.

- No safety culture review was performed as part of the ACE for the January trip. It was not required per Procedure FCSG-24-4, "Condition Report and Cause Evaluation."
- The RCE associated with the March trip included a safety culture review which evaluated issues identified for applicability to the root cause. The licensee identified that failures in the human performance areas of resources, work control, and work practices all affected the root cause and/or contributing cause. The licensee also identified that failures in the problem identification and resolution area affected the root and contributing cause. Specifically, the

corrective action program affected the contributing cause and the operating experience program affected the root cause.

### 3. Corrective Actions

Inspection Procedure 95001 requires that the inspection staff determine whether (1) the licensee specified appropriate corrective actions for each root and/or contributing cause, or (2) an evaluation that states no actions are necessary is adequate. The team determined that the proposed corrective actions are appropriate and addressed each root and contributing cause.

- The ACE conducted regarding the January trip contains corrective actions that are clearly defined and adequate. However, the licensee's self-assessment identified that one of the corrective actions was improperly closed out. A condition report was written regarding the issue.
- The RCE associated with the March trip contains corrective actions that are clearly defined and adequate. Although the success criteria of the licensee's first interim effectiveness review were not met, the corrective actions appear reasonable and consistent with risk significance of the issue. The team found no reason to believe that the second interim effectiveness review and final effectiveness review will not be successful.

Inspection Procedure 95001 requires that the inspection staff determine whether the licensee prioritized corrective actions with consideration of risk significance and regulatory compliance. The licensee's corrective actions for the January and March trips were commensurate with the significance of the events. The team determined that they had been effectively prioritized with the risk significance of the cause they correct and were reasonable to correct identified issues.

Inspection Procedure 95001 requires that the inspection staff determine whether the licensee established a schedule for implementing and completing the corrective actions. The team determined that a schedule had been established for implementing and completing the corrective actions.

- The licensee established due dates for the corrective actions in the condition reports which documented the two trips. Condition Reports 2014-00485 and 2014-03381 each contain a table that show each corrective action item milestone and its corresponding completion date.

Inspection Procedure 95001 requires that the inspection staff determine whether the licensee developed quantitative and/or qualitative measures of success for determining the effectiveness of the corrective actions to preclude repetition. The team determined that quantitative and qualitative measures of success had been developed for determining the effectiveness of the corrective actions to preclude repetition.

- An effectiveness review was not required for the ACE associated with the January trip. An effectiveness review was conducted for the RCE associated with the March trip. An interim effectiveness review consisted of a sample of operational risk assessments per the requirements of WC-AA-104. This included evaluating one work package per week for eight weeks. The success criteria of this review were not met because six deficiencies were observed, one of which was considered a major deficiency. A second interim effectiveness review is planned, in addition to the final effectiveness review.

c. Findings

No findings were identified.

**4OA5 Other Activities**

Followup of Confirmatory Action Letters or Orders

a. Inspection Scope

On December 2, 2013, the licensee committed by letter (ADAMS Accession No. ML13336A785) to perform a series of actions “for sustained improvement” following restart from an extended outage. These commitments were confirmed by the NRC in a CAL issued December 17, 2013 (ML13351A395).

The team selected a sample of licensee activities that were indicative of the actions the licensee committed to accomplish as confirmed in the December 17, 2013, CAL. The team reviewed whether the licensee took corrective actions as described and whether these corrective actions were effective in addressing the issues that necessitated the issuance of the confirmatory action letter. The actions inspected by the team were those listed in Enclosure 3 of the licensee’s December 2, 2013, letter associated with Key Driver 2 (Problem Identification and Resolution), the Performance Improvement actions of Key Driver 3 (Performance Improvement and Learning Programs), and the Operability Determination actions of Key Driver 8 (Programs).

b. Observations and Assessments

The team determined that the licensee had satisfied its December 2, 2013, commitments in the areas of problem identification and resolution, performance improvement, and operability determination:

1. Problem Identification and Resolution

The team determined that the licensee had satisfactorily completed the actions to which it committed under Key Driver 2 in Enclosure 3 to its December 2, 2013, letter. The team’s overall assessment of the licensee’s corrective action program performance is discussed in Section 4OA2 above.

The commitments associated with Key Driver 2 (identified in NRC Inspection Report 2014009 as PIIM items 2.a, 2.b, and 2.c) are closed.

2. Performance Improvement

The team determined that the licensee had satisfactorily completed all the Performance Improvement actions to which it committed under Key Driver 3 in Enclosure 3 to its December 2, 2013, letter.

The Performance Improvement commitments associated with Key Driver 3 (identified in NRC Inspection Report 2014009 as PIIM item 3.a) are closed.

3. Operability Determinations

Overall, the team determined the licensee was appropriately classifying degraded and/or nonconforming conditions of SSCs in the immediate operability determination performed by the shift manager with the assistance of operations and engineering personnel. The operability determinations and functionality assessments were usually completed in a timely manner and no later than 24 hours after discovery. When necessary, a prompt operability determination was usually requested and an operability evaluation was issued to support the immediate operability determination. The licensee appropriately established compensatory actions for conditions which required compensatory actions to ensure continued operability or functionality of a degraded/nonconforming SSC.

However, the team identified one notable exception where the licensee failed to evaluate a degraded condition in accordance with its operability determination process. Though this performance deficiency occurred in October 2014, and the licensee had implemented a number of improvements to its process since then, the team noted operations management demonstrated a continued lack of complete understanding of the operability determination process. These observations are discussed in Section 1R15.

Though the team noted some deficiencies, the licensee had completed all Operability Determination actions to which it committed under Key Driver 8 in Enclosure 3 to its December 2, 2013, letter.

The Operability Determination commitments associated with Key Driver 8 (identified in NRC Inspection Report 2014009 as PIIM item 8.i) are closed.

c. Findings

No findings were identified.

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

### Exit Meeting Summary

On January 30, 2015, the team presented the inspection results to Mr. L. Cortopassi, Vice President and Chief Nuclear Officer, and members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed proprietary information had been reviewed by the team; the team confirmed that all such information would be returned or destroyed upon completion of this report.

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

C. Cameron, Principal Regulatory Specialist  
S. Dean, Plant General Manager  
J. Grobe, Executive Director, Exelon Nuclear Partners  
C. Heimis, Station Corrective Action Program Coordinator  
K. Ihnen, Nuclear Oversight Manager  
K. Mann, Regulatory Assurance Specialist  
B. Obermeyer, Principal Regulatory Specialist  
T. Simpkin, Regulatory Assurance Manager  
S. Swanson, Operations Director  
J. Weigand, Operations Support Manager

#### **NRC Personnel**

B. Cummings, Resident Inspector  
M. Schneider, Senior Resident Inspector

### **LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

#### **Opened**

05000285/2015008-02    URI    Unresolved Item associated with the weld repair of SI-339 vent pipe leakage (Section 1R15)

#### **Opened and Closed**

05000285/2015008-01    NCV    Failure to Follow Procedure during an Operability Determination (Section 1R15)

05000285/2015008-03    NCV    Failure to Promptly Identify and Correct a Condition Adverse to Quality (Section 4OA2)

05000285/2015008-04    NCV    Failure to Make Required Licensee Event Report (Section 4OA3)

#### **Closed**

05000285-2014002-06    VIO    Failure to Restore Compliance for Containment Spray Runout Conditions (Section 4OA2)



Closed

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)
05000285/2013013-20	VIO	Failure to Provide Complete and Accurate Information to the NRC (Section 4OA2)
05000285/2013008-14	VIO	Failure to Promptly Identify and Correct a Condition Adverse to Quality (Section 4OA2)
05000285/2014-003-00	LER	Reactor Trip Due to Stator Water Cooling Leak During Maintenance (Section 4OA3)
05000285-2013-014-02	LER	Unqualified Components used in Safety System Control Circuit (Section 4OA3)

**LIST OF DOCUMENTS REVIEWED**

**Section 1R15: Operability Determinations and Functionality Assessments**

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OP-FC-108-115	Operability Determinations	1
PBD-10	Boric Acid Corrosion Control Program	17
PE-RR-VX-0406	Inspection and Repair of Fisher "DBQ" Control Valves	17
OP-ST-CCW-3002	Surveillance Test AC-3A Component Cooling Water Pump Inservice Test	32
OP-ST-CCW-3012	Surveillance Test AC-3B Component Cooling Water Pump Inservice Test	21
OI-CC-1	Component Cooling Water System Normal Operation	80
CC-AA-309-101	Engineering Technical Evaluations	14
SO-G-23	Surveillance Test Program	66

Condition Reports (CRs)

2011-9836	2012-07088	2012-15755	2013-19722	2013-22212
2014-05019	2014-06182	2014-07629	2014-07833	2014-08423
2014-08506	2014-08564	2014-09104	2014-09163	2014-09572
2014-09652	2014-09655	2014-11069	2014-11071	2014-11223

Condition Reports (CRs)

2014-12370	2014-12420	2014-13202	2014-13370	2014-13659
2015-00703	2015-00747	2015-00807	2015-00834	2015-00837
2015-00839	2015-00841	2015-00842	2015-00843	2015-00874
2015-00875	2015-00883	2015-00885	2015-00886	2015-00894
2015-00939	2015-00948	2015-00950	2015-00976	2015-01279

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
	ODQRB Meeting Report	January 28, 2015
	Operability Evaluation Hot List	January 16, 2015
	Fort Calhoun OpEval Closure Corrective Action Burn Down Curve Evaluation	January 12, 2015
WO 445544-07	Raw Water Pump Operation and Safety Classification of Components during a Flood	March 4, 2013
FC 08081	Sizing and Selection for Intake Cell Flood Water Inlet Valves for the AOP-1 Raw Water Flow Path	September 4, 2014
	Operability Determination Program Overview 2014 (ODQRB Program Metrics)	January 28, 2015
	Operability Determination Program Overview 2015 (ODQRB Program Metrics)	January 28, 2015
OP-FC-108-115-AD-ODQRD	Operability Determination Oversight and Monitoring	0
TDB-VIII	Equipment Applicability Guidance	64
	Shift Operations Superintendent (SOS) Communication: OpEval Performance Improvement	December 6, 2014
	Fort Calhoun Unit 1 Operations Log (Day Shift)	October 27, 2014
	Fort Calhoun Unit 1 Operations Log (Night Shift)	October 27, 2014
OP-ST-SI-3022	Surveillance Test: Room 22 Safety Injection/Containment Spray Pumps and Valve Exercise In Service Test	August 7, 2014
CR 2015-00885	SOC Condition Report Summary	January 21, 2015

### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision/Date</u>
WO 00535616-01	HCV-2893 and HCV-2894; November 2014 UT of Piping Around Leak	November 19, 2014
WO 00535616-02	HCV-2893 and HCV-2894; December 2014 UT of Piping Around Leak	December 8, 2014
WO 00535616-03	HCV-2893 and HCV-2894; January 2015 UT of Piping Around Leak	January 6, 2015
WO 00543176-01	SI-2B; Perform Weld Repair on Pump	January 23, 2015
WO 00543176-03	SI-2B; Crack Unions to Verify Pump is Vented	January 23, 2015
	Fort Calhoun Raw Water Cable Weekly Status January 22, 2015	January 22, 2015
WO 00504625	Repack/Rebuild HCV-238 Next Cold Shutdown or RFO	June 9, 2014
	White Paper: NRC Proposed Violation on Immediate Operability Determination Regarding October 2014 Identification of Boric Acid at the SI-2B Pump Casing to Vent Line Joint	0

### **Section 40A2: Problem Identification and Resolution**

#### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision Date</u>
PI-AA-120	Issue Identification and Screening Process	1
PI-AA-125	Corrective Action Program (CAP) Procedure	1
ER-AP-331	Boric Acid Corrosion Control (BACC) Program	7
ER-AP-331-1001	Boric Acid Corrosion Control (BACC) Inspection Locations, Implementation, and Inspection Guidelines	7
ER-AP-331-1002	Boric Acid Corrosion Control Program Identification, Screening, and Evaluation	8
ER-AP-331-1003	RCS Leakage Monitoring and Action Plan	7
ER-AP-331-1004	Boric Acid Corrosion Control (BACC) Training and Qualification	5
ER-AP-331-1005	Boric Acid Corrosion Control (BACC) Program Performance Indicators	4

OP-ST-AFW-3006	Auxiliary Feedwater System Category A and B Valve Exercise Test	56
QC-ST-ECCS-0001	Quarterly ECCS Gas Accumulation Detection	January 16, 2015
PED-GEI-3.2	System Interaction Checklist	71
MM-PM-DG-0001	Diesel Generator DG-1 Inspection	September 16, 2014
MM-PM-DG-0002	Diesel Generator DG-2 Inspection	October 09, 2014
SO-M-2	Preventive Maintenance Program	March 15, 2012
OP-FC-106-101	OP-FC-106-101 Significant Event Reporting	0

Self-Assessments and Audits

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2014-1619	Check-In Self-Assessment Pre-PI&R Inspection Assessment	0

Condition Reports

2010-06512	2011-05244	2011-09791	2011-10135	2012-01630
2012-03796	2012-03955	2012-07534	2012-08125	2012-09494
2012-15877	2012-16023	2012-16923	2013-00062	2013-00273
2013-02100	2013-03301	2013-04030	2013-05280	2013-05570
2013-05631	2013-08675	2013-11831	2013-12359	2013-13955
2013-14006	2013-14363	2013-15021	2013-15047	2013-15259
2013-15429	2013-16784	2013-17365	2013-17936	2013-18752
2013-19722	2013-19930	2013-19962	2013-22295	2014-00006
2014-00656	2014-01162	2014-01266	2014-01358	2014-02049
2014-02242	2014-02536	2014-03669	201-03670	2014-03672
2014-04358	2014-04989	2014-05006	2014-05388	2014-06974
2014-07317	2014-07323	2014-07534	2014-07833	2014-08381
2014-08452	2014-08560	2014-08639	2014-08892	2014-08912

### Condition Reports

2014-09011	2014-09034	2014-09080	2014-09151	2014-09742
2014-09916	2014-10132	2014-10173	2014-10302	2014-11044
2014-11283	2014-11673	2014-12126	2014-12135	2014-12206
2014-12231	2014-12370	2014-12390	2014-12417	2014-12977
2014-13425	2014-13431	2014-13485	2014-13614	2014-13659
2014-13678	2014-14172	2014-14203	2014-15250	2015-00503
2015-00814	2015-00961	2015-00976	2015-01013	2015-01093
2015-01118	2015-01128	2015-01137	2015-01155	2015-01185
2015-01269	2015-01279			

### Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
FC08313	Fort Calhoun Room 81 Flooding Analysis	13
EA08-010	Internal Flooding	14
EC45428	Installation of ECCS High Point Vent Valves	0

### Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
USAR Appendix M	Postulated High Energy Line Rupture Outside the Containment	15
ER-AA-2009	Managing Gas Accumulation	3
SO-O-1, FC-143	Auxiliary Building Logs, Vent Idle CCW Pumps	124

## **Section 4OA3: Follow-up of Events and Notices of Enforcement Discretion**

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
PI-AA-122-1004	Effectiveness Review Manual	0
WC-AA-104	Integrated Risk Management	22

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
HU-AA-1211	Pre-Job Briefings	9
WC-AA-101-1002	Online Scheduling Process	16
NOD-QP-31	Operability Determinations Process	5
RQCT 1402	Special Topics/Operating Experience Operability Determinations	
OP-FC-106-101	Significant Event Reporting	0

Condition Reports

2011-2211	2014-03381	2014-04944	2014-08446	2014-11934
2014-15673				

**Section 4OA4: Equipment Performance, Testing, and Maintenance**

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
PI-AA-125-1004		0
WC-AA-104	Integrated Risk Management	22
HU-AA-1211	Pre-Job Briefings	9
WC-AA-101-1002	Online Scheduling Process	16
PI-AA-126-1005-F-01	Check-In Self-Assessment	0

Condition Reports

2014-03381	2014-15673	2014-08804	2014-14320	2014-14321
2014-14453	2014-14322	2014-14324	2014-14129	2014-00485
2014-15313	2014-00484	2014-00512	2014-00675	2014-03156
2011-2211	2014-04944	2014-08446	2014-11934	2012-08125

## Section 40A5: Other Activities

### Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
PI-AA-125-1001	Root Cause Analysis Manual	0
PI-AA-125-1003	Apparent Cause Evaluation Manual	1
PI-AA-125-1006	Investigation Techniques Manual	0
LS-AA-1003	NRC Inspection Preparation and Response	17

### Condition Reports

2013-00273	2014-01002	2014-04417	2014-05955	2014-06974
2014-07567	2014-08317	2014-08381	2014-08430	2014-08515
2014-08757	2014-08915	2014-09080	2014-09104	2014-09156
2014-09159	2014-09222	2014-09250	2014-09572	2014-09742
2014-11266	2014-11652	2014-11677	2014-12231	2014-12977
2014-13445	2014-14758			

### Action Items

2013-01548-007	2012-03495-10	2012-03495-25	2012-03495-028	2012-08675-005
2013-08675-013	2014-12977-008			

**Information Request**  
**Confirmatory Action Letter Review and Corrective Action Program Verification**  
**Fort Calhoun Station**  
**December 5, 2014**

**Inspection Report:** 50-285/2015008  
**On-site Inspection Dates:** January 26-30, 2015

This inspection is being conducted to verify that the causes of performance problems affecting effective implementation of the corrective action program at Fort Calhoun Station, documented in NRC inspection report 2014009, have been identified and are being corrected. This inspection will also review the station's progress in addressing open corrective action program-related commitments described in the December 17, 2013 confirmatory action letter.

Unless otherwise specified, this inspection will cover the period from May 2014 to present. The scope of this request is limited to this period unless otherwise specified. To the extent possible, the requested information should be provided electronically in word-searchable Adobe PDF (preferred) or Microsoft Office format. Lists of documents should be provided in Microsoft Excel or a similar sortable format. Please be prepared to provide updates to this information upon the team's arrival on site.

Please provide the following information no later than January 6, 2015:

1. Closure Documentation for PIIM Items

- a. PIIM item 2.a: CAP Excellence Plan – Problem Identification
- b. PIIM item 2.b: CAP Excellence Plan – Root Cause and Apparent Cause Quality
- c. PIIM item 2.c: CAP Excellence Plan – Corrective Action Closure
- d. PIIM item 3.a: Performance Improvement
- e. PIIM item 8.i: Operability Determination

With this closure documentation, provide a two-year history of performance indicators or other trending data used to measure the station's performance in each area. Include descriptions of these performance indicators, including the method for determining dates, scores, or other inputs.

2. Document Lists

For these summary lists, provide the condition report number, initiation date, current status, and a title or short description of the issue.

- a. Summary list of all conditions adverse to quality identified, evaluated, or resolved during the period; include identification of the affected safety system
- b. Summary list of all condition reports that were upgraded or downgraded in priority/significance
- c. Summary list of all condition reports that were closed to other condition reports



- d. Summary list of all condition reports documenting conditions requiring immediate determinations of operability or functionality (if different from 2.a); include identification of the affected safety system or support system
  - e. Summary list of all degraded or nonconforming conditions during the period that were not restored to full qualification within 30 days (full condition reports for current DNC conditions are requested in item 3.h below)
3. Full Documents, with Attachments
- a. Root cause analyses completed during the period, including current status of all corrective actions and scheduled completion dates
  - b. Apparent cause analyses completed during the period, including current status of all corrective actions and scheduled completion dates
  - c. Audits, surveillances, or other assessments performed on the corrective action program or any portion thereof
  - d. Condition reports generated during the period associated with the following:
    - i. NRC findings and violations issued to Fort Calhoun Station
    - ii. Audit findings issued by Fort Calhoun Station's QA organization
    - iii. Licensee event reports issued by Fort Calhoun Station; include LERs 2013-014 and 2014-003 regardless of date
  - e. Condition reports generated for adverse trends in equipment, processes, procedures, programs, or human performance
  - f. All condition reports associated with the following NRC-issued violations:
    - i. VIO 2013008-14: Failure to Promptly Identify and Correct a Condition Adverse to Quality
    - ii. VIO 2013013-20: Failure to Provide Complete and Accurate Information to the NRC
    - iii. VIO 2014002-05: Untimely Submittal of Required Licensee Event Reports
    - iv. VIO 2014002-06: Failure to Restore Compliance for Containment Spray Runout Conditions
  - g. Operability evaluations supporting prompt operability determinations, with their associated condition reports
  - h. Condition reports associated with currently degraded or nonconforming conditions; include current status, supporting operability evaluations, required actions for restoration, planned restoration date, and supporting documentation for any extensions of action due dates
  - i. Condition reports written for observations, findings, and violations documented in the September 2014 NRC PI&R inspection report

- j. Condition reports associated with Fort Calhoun Station's second quarter 2014 white NRC performance indicator for Unplanned Scrams per 7000 Critical Hours; include condition reports associated with each plant trip

4. Procedures

Include all revisions of these procedures that were in effect at any time since May 2014

- a. Corrective action program procedures, to include initiation and evaluation procedures, operability determination procedures, apparent and root cause analysis procedures, and any other procedures that implement the corrective action program
- b. Procedures providing for evaluation of conditions for applicability of actions required by 10 CFR 50.59, 50.72, 50.73, or Part 21
- c. Quality assurance program procedures, including procedures controlling disposition of audit findings and observations; exclude individual audit procedures
- d. Regulatory assurance procedures controlling disposition of NRC-identified issues

5. Other

- a. Table showing number of condition reports initiated monthly, by significance, for calendar year 2014
- b. Word-searchable organization charts for plant staff and long-term contractors, if available
- c. Electronic copies of the UFSAR (or equivalent), technical specifications, and technical specification bases, if available

All requested documents should be provided electronically where possible. Regardless of whether they are uploaded to an internet-based file library (e.g., Certrec's IMS), please provide copies to the team lead on CD or DVD:

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**PAPERWORK REDUCTION ACT STATEMENT**

This request 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 3150-0011.

## WHITE PAPER PROVIDED BY LICENSEE ON HPSI OPERABILITY DETERMINATION

### NRC Proposed Violation on Immediate Operability Determination Regarding October 2014 Identification of Boric Acid at the SI-2B Pump Casing to Vent Line Joint

On 10/27/2014, a radiation protection technician (RP Tech) identified during a routine tour an accumulation of boric acid on the High Pressure Safety Injection Pump SI-2B casing at the casing vent line. The RP Tech initiated condition report CR 2014-13202 on 10/27/2014 at 1314 hours documenting "Dried boric acid on SI-2B vent valve piping" and Work Request 00217710 on 10/27/2014 at 1313 hours documenting "Investigate Dried Boric Acid on Pump Casing of SI-2B". CR 2014-13202 was turned over to the night shift on 10/27/2014 for evaluation and reviewed by the night shift Shift Technical Advisor (STA).

The STA began his review late on 10/27/2014 and entered procedure OP-FC-108-115, Rev 1 "Operability Determinations". The STA was aware that there had previously been extensive boric acid accumulation on and in the vicinity of SI-2B due to prior problems with the pump. Because there was no indication of an active leak and the boric acid was dry and white, the STA initiated actions to determine if this was residual boric acid remaining from prior problems, or if this was boric acid coming from a leak at the location of the vent valve to pump casing connection.

The STA inspected the boric acid and did not see any drip line down the pump casing. This would be expected if there was a leak since the water inside the pump casing is nominally at the temperature of the room (approximately 60 degrees F) and at the pressure from the static head from the Safety Injection and Refueling Water Tank. The STA had the boric acid cleaned from the joint and performed a visual and physical examination of the seal weld of the joint. The STA did a detailed visual examination of the joint using a flashlight and identified no readily apparent degradation mechanism. The STA waited a short time (approximately 5 minutes) and wiped the joint with his latex glove finding no moisture. Any moisture would have revealed itself as shininess on the latex glove. The STA then waited another short time (approximately 2 minutes) and wiped the joint with a clean dry cotton cloth and also found no moisture. All of the materials that could have been affected by this boric acid (pump casing and vent line) were stainless steel and not susceptible to boric acid corrosion. The STA also performed a search of past CRs regarding boric acid on the SI-2B pump, pump casing, vent line and vent valve. This search revealed significant boric acid accumulations associated with past pump seal issues, but no problems with leakage from the pump casing to vent valve joint. Based on these actions and reviews, the STA concluded that there was no leak from the joint and determined that there was no degraded or nonconforming condition at approximately 0100 hours on 10/28/2014. The STA declared the pump "operable with no DNC" with the concurrence of the Shift Manager as documented on CR 2014-13202.

The procedural requirements that the STA was implementing were contained in Section 4.5.9.3 of OP-FC-108-115 concerning potential failure to meet ASME Code requirements for Class 2 or Class 3 components:

“When ASME Class 2 or Class 3 components do not meet ASME Code ... acceptance standards ..., then determination of whether the degraded or nonconforming condition results in a TS required SSC ... being inoperable shall be made. In order to determine the component is operable under an immediate operability determination, the degradation mechanism must be readily apparent and not indicative of a degraded condition that could compromise the structural integrity of the ASME component. To be readily apparent, the degradation mechanism must be discernable from visual examination (such as external corrosion or wear), or there must be substantial operating experience with the identified degradation mechanism on the affected system. ... There is no such thing as indeterminate state of operability; the SSC is either operable or inoperable.”

The STA followed this procedure, concluded that there was no DNC and the system was operable.

Based on the STA’s conclusion that there was no leak, it would not have been appropriate to enter Section 4.5.10 of OP-FC-108-115 “Operational Leakage from Code Class 1, 2, or 3 Components” because he concluded that there was no leak.

On 10/31/2014, the site performed the quarterly surveillance test OP-ST-SI-3022 “Room 22 Safety Injection/Containment Spray Pumps and Valve Exercise Inservice Test”. During that surveillance test the pump is run generating nominal internal pressure of 1400 psi. No leak occurred during the performance of that test. In addition, from 10/28/2014 to 1/23/2015, tours were made to inspect the pump room on a shift basis by operators and by RP Techs on a frequent basis. No boric acid accumulation or leak was identified at the vent line to pump casing joint for three months during these tours. This affirms the STAs judgment based on his actions on the evening of 10/27/2014 and the early morning hours of 10/28/2014.

FCS has concluded that the STA followed the Operability Determination procedure, there was no leak at the pump casing to vent line joint on 10/27/2014 and the pump was properly declared operable with no degraded or nonconforming condition on 10/28/2014.

The processing of this CR did not meet station expectations in all respects. As a result of CR 2014-13202, the Boric Acid Corrosion Control Program (BACCP) manager entered the condition identified in the CR into the BACCP and completed Form FC-1389 Rev 1 on 10/29/2014 concluding that “Leak is BAI per BACCP. Leak appears to be at a weld and needs to be cleaned and repaired.” This assessment was done through a desk review of the CR and attached pictures. The BACCP manager did not feedback his conclusion to the Shift Manager. Had that been completed, he would have been informed of the actions that the shift had taken on 10/27 & 28/2014, would have noted a clean joint with no leak. During an interview with the BACCP manager on 1/29/2015, he stated that his conclusion given the actions of the STA would have been that there was no leak and no further actions necessary. The failure of the BACCP manager to communicate his conclusions on this CR to the Shift Manager does not meet station expectations and indicates a process deficiency. CR 2015-01013 has been initiated to address this matter.