



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

August 22, 2013

Mr. Mark E. Reddemann  
Chief Executive Officer  
Energy Northwest  
P.O. Box 968 (Mail Drop 1023)  
Richland, WA 99352-0968

**SUBJECT: COLUMBIA GENERATING STATION – NRC PROBLEM IDENTIFICATION AND  
RESOLUTION INSPECTION REPORT 05000397/2013008**

Dear Mr. Reddemann:

On July 12, 2013, the U.S. Nuclear Regulatory Commission (NRC) completed a biennial Problem Identification and Resolution inspection at your Columbia Generating Station facility. The enclosed inspection report documents the inspection results, which the inspection team discussed on July 12, 2013, with you and your staff.

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

Based on the inspection sample, the inspection team concluded that the implementation of the corrective action program and the overall performance related to identifying, evaluating, and resolving problems at Columbia Generating Station was adequate to support nuclear safety. However, the team identified several performance deficiencies related to your staff's implementation of your problem identification and resolution process.

The team observed that your staff generally identified problems and entered them into the corrective action program at a low threshold. In most cases, your staff effectively prioritized and evaluated problems commensurate with their safety significance, resulting in the identification of appropriate corrective actions. However, the team noted weaknesses in some of the station's evaluation processes and identified several instances where your staff inappropriately classified degraded conditions. Of particular note, the team identified that your operations staff did not consistently implement your station's process for evaluating whether degraded structures, systems, and components important to safety remained able to perform their specified safety function as described by the station's design-basis documents. Several specific examples of this weakness in your operability determination process are discussed in the attached report.

Once problems were evaluated, your staff generally implemented corrective actions timely, commensurate with the safety significance of the problems the actions were designed to correct. Most corrective actions reviewed by the team adequately addressed the causes of identified problems. Your staff appropriately reviewed lessons learned from industry operating experience and assigned actions to line organizations when appropriate. However, the team noted multiple instances in which the line organizations did not completely implement these actions as assigned by your operating experience group.

The team observed that your station's audits and self-assessments effectively identified problems and appropriate corrective actions. Further, the team noted that your audit process included a feedback mechanism to ensure that significant audit findings and other quality-related problems had been adequately addressed.

Finally, the team determined that your station's management maintains a safety-conscious work environment adequate to support nuclear safety. Based on the team's observations, your employees are willing to raise concerns related to nuclear safety through at least one of the several means available.

The team identified five findings of very low safety significance (Green) during this inspection. Four of these findings involved violations of NRC requirements. In addition, two licensee-identified violations of very low safety significance are listed in the attached report. The NRC is treating all six documented violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the Enforcement Policy.

If you contest the violations or the significance of the findings, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001, with copies to the Regional Administrator, Region IV; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at Columbia Generating Station.

If you disagree with a cross-cutting aspect assignment in this report, you should provide a response, with the basis for your disagreement, within 30 days of the date of this inspection report to the Regional Administrator, Region IV, and the NRC Resident Inspector at Columbia Generating Station.

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

Sincerely,

**/RA/**

Ray L. Kellar, P.E., Chief  
Technical Support Branch  
Division of Reactor Safety

M. Reddemann

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Docket No.: 50-397

License No.: NPF-21

Enclosure: Inspection Report 05000397/2013008  
w/Attachments

cc: Electronic Distribution to Columbia Generating Station

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 50-397

License: NPF-21

Report: 05000397/2013008

Licensee: Energy Northwest

Facility: Columbia Generating Station

Location: Richland, WA

Dates: June 24 – July 12, 2013

Team Leader: E. Ruesch, Senior Reactor Inspector

Inspectors: J. Groom, Senior Resident Inspector  
C. Hale, Reactor Inspector  
L. Micewski, Resident Inspector

Approved By: R. Kellar, P.E., Chief  
Technical Support Branch  
Division of Reactor Safety

## **SUMMARY OF FINDINGS**

IR 05000397/2013008; June 24–July 12, 2013; Columbia Generating Station, Biennial Baseline Inspection of the Identification and Resolution of Problems

The team inspection was performed by one senior reactor inspector, one senior resident inspector, one reactor inspector, and one resident inspector. Four Green non-cited violations, one Green finding with no associated violation, and one unresolved item were identified during this inspection. The significance of most findings is indicated by a color (Green, White, Yellow, Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or may be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG 1649, "Reactor Oversight Process," Revision 4, dated December 2006.

### Identification and Resolution of Problems

The team reviewed approximately 250 condition reports, including associated work orders, engineering evaluations, root and apparent cause evaluations, and other supporting documentation. The purpose of this review, which focused on those condition reports that documented higher-significance issues, was to determine whether the licensee had properly identified, characterized, and entered these issues into the corrective action program for evaluation and resolution. The team reviewed a sample of system health reports, self-assessments, trending reports and metrics, and various other documents related to the corrective action program. The team concluded that the licensee maintained a corrective action program in which individuals generally identified issues at an appropriately low threshold. Once entered into the corrective action program, the licensee generally evaluated and addressed these issues appropriately and timely, commensurate with their safety significance. Corrective actions were generally effective, addressing the causes and extents of condition of problems. However, the team identified several performance deficiencies relating to the licensee's corrective action program and a weakness in the licensee's implementation of its operability determination process.

The team determined that the licensee appropriately evaluated industry operating experience for relevance to the facility and entered applicable items in the corrective action program. However, the team noted that line organizations did not always complete corrective actions or program enhancements assigned by the licensee's operating experience group. The licensee incorporated industry and internal operating experience in its root cause and apparent cause evaluations. The licensee performed effective and self-critical quality assurance audits and self-assessments. The licensee maintained an effective process to ensure significant findings from these audits and self-assessments were addressed.

The licensee maintained a safety-conscious work environment in which personnel were willing to raise nuclear safety concerns. All individuals interviewed by the team were willing to raise concerns related to nuclear safety through at least one of the several means available.

## A. NRC-Identified and Self-Revealing Findings

### Cornerstone: Mitigating Systems

- The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instruction, Procedures and Drawings." This violation involved multiple examples of the licensee's failure to follow station operability and functionality evaluation procedures, resulting in untimely and poorly documented operability and functionality determinations. The licensee documented the associated performance deficiency in its corrective action program as CR 289705 and took immediate actions to ensure operators understood and followed the timeliness requirements of PPM 1.3.66.

The failure to follow station operability procedures, which resulted in operability determinations not being timely performed, was a performance deficiency. This performance deficiency was more than minor because if left uncorrected, the continued failure to perform timely operability and functionality evaluations would have the potential to lead to a more significant safety concern. This finding was associated with the mitigating systems cornerstone. Using Inspection Manual Chapter 0609 Appendix A, Exhibit 2, the team determined the finding was of very low safety significance (Green) because the performance deficiency did not result in the loss of functionality of any structure, system, or component. The inspectors determined that this finding had a cross-cutting aspect in the work practices component of the human performance cross-cutting area because the licensee failed to define and effectively communicate expectations regarding compliance with PPM 1.3.66 (H.4.(b)). (Section 40A2.5.a)

- The team identified a Green finding involving six examples of the licensee's failure to follow its corrective action program procedures. This resulted in condition reports not being appropriately prioritized in accordance with procedure SWP-CAP-06, "Condition Review Group (CRG)," Revisions 18-20. The licensee entered this issue into its corrective action program as CR 289722.

The licensee's condition review group's failure to properly classify condition reports in accordance with SWP-CAP-06, "Condition Review Group (CRG)," Revisions 18-20, was a performance deficiency. The performance deficiency was more than minor, because if left uncorrected, the failure to properly prioritize condition reports would have the potential to lead to a more significant safety concern because safety-significant conditions may not be promptly evaluated and addressed. This finding was associated with the mitigating systems cornerstone. Using Inspection Manual Chapter 0609 Appendix A, Exhibit 2, the team determined the finding was of very low safety significance (Green) because the performance deficiency did not result in the loss of functionality of any structure, system, or component. The team determined that this finding had a cross-cutting aspect in the decision-making component of the human performance cross-cutting area because the licensee failed to demonstrate that nuclear safety was an overriding priority by formally defining the authority and roles for decisions affecting nuclear safety and implementing those roles and authorities as designed when prioritizing condition reports (H.1(a)). (Section 40A2.5.b)

- The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly identify and correct a condition adverse to quality. Following discovery of non-environmentally qualified flow transmitters installed in the train A and C residual heat removal subsystems, licensee personnel failed to document the nonconforming condition in a condition report and failed to promptly restore the flow transmitters to an environmentally qualified state. No immediate actions were required to restore compliance—the licensee had replaced the nonconforming transmitters under Work Orders 01156960 and 01150424 on August 31, 2012, and September 12, 2012, respectively. The licensee entered this performance deficiency into its corrective action program as CR 289720.

The licensee's failure to initiate a condition report for a non-conforming condition involving non-environmentally qualified flow transmitters installed in the train A and C residual heat removal subsystems was a performance deficiency. The performance deficiency was more than minor because it affected the design control attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609 Appendix A, Exhibit 2, the team determined the finding was of very low safety significance (Green) because the finding was a design deficiency that did not result in the loss of functionality. The inspectors determined that this finding had a cross-cutting aspect in the decision-making component of the human performance cross-cutting area because the licensee failed to demonstrate that nuclear safety was an overriding priority by using conservative assumptions when making decisions about non-conforming conditions (H.1(b)). (Section 4OA2.5.c)

- The team identified a Green non-cited violation of Technical Specification 5.4.1.a for the licensee's failure to follow its procedure-control procedure. Following discovery of an inadequate surveillance procedure for a high-pressure core spray instrument, the licensee failed to deactivate the procedure in accordance with its procedure-control procedure to prevent its use. This inadequate procedure was later implemented in the performance of a technical specification surveillance. The licensee entered this performance deficiency in its corrective action program as CR 288647. On July 9, 2013, the licensee placed the surveillance procedure on hold in accordance with the current Revision of its procedure-control procedure.

The failure to deactivate an inadequate technical specification surveillance procedure in accordance with the licensee's procedure-control procedure was a performance deficiency. The performance deficiency was more than minor because it affected the procedure quality attribute of the Mitigating Systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, the team determined the finding was of very low safety significance (Green) because there was no loss of operability or functionality as a result of the performance deficiency. The inspectors determined that this finding had a cross-cutting aspect in the corrective action program component of the problem identification and resolution cross-cutting area because the licensee failed to take appropriate corrective action to ensure that an issue potentially impacting nuclear safety was



addressed in a timely manner, commensurate with its safety significance and complexity (P.1(d)). (Section 4OA2.5.d)

- The team identified a green non-cited violation of Technical Specification 5.4.1.a, “Procedures,” for the licensee’s failure to implement its procedure for age management of electrolytic capacitors. The licensee had established the procedure in December 2011, to determine the age of electrolytic capacitors installed in critical applications and to identify or establish preventative maintenance tasks to monitor aging capacitors and to provide for their periodic replacement. As of July 2013, system engineers had not determined the age of electrolytic capacitors in their systems, identified existing preventative maintenance tasks that would include replacing the electrolytic capacitors, or established preventative maintenance tasks if none existed. The licensee entered the performance deficiency into its corrective action program as CR 288912.

The licensee’s failure to fully implement the requirements of its age management of electrolytic capacitors procedure was a performance deficiency. The performance deficiency was more than minor, because if left uncorrected, the failure to establish preventative maintenance schedules for critical electrolytic capacitors per procedure would have the potential to lead to a more significant safety concern. Specifically, the failure to manage age-related degradation of electrolytic capacitors could cause equipment containing electrolytic capacitors to fail, resulting in a plant transients or safety-related equipment being inoperable or unavailable. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, the team determined the finding was of very low safety significance (Green) because there was no loss of operability or functionality as a result of the performance deficiency. The inspectors determined the finding had a cross-cutting aspect in the corrective action program component of the problem identification and resolution cross-cutting area because the licensee failed to take appropriate corrective action to ensure that an issue potentially impacting nuclear safety was addressed in a timely manner, commensurate with its safety significance and complexity (P.1(d)). (Section 4OA2.5.e)

#### B. Licensee-Identified Violations

The team reviewed two violations of very low safety significance that had been identified by the licensee. Prior to the team’s review, the licensee had entered the issues into its corrective action program and had either taken or planned corrective actions. These violations and the associated corrective action tracking numbers are listed in Section 4OA7 of this report.

## REPORT DETAILS

### 4. OTHER ACTIVITIES (OA)

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

The team based the following conclusions on a sample of corrective action documents that were open during the assessment period, which ranged from September 15, 2011, to the end of the on-site portion of this inspection on July 12, 2013.

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

##### a. Inspection Scope

The team reviewed approximately 250 action requests (ARs), including associated root cause, apparent cause, and direct cause evaluations, from approximately 24,000 that had been initiated or closed between September 15, 2011, and July 12, 2013. The action requests selected for review were mostly condition-report-type action reports (CRs), focused on risk-significant issues.<sup>1</sup> 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 performance metrics, system health reports, operability determinations, self-assessments, trending reports and metrics, and various other documents related to the licensee's corrective action program. The team evaluated the licensee's efforts in determining the scope of problems by reviewing selected logs, work orders, self-assessment results, audits, system health reports, action plans, and results from surveillance tests and preventive maintenance tasks. The team reviewed daily CRs and attended the licensee's Condition Review Group 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 when applicable. 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 conducted interviews with plant personnel to identify other processes that may exist where problems may be identified and addressed outside the corrective action program.

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<sup>1</sup> This report uses the term "condition report" to refer to condition-report-type action requests (AR-CRs). Action requests of types other than Condition Report are considered to be outside of the licensee's corrective action program. Where non-CAP action requests are discussed, their types are noted.

The team reviewed corrective action documents that addressed past NRC-identified violations to evaluate whether corrective actions addressed the issues described in the inspection reports. The team reviewed a sample of corrective actions closed to other corrective action documents to ensure that the ultimate corrective actions remained appropriate and timely.

The team considered risk insights from both the NRC's and Columbia Generating Station's risk models to focus the sample selection and plant tours on risk-significant systems and components. The team focused a portion of its sample on the high-pressure core spray system, which the team selected for a five-year in-depth review. The team conducted walk-downs of this system and other plant areas to assess whether licensee personnel identified problems at a low threshold and entered them into the corrective action program.

b. Assessments

1. Effectiveness of Problem Identification

During the 22-month inspection period, licensee staff generated approximately 24,000 condition reports. The team determined that most conditions that required generation of a condition report by SWP-CAP-01, "Corrective Action Program," and associated procedures had been appropriately entered into the corrective action program. However, the team noted several examples where the licensee had failed to properly identify adverse conditions or had failed to process documented conditions in accordance with its procedure. These examples included the following:

- On March 30, 2012, and June 4, 2012, licensee personnel had discovered deficiencies in the environmental qualification of flow transmitters installed in residual heat removal subsystems trains C and A, respectively. Contrary to the requirements of SWP-CAP-01, "Corrective Action Program," Revision 24, the licensee failed to initiate condition reports to identify, evaluate, and correct the degraded conditions. As a result, the licensee failed to review the functionality of these transmitters and failed to promptly implement corrective actions to restore the equipment to a qualified condition. The licensee's failure to appropriately identify the degraded conditions resulted in operation with these flow transmitters in a non-qualified state for approximately six months. This issue is further discussed in Sections 4OA2.5.c and 4OA7 below.
- While touring the plant on June 26, 2013, the team identified degraded coating on abandoned-in-place noncombustible foam-glass insulation in rooms housing safety-related motor control centers. This degraded coating was sloughing off the wall in large pieces. At the time of the team's discovery, calculation ME 02-02-02, "Reactor Building Flooding Analysis," Revision 2, credited the floor drains in these rooms as necessary to mitigate the effect of a postulated internal flooding event. The team observed that the amount of degraded coating on the floor and peeling off the walls would have overwhelmed the floor drains in these rooms during such an event, preventing the drains from removing water. Though the condition had clearly existed for some time, the licensee had failed to identify

the degraded coating or to evaluate its potential impact on safety-related components. Further, after the condition had been initially identified by the team, the licensee evaluated the condition as a housekeeping discrepancy only. The licensee failed to evaluate the impact of the condition on flooding mitigation. The licensee documented the team's observations in CRs 288742, 288761, 288843, and 288954. This issue is one example of a performance deficiency discussed in Section 4OA2.5.a below.

The team noted that neither of the conditions identified in the above examples received a timely review by an on-shift Senior Reactor Operator as required by station procedures. On June 27, 2013, a licensee manager initiated condition reports noting a backlog of 98 condition reports awaiting operations review. The team observed that 45 of these 98 CRs were at least two days old. After making this observation, the team reviewed data on the timeliness of the licensee's operations reviews for a two-week period during a refueling outage and a two-week period of online operations. Based on these reviews, the team concluded that the licensee had an ineffective process to ensure timely operations review of degraded or nonconforming conditions to identify whether such conditions affected the operability or functionality of structures, systems, or components important to safety. This conclusion—along with supporting data—is further discussed in Section 4OA2.5.a below.

Overall, the team concluded that the licensee maintained a low threshold for the formal identification of problems and entry into the corrective action program for evaluation. Licensee personnel initiated over 1,000 CRs per month during the inspection period. Most of the personnel interviewed by the team understood the requirements for condition report initiation; over 90 percent expressed a willingness to enter identified issues into the corrective action program at a very low threshold. However, the licensee's processes for identifying the impact of documented conditions on safety-related structures, systems, and components were only minimally effective.

## 2. Effectiveness of Prioritization and Evaluation of Issues

The sample of CRs reviewed by the team was focused primarily on issues screened by the licensee as having higher-level significance, including those that received cause evaluations, those classified as conditions adverse to quality or significant conditions adverse to quality, and those that required prompt operability determinations. 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.

As noted above, the team concluded that the licensee had an ineffective process to ensure timely operations reviews of degraded or nonconforming conditions. However, the remainder of the licensee's program for screening and prioritizing conditions that affected nuclear safety was adequate, though the process was not always followed. Further, the team noted that there was no clear connection between the licensee's operations screening process, its prioritization of CRs using

its five-tier scheme, and its classification of issues as conditions adverse to quality (CATQs) or significant conditions adverse to quality (SCAQs). The licensee's operations department screened all CRs, but documentation of the results of this operations screen was generally poor. The licensee's Condition Review Group (CRG) then prioritized each CR using a five-tier screening process, assigning a severity code of A (most significant—root cause evaluation), B, C1, C2, or D (least significant—close to trend) to determine resource allocation. Licensee management reviewed the CRG's severity assignments daily. The CRG also separately assigned a code of CATQ or SCAQ for quality-related equipment deficiencies, though this information is not directly used to inform the issue's severity level. The team noted that there was little correlation between operations review results, assigned severity level, and assigned quality significance of conditions:

The licensee screened approximately 13,500 (56 percent) of the 24,000 CRs generated during the inspection period as requiring action assignments (severity level C2 or higher), with approximately 116 (<0.5 percent) of the CRs as requiring root or apparent cause evaluations (severity level A or B). The licensee screened approximately 1,650 (7 percent) of the 24,000 CRs as CATQs, with 27 (1.7 percent) of the CATQ CRs requiring root or apparent cause evaluations. Of the CRs screened as CATQs, approximately 1,000 (60 percent) were closed to trend (severity level D). The licensee identified only one SCAQ during the 22-month inspection period.

The team also observed that the licensee did not assign all condition reports the significance required by SWP-CAP-06, "Condition Review Group (CRG)." The team identified multiple examples of conditions that had required a licensee event report but were assigned a significance level of less than A. The team also observed that the licensee had identified in a quality assurance (QA) audit that two of these examples should have been screened as SCAQs but had not been. Following identification by QA, the licensee addressed the conditions, but did not reclassify the CRs as SCAQs; this is also discussed in Section 4OA2.1.b.3 below. After the team made this observation, the licensee identified a process flaw as one potential cause of the misclassification: the licensee's corrective action program included no feedback mechanism to rescreen and potentially reclassify CRs if subsequent evaluation reveals that an issue resulted in a reportable condition. The licensee documented this process issue in CR 288645. The team also identified multiple examples of critical equipment failures that had been assigned a significance level of less than C1. The team's observations of CR misclassification are further discussed in Section 4OA2.5.b below.

Additionally, the team noted that evaluations of whether identified degraded conditions had affected past operability, and thus required reports to the NRC, were not always made timely:

- On April 24, 2012, the licensee discovered a non-seismically qualified switch installed for diesel mixed air temperature indicating switch DMA-TIS-22B. To determine whether the condition required a report to be made to the NRC, the licensee performed a past operability evaluation. This evaluation concluded by

qualitative analysis that the non-qualified switch met Seismic Category I requirements. The team found that the licensee's engineering evaluation method did not conform to the seismic qualification requirements specified in the station's Final Safety Analysis Report (FSAR). The FSAR specified that vibration testing was required to demonstrate seismic adequacy for electrical circuits. At the close of the inspection, the licensee was arranging for vibration testing of a similar component to evaluate its seismic adequacy. This issue is further discussed in Sections 4OA2.5.f and 4OA7 below.

- During its in-depth review of the High-Pressure Core Spray system, the team noted that the licensee did not always appropriately perform evaluations for past operability and reportability. Specifically, in May 2011 the licensee had identified that the yoke of injection valve HPCS-V-4 was flexing during stroke of the valve. To determine whether this degraded condition required a report to the NRC, the licensee assessed the past operability of the valve. The initial past operability assessment, documented in condition reports 241387 and 246897, was performed using stress calculations. However, in August 2011, as documented in CR 247598, the licensee obtained new information from a finite element analysis that indicated the allowable loading on the valve yoke was less than had been indicated by the stress calculations. This condition report stated that the past operability of the valve required reevaluation. However, during its review in June 2013, the team noted this reevaluation had not been completed. The licensee documented this observation in CRs 288816 and 288821. On June 29, 2013, the licensee completed Engineering Change 12124, documenting that HPCS-V-4 had been operable as found.

The team made two additional observations relative to the timeliness and accuracy of the licensee's evaluations and documentation:

- A review of maintenance rule evaluations revealed a large number of evaluations that had exceeded the timeliness requirements of procedure SYS-4-22, "Maintenance Rule Program." Prior to January 1, 2013, SYS-4-22 required maintenance rule evaluations to be completed within 60 days. From the beginning of the inspection period through January 1, 2013, 63 of 1176 evaluations (5.4 percent) were not performed within the required 60 days. On January 1, 2013, the licensee revised SYS-4-22 to require that maintenance rule evaluations be completed within 30 days. From January 1, 2013, until the end of the inspection period, 190 of 575 evaluations (33 percent) were not completed within the required time. The team identified 39 maintenance rule evaluations completed during the inspection period that had exceeded 90 days, with one not completed until 412 days after the initiation of the associated condition report. In at least two of the 39 evaluations not completed within 90 days, the licensee ultimately determined that a maintenance preventable functional failure had occurred. The licensee had previously initiated CR 273488 documenting issues with maintenance rule evaluation timeliness on November 1, 2012. At the time of the team's observation, the issue had yet to be corrected. The team determined that the failure to follow the station maintenance rule procedure constituted a minor violation of 10 CFR Part 50.65 that is not subject to enforcement action in

accordance with the NRC's Enforcement Policy. The licensee initiated CR 289725 to address this minor violation.

- On July 10, 2013, the team identified that current plant conditions, operational decision making issues, and compensatory actions for equipment were not coded accurately as operator burdens, control room deficiencies, or operator work-arounds in the associated work order or work request. Consequently, the licensee was not maintaining its operations online aggregate index up-to-date as required by procedure OI-68, "Operational Aggregate Risk Assessment Process." This was a minor performance deficiency. The licensee documented this observation in CR 289577.

Overall, the team determined that the licensee's process for screening and prioritizing issues that had been entered into the corrective action program was adequate to support nuclear safety. However, the team the licensee had significant challenges in performing timely and accurate evaluations of all aspects of identified conditions.

### 3. Effectiveness of Corrective Actions

The corrective actions identified by the licensee to address adverse conditions were generally effective. However, the team identified a number of instances in which corrective actions were untimely or incompletely accomplished:

- Quality Audit AU-CA-13, "Corrective Action Program," dated March 28, 2013, identified that not all condition reports that met the definition of a significant condition adverse to quality were flagged as such within the corrective action program. The licensee initiated CR 281399 to address the audit finding. The team reviewed the corrective actions associated with this condition report and found that changes had been made to the condition review group process to prevent future occurrences of improperly flagged condition reports. However, the team noted that no corrective actions were implemented to address the specific examples of improperly classified condition reports identified by the quality assurance group. This observation is also mentioned in Section 4OA2.1.b.2 above.
- In the previous NRC biennial problem identification and resolution report (ML112990156), the NRC documented NCV 2011006-01 for the licensee's failure to maintain certain flood barriers. When reviewing the licensee's corrective actions for this condition, performed under CR 248452, the team noted that the licensee had not completed all of the identified actions. Specifically, the licensee planned to "Add local posting to W525' and W484' Cable Spreading Room accesses on the expectation to use protective matting to protect credited flood barrier floor coatings from chipping at the work locations." However, the team identified that the licensee had not installed the signs at the accesses to the rooms, where they would be immediately visible to workers entering the rooms. Rather, the signs had been installed near the storage boxes used to stage protective matting. The team determined that installing the signs in this location

did not meet the full intent of the corrective action, as it would not be apparent to workers who were not already aware that protective matting was required. CR 248452 had been closed with all actions documented as complete.

- On April 11, 2011, the licensee initiated CR 237755 to document the unexpected tripping of diesel mixed air fan DMA-FN-11 due to cleared fuses. The team observed that the licensee performed a thorough extent of condition review, identifying rigorous corrective actions to preclude future unexpected trips in similar equipment. However, the team noted that the licensee had not scheduled these corrective actions to be completed until July 15, 2017, five years and more than two refueling cycles after the condition had been identified. The team determined that this was a failure to timely correct a condition adverse to quality and was a minor violation of 10 CFR Part 50, Appendix B, Criterion XVI that is not subject to enforcement action in accordance with the NRC's Enforcement Policy. The licensee documented this minor violation in CR 289726.
- On July 3, 2012, the licensee discovered a nonconservative error in a technical specification surveillance procedure. The licensee initiated condition report 266393 and assigned an action to revise the procedure. The team identified on June 25, 2013, that this action had not been accomplished. Further, the licensee failed to deactivate the known inadequate surveillance procedure in accordance with its procedure control process. Consequently, on May 29, 2013, the licensee had performed the surveillance using the inadequate procedure. This issue is further discussed in Section 4OA2.5.d below.

Following its review of a sample of corrective actions implemented to correct NRC non-cited violations and findings documented since the last problem identification and resolution inspection, the team concluded that these actions had generally been timely and effective. The team identified one example, as noted in the second bullet above, in which the licensee had not fully completed all planned corrective actions. However, in all cases, the licensee had restored compliance in a timely manner.

Overall, the team concluded that the licensee generally identified effective corrective actions for the problems evaluated in the corrective action program. Though the team noted some exceptions, it concluded that 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.



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

### **a.   Inspection Scope**

The team assessed the licensee's program for reviewing industry operating experience. The team reviewed the licensee's governing procedures and interviewed individuals responsible for implementing the operating experience program. The team reviewed a sample of operating experience source documents to assess whether the licensee had appropriately evaluated operating experience for relevance to the facility. The team observed a weekly operating experience screening meeting at which licensee personnel reviewed and discussed operating experience reports to identify issues applicable to the facility and to assign actions to address these issues. For operating experience that was determined to be applicable to the facility, the team reviewed a sample of operating-experience-type action requests (AR-OEEs, AR-OERs, and AR-OEIs) to assess whether the licensee assigned appropriate and timely actions to address the issues. The team also reviewed a sample of root and apparent cause evaluations to ensure that the licensee had appropriately included internal and external operating experience.

### **b.   Assessment**

The team concluded that the licensee appropriately evaluated industry operating experience for relevance to its facility. The team noted that the licensee's team approach to screening operating experience documents in the weekly operating experience screening meetings was highly effective at identifying relevant information and making appropriate assignments. However, the team identified a weakness associated with the follow-through of actions by the assigned departments. In some cases in which the team identified that operating experience had not been fully addressed, the team identified inadequate corrective actions; in others, the team noted that corrective actions had been untimely. The team determined that the licensee's failure to completely incorporate lessons learned from operating experience adversely impacted the licensee's effectiveness in eliminating vulnerabilities and preventing similar events.

- In October 2012, in AR-OER 271744, the licensee appropriately screened operating experience regarding age-related capacitor degradation as applicable to the facility. The evaluation determined that the station already had a procedure in place for effective maintenance, monitoring, and storage of critical electrolytic capacitors. However, the team determined that the licensee had failed to implement the procedure. Specifically, system engineers had not determined the age of electrolytic capacitors in their systems, identified existing preventative maintenance tasks that would include replacing the electrolytic capacitor, or established preventative maintenance tasks if none existed. This performance deficiency is discussed in Section 4OA2.5.e below.
- In April 2013, in AR-OER 282921, the licensee appropriately screened operating experience related to the loss of primary calibration documentation as applicable to the facility. The evaluation determined that the station had identified a similar event in November 2010, documented in CR 229256, in which it could not locate

the primary calibration for service water radiation monitor SW-RIS-604. However, the evaluation failed to recognize that the condition had not been corrected for over two-and-a-half years after the primary calibration had been determined to be missing. Further, the team identified that the licensee had closed CR 229256 to a non-CAP action request with no further corrective actions taken. The licensee's failure to promptly correct this condition adverse to quality was a minor violation of 10 CFR 50, Appendix B, Criterion XVI that is not subject to enforcement action in accordance with the NRC's Enforcement Policy. The licensee documented this issue in CR 289449.

- The NRC determined that two non-cited violations issued during the inspection period had been at least partially caused by inappropriate application of operating experience. In both cases, the licensee had correctly screened related operating experience as applicable to the facility, but the follow-through of the corrective actions by the assigned departments was either inadequate or untimely and therefore did not prevent the similar event. These violations were documented as NCV 2012004-02 (see ML12304A062) and NCV 2012005-03 (see ML12039A078). Both were assigned cross-cutting aspects of P.2(a).
- On March 12, 2011, the licensee completed Revision 5 of a root cause analysis under CR 213502. The licensee had performed this root cause analysis in response to HPCS diesel generator governor load oscillations. The analysis determined that though the station had identified both internal and external operating experience related to issues with contamination of governor oil, it had failed to implement adequate corrective actions—it had not updated station procedures to include the recommended oil sampling and analysis processes. The licensee identified this deficiency as a contributing cause to the load oscillation event; it subsequently revised its preventative maintenance procedures under corrective action CC3.1 of the root cause analysis.

Overall, the team concluded that the licensee was highly effective at identifying industry operating experience relevant to the facility, though the licensee did not consistently implement actions designed to address the identified issues. The team observed that the licensee incorporated both internal and external operating experience into lessons learned for training and into pre-job briefs. The team determined that the licensee appropriately evaluated industry operating experience when performing root cause investigations and apparent cause evaluations.

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

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

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

b. Assessment

The team concluded that the licensee had an adequate audit and self-assessment process. The licensee performed audits and self-assessments in accordance with station procedures and thoroughly documented the results. The licensee established appropriate performance elements and standards for the programs and processes evaluated. Managers and supervisors assigned team members with the requisite skills and experience, including individuals from outside organizations, to perform effective audits and self-assessments. Audits were self-critical, thorough, and identified new findings, performance deficiencies, and other concerns. In most cases, the licensee implemented corrective actions that addressed the identified findings and performance issues. However, the team identified one example where these corrective actions had not been effectively implemented—a quality assurance finding associated with the classification of condition reports failed to effectively address the specific examples identified by the quality organization. This observation is further discussed in Sections 4OA2.1.b and 4OA2.1.c above.

Additionally, the team noted that the licensee's quality escalation process appeared to be highly effective at ensuring completion of corrective actions that may have otherwise lingered within the licensee's corrective action program.

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

a. Inspection Scope

The team interviewed forty-one individuals in five focus groups. The purpose of these interviews was (1) to evaluate the willingness of licensee staff to raise nuclear safety issues, either by initiating a condition report or by another method, (2) to evaluate the perceived effectiveness of the corrective action program at resolving identified problems, and (3) to evaluate the licensee's safety-conscious work environment (SCWE). The focus group participants included personnel from Operations, Security, Emergency Planning, Maintenance, Chemistry, Radiation Protection, Engineering, and Fire Protection. At the team's request, the licensee's regulatory affairs staff selected the participants blindly from these work groups, based partially on availability. To supplement these focus group discussions, the team interviewed the Employee Concerns Program (ECP) manager to assess her perception of the site employees' willingness to raise nuclear safety concerns. The team also reviewed the licensee's most recent self-assessment of its safety-conscious work environment.

b. Assessment

1. Willingness to Raise Nuclear Safety Issues

All individuals interviewed indicated that they would raise nuclear safety concerns. All felt that their management was receptive to nuclear safety concerns and was willing to address them promptly. All of the interviewees further stated that if they were not satisfied with the response from their immediate supervisor, they had the ability to escalate the concern to a higher organizational level. Most expressed

positive experiences after raising issues to their supervisors or documenting issues in condition reports. Several interviewees expressed concern that lower-level issues, not dealing with nuclear or personnel safety, were not always addressed in a timely manner.

## 2. Employee Concerns Program

All interviewees were aware of the Employee Concerns Program (ECP). Most explained that they had heard about the program through various means, such as posters, training, presentations, and discussion by supervisors or management at meetings. Most did not have any personal experience with the ECP because, as noted above, they felt free to raise safety concerns to their supervisors; they did not need to use the ECP in these cases. However, all interviewees stated that they would use the program if they felt it was necessary. None of the interviewed personnel had heard of any issues dealing with breaches of confidentiality by the ECP staff.

## **.5 Findings**

### a. Programmatic Failure to Promptly Evaluate Safety Impact of Degraded Conditions

Introduction. The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings." This violation involved multiple examples of the licensee's failure to follow station operability and functionality evaluation procedures, resulting in untimely and poorly documented operability and functionality determinations.

Description. Procedure PPM 1.3.66, "Operability and Functionality Evaluation," describes the licensee's operability determination process used by station personnel to assess the operability of structures, systems, and components described in the licensee's technical specifications. Step 4.1.5 of Revisions 26 and 27 of the procedure provides the licensee's requirement that operators immediately determine operability of degraded or nonconforming conditions:

Immediately determine operability from a detailed examination of the deficiency. Operability should be determined immediately upon discovery that an SSC subject to TS is in a degraded or nonconforming condition. The determination should be made without delay and in a controlled manner using the best available information. The SRO should not postpone the determination until receiving the results of detailed evaluations. In most cases the decision can be made immediately and appropriately documented on the CR. In other cases, the decision should be made on the same shift.

The team identified several examples where licensee personnel had failed to meet the requirements of PPM 1.3.66, Step 4.1.5:

- On June 25, 2013, based on an observation by the team, the licensee documented in CR 288647 that it had performed surveillance procedure ISP-HPCS-X302, "HPCS Flow Rate Low (Minimum Flow) – CC," using a procedure with a known nonconservative error. (See Section 4OA2.5.d below.) The licensee failed to document its immediate operability determination until June 27, 2013. It delayed making this determination until its engineering department had reviewed the results of the surveillance to determine whether technical specification requirements had been met despite the procedure error.
- On June 25, 2013, also based on the team's observation, the licensee initiated CR 288742, documenting debris that could potentially impact floor drains in the MCC 8BB room. (This is also discussed in Section 4OA2.1.b.1 above.) At the time of discovery, the licensee credited these floor drains in its design bases as a system used to mitigate the consequences of a postulated internal flooding event. The licensee did not complete its immediate operability determination for this condition until June 27, 2013, after the condition had been corrected.
- On June 27, 2013, a licensee manager initiated CR 288818, identifying that 98 condition reports were currently awaiting SRO review. The team noted that 45 of these were at least two days old; two were four days old.

The team reviewed the timing of operations reviews during two two-week periods, one during a refueling outage and one during power operation, to determine whether these examples indicated a broader programmatic weakness. The team concluded that operators routinely failed to review all condition reports "on the same shift"<sup>2</sup>:

- Between April 1 and April 15, 2013, while operating at power, licensee personnel initiated 267 condition reports that required operations review. Of these, 36 (13.5 percent) received operations reviews greater than 12 hours after the condition report had been initiated.
- Between June 1 and June 15, 2013, during refueling outage R21, licensee personnel initiated 583 condition reports that required operations review. Of these, 176 (30.2 percent) received operations reviews greater than 12 hours after the condition report had been initiated.

On July 10, 2013, the assistant operations manager issued an email to all operating crew shift managers reinforcing station expectations regarding compliance with PPM 1.3.66. The licensee initiated CR 289705 to address the failure to promptly perform operability and functionality evaluations as required by Procedure PPM 1.3.66.

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<sup>2</sup> Operators at Columbia Generating Station work 12-hour shifts. In determining which operations reviews had not been performed "on the same shift," as required by procedure, the team looked only at those reviews that were performed greater than 12 hours after CR initiation. CRs that did not meet the "on the same shift" requirement of PPM 1.3.66, but that were nonetheless performed within 12 hours of CR initiation, are not captured.

Analysis. The failure to follow station operability procedures, which resulted in operability determinations not being timely performed, was a performance deficiency. This performance deficiency was more than minor because if left uncorrected, the continued failure to perform timely operability and functionality evaluations would have the potential to lead to a more significant safety concern. This finding was associated with the mitigating systems cornerstone. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, the team determined the finding was of very low safety significance (Green) because the performance deficiency did not result in the loss of functionality of any structure, system, or component. The inspectors determined that this finding had a cross-cutting aspect in the work practices component of the human performance cross-cutting area because the licensee failed to define and effectively communicate expectations regarding compliance with PPM 1.3.66 (H.4.(b)).

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," requires in part that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to this requirement, between April 1, 2013, and June 25, 2013, the licensee failed to accomplish activities affecting quality in accordance with prescribed instructions, procedures, or drawings. Specifically, operability and functionality evaluations performed between April 1 and April 15, 2013, between June 1 and June 15, 2013, and between June 23 and June 27, 2013, were not completed within one shift as required by PPM 1.3.66, "Operability and Functionality Evaluation," Revisions 26 and 27, Step 4.1.5. The licensee documented the associated performance deficiency in its corrective action program as CR 289705 and took immediate actions to ensure operators understood and followed the timeliness requirements of PPM 1.3.66. Because this finding was of very low safety significance (Green) and was entered into the licensee's corrective action program, the violation is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000397/2013008-01, "Programmatic Failure to Promptly Evaluate Safety Impact of Degraded Conditions."

b. Failure to Classify Condition Reports in Accordance with Procedures

Introduction. The team identified a Green finding involving six examples of the licensee's failure to follow its corrective action program procedures. This resulted in condition reports not being appropriately prioritized in accordance with procedure SWP-CAP-06, "Condition Review Group (CRG)," Revisions 18-20.

Description. The team identified the following six examples of the licensee's failure to classify condition reports in accordance with procedure SWP-PRO-06, "Condition Review Group (CRG)," Revisions 18-20.

- CR 268099 documented a misapplication of Technical Specification 3.7.1, "Standby Service Water (SW) System and Ultimate Heat Sink (UHS)," which resulted in a condition prohibited by the plant's technical specifications and therefore required a licensee event report. Attachment 8.1 of SWP-CAP-06, Revision 18, required that condition reports documenting events requiring

licensee event reports be assigned a significance level of A. On August 6, 2012, the licensee's condition review group (CRG) assigned CR 268099 a significance level of C1.

- CR 271413 documented a violation of Technical Specification 3.8.1, "AC Sources – Operating," which required a licensee event report. On October 1, 2012, the licensee's CRG assigned CR 271413 a significance level of B.
- CR 270846 documented a loss of safety function of the residual heat removal system, a condition that required a licensee event report. On September 20, 2012, the licensee's CRG assigned CR 270846 a significance level of B. Further, on March 27, 2013, the licensee's quality assurance group identified in Audit AU-CA-13 that CR 270846 met the criteria to be classified as a significant condition adverse to quality (SCAQ), but it had not been. The team noted that corrective actions had not been implemented to address the quality assurance finding; CR 270846 had still not been designated a significant condition adverse to quality.
- CR 279768 documented the failure of control room air handling unit WMA-AH-51A to pass its required surveillance following application of surveillance requirement 3.0.3. This was a violation of Technical Specification 3.7.4, "Control Room Air Conditioning (AC) System," requiring a licensee event report. On March 4, 2013, the licensee's CRG assigned CR 279768 a significance level of B. Further, on March 27, 2013, the licensee's quality assurance group identified in Audit AU-CA-13 that CR 279768 met the criteria to be classified as a significant condition adverse to quality (SCAQ), but it had not been. The team noted that corrective actions had not been implemented to address the quality assurance finding; CR 279768 had still not been designated a significant condition adverse to quality.
- CR 285863 documented a failure of diesel fuel oil pump DO-P-3A2. The team determined that this met the licensee's criteria for "critical equipment failure." Attachment 8.1 of SWP-CAP-06, Revision 20, required that condition reports documenting critical equipment failures be assigned a significance level of C1. On May 18, 2013, the licensee's CRG assigned CR 285863 a significance level of D.
- CR 287819 documented a trip of pump house recirculation air fan PRA-FN-1B, also a critical equipment failure. On June 19, 2013, the licensee's CRG assigned CR 287819 a significance level of C2.

Analysis. The licensee's condition review group's failure to properly classify condition reports in accordance with SWP-CAP-06, "Condition Review Group (CRG)," Revisions 18-20, was a performance deficiency. The performance deficiency was more than minor, because if left uncorrected, the failure to properly prioritize condition reports would have the potential to lead to a more significant safety concern because safety-significant conditions may not be promptly evaluated and addressed. This finding was

associated with the mitigating systems cornerstone. Using Inspection Manual Chapter 0609 Appendix A, Exhibit 2, the team determined the finding was of very low safety significance (Green) because the performance deficiency did not result in the loss of functionality of any structure, system, or component. The team determined that this finding had a cross-cutting aspect in the decision-making component of the human performance cross-cutting area because the licensee failed to demonstrate that nuclear safety was an overriding priority by formally defining the authority and roles for decisions affecting nuclear safety and implementing those roles and authorities as designed when prioritizing condition reports (H.1(a)).

Enforcement. Enforcement action does not apply because the performance deficiency did not involve a violation of regulatory requirements. The licensee entered this issue into its corrective action program as CR 289722. Because this finding did not involve a violation of regulatory requirements and was of very low safety significance, it is identified as a finding: FIN 050003978/2013008-02, "Failure to Classify Condition Reports in Accordance with Procedures."

c. Failure to Identify and Correct Environmental Qualification Deficiency

Introduction. The team identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly identify and correct a condition adverse to quality. Following discovery of non-environmentally qualified flow transmitters installed in the train A and C residual heat removal subsystems, licensee personnel failed to document the nonconforming condition in a condition report and failed to promptly restore the flow transmitters to an environmentally qualified state.

Description. On March 30, 2012, and June 4, 2012, the licensee initiated evaluation-type action requests (AR-EVALs) 260635 and 264735, documenting that residual heat removal flow transmitters RHR-FT-15C and RHR-FT-15A were missing a required conduit seal. The missing conduit seals were required to be installed to prevent moisture intrusion, ensuring that the flow transmitter could continue to function in a harsh environment following a postulated high energy line break. Transmitters RHR-FT-15A and RHR-FT-15C provide control room operators an indication of low pressure coolant injection flow and shutdown cooling flow and are post accident monitoring indications required by Licensee Controlled Specification (LCS) 1.3.3.1, "Post Accident Monitoring (PAM) Indication." They are required by 10 CFR 50.49(b)(3) to meet environmental qualification (EQ) requirements. Although the issues identified in AR-EVALs 260635 and 264735 affected the environmental qualification of the flow transmitters, and therefore represented a nonconforming condition, the licensee failed to evaluate the operability and functionality of the transmitters in their non-EQ state. Consequently, the licensee continued to operate with the non-EQ transmitters installed without entering the appropriate LCS action statements and without providing an adequate justification for continued operation in accordance with PPM 1.3.66, "Operability and Functionality Evaluation", Revisions 22-23. The licensee replaced the non-EQ flow transmitters under Work Orders 01156960 (train A) and 01150424 (train C) on August 31, 2012, and September 12, 2012, respectively.



Interviews with the licensee revealed that the failure to enter the appropriate licensee control specification or to perform a functionality determination that justified continued operation was caused by the fact that action requests 260635 and 264735 were initiated as evaluations and not as condition reports. The team determined that the failure to initiate condition reports following discovery of non-EQ flow transmitters was contrary to SWP-CAP-01, "Corrective Action Program," Revision 24. Specifically, Step 4.1.2 of SWP-CAP-01 requires personnel to promptly initiate a condition report for any condition an individual suspects is not right, including actual or suspected conditions adverse to quality. The definition of condition adverse to quality in SWP-CAP-01 includes non-conformances such as those discovered and documented in AR-EVALs 260635 and 264735.

The licensee documented this issue in its corrective action program as CRs 289538 and 289720. The licensee's failure to control a deviation from the EQ standard is documented separately as a licensee-identified violation in Section 4OA7 of this report.

Analysis. The licensee's failure to initiate a condition report for a non-conforming condition involving non-environmentally qualified flow transmitters installed in the train A and C residual heat removal subsystems was a performance deficiency. The performance deficiency was more than minor because it affected the design control attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609 Appendix A, Exhibit 2, the team determined the finding was of very low safety significance (Green) because the finding was a design deficiency that did not result in the loss of functionality. The inspectors determined that this finding had a cross-cutting aspect in the decision-making component of the human performance cross-cutting area because the licensee failed to demonstrate that nuclear safety was an overriding priority by using conservative assumptions when making decisions about non-conforming conditions (H.1(b)).

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions", 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 March 30, 2012 and June 4, 2012, the licensee failed to establish measures to ensure that nonconformances were promptly identified and corrected. Specifically, after identifying missing conduit seals in residual heat removal flow transmitters RHR-FT-15C and RHR-FT-15A—non-conforming conditions that required an assessment of functionality or corrective action to restore the flow transmitters to their environmentally qualified state—the licensee failed to appropriately document the condition and to take corrective actions. No immediate actions were required to restore compliance—the licensee had replaced the nonconforming transmitters under Work Orders 01156960 and 01150424 on August 31, 2012, and September 12, 2012, respectively. The licensee entered this performance deficiency into its corrective action program as CR 289720. Because this finding is of very low safety significance (Green) and was entered into the licensee's corrective action program, the violation is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement

Policy: NCV 05000397/2013008-03, "Failure to Identify and Correct Environmental Qualification Deficiency."

d. Failure to Control Inadequate Surveillance Procedure

Introduction. The team identified a Green non-cited violation of Technical Specification 5.4.1.a for the licensee's failure to follow its procedure-control procedure. Following discovery of an inadequate surveillance procedure for a high-pressure core spray instrument, the licensee failed to deactivate the procedure in accordance with SWP-PRO-02 to prevent its use. This inadequate procedure was later implemented in the performance of a technical specification surveillance.

Description. On July 3, 2012, the licensee identified that an acceptance criterion in surveillance procedure ISP-HPCS-X302, "HPCS Flow Rate Low (Minimum Flow) – CC," Revision 3, was nonconservative with respect to the operability limit specified in Calculation E/I-02-91-1060, "Calculation for Setpoint Range and Allowable Value Determination for Instrument Loop HPCS Flow Indicating Switch 6," Revision 1. Specifically, Step 7.1.21 of ISP-HPCS-X302 specified a maximum reset limit of 23.83 inches of water for high-pressure core spray flow indicating switch HPCS-FIS-6 whereas E/I-02-91-1060 specified 22.79 inches of water as the reset limit for technical specification operability of HPCS-FIS-6. The reset function provided by HPCS-FIS-6 is required to ensure the closure of high-pressure core spray minimum flow valve HPCS-V-12 to allow full high-pressure core spray flow into the core. The nonconservative acceptance criterion would allow operators to declare acceptance criteria met and HPCS-FIS-6 operable even if the as-found setpoint data failed to meet the limits specified in Technical Specification 3.3.5.1, "ECCS Instrumentation." The licensee initiated CR 266393 to document this issue. Action 2 of CR 266393 was to revise the ISP-HPCS-X302 non-conservative acceptance criteria by September 6, 2013. However, the licensee failed to deactivate the procedure in accordance with SWP-PRO-02, "Preparation, Review, Approval and Distribution of Procedures," Revision-32. Step 3.6 of SWP-PRO-02 required deactivation of a procedure for a "significant station issue or risk, where use of the procedure would affect station operation or commitments." The licensee has since revised this procedure to provide for procedure "holds" in place of "deactivation."

On June 25, 2013, the team reviewed CR 266393 and noted that the licensee had taken no actions to address the ISP-HPCS-X302 acceptance criteria error. The team identified that the licensee had performed ISP-HPCS-X302 on May 29, 2013, under Work Order 02030935 using the surveillance procedure containing the nonconservative acceptance criterion. After the team raised this concern, the licensee verified that despite the procedure error, both the as-found and as-left data met the more limiting acceptance criteria of E/I-02-91-1060 and Technical Specification 3.3.5.1.

On July 9, 2013, the licensee placed ISP-HPCS-X302 on hold in accordance with SWP-PRO-02, Revision 37. On July 10, 2013, the licensee revised ISP-HPCS-X302 to incorporate the correct acceptance criterion for the HPCS-FIS-6 reset limit.

The licensee documented this issue in its corrective action program as CR 288647.

Analysis. The failure to deactivate an inadequate technical specification surveillance procedure in accordance with SWP-PRO-02 was a performance deficiency. The performance deficiency was more than minor because it affected the procedure quality attribute of the mitigating systems cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, the team determined the finding was of very low safety significance (Green) because there was no loss of operability or functionality as a result of the performance deficiency. The inspectors determined that this finding had a cross-cutting aspect in the corrective action program component of the problem identification and resolution cross-cutting area because the licensee failed to take appropriate corrective action to ensure that an issue potentially impacting nuclear safety was addressed in a timely manner, commensurate with its safety significance and complexity (P.1(d)).

Enforcement. Technical Specification 5.4.1.a requires that written procedures shall be established, implemented, and maintained as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Contrary to this requirement, from July 3, 2012, through July 9, 2013, the licensee failed to implement and maintain written procedures recommended in Regulatory Guide 1.33, Revision 2. Specifically, paragraph 1.e of Regulatory Guide 1.33, Appendix A, lists "Procedure Review and Approval" as a typical safety-related activity that should be covered by written procedures; paragraph 8.b states that implementing procedures are required for each surveillance test listed in the technical specifications. The licensee established SWP-PRO-02, "Preparation, Review, Approval and Distribution of Procedures," to implement the paragraph 1.e requirement and ISP-HPCS-X302, "HPCS Flow Rate Low (Minimum Flow) – CC," to control a surveillance test listed in the technical specification as required by paragraph 8.b.

Upon discovery that ISP-HPCS-X302, Revision 3, contained a nonconservative acceptance criterion, the licensee failed to appropriately maintain the surveillance procedure. The licensee failed to implement SWP-PRO-02, Revision 32, to deactivate the inadequate procedure. The licensee entered this performance deficiency in its corrective action program as CR 288647. On July 9, 2013, the licensee placed ISP-HPCS-X302, Revision 3, on hold in accordance with SWP-PRO-02, Revision 37. Because this finding is of very low safety significance (Green) and was entered into the licensee's corrective action program, the violation is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000397/2013008-04, "Failure to Control Inadequate Surveillance Procedure."

e. Failure to Implement Procedure for Age Management of Electrolytic Capacitors

Introduction. The team identified a green non-cited violation of Technical Specification 5.4.1.a, "Procedures," for the licensee's failure to implement its procedure for age management of electrolytic capacitors. The licensee had established the procedure in December 2011 to determine the age of electrolytic capacitors installed in critical applications and to identify or establish preventative maintenance tasks to monitor aging capacitors and to provide for their periodic replacement. As of July 2013, system engineers had not determined the age of electrolytic capacitors in their systems,

identified existing preventative maintenance tasks that would include replacing the electrolytic capacitors, or established preventative maintenance tasks if none existed.

Description. On December 10, 2010, the licensee had initiated CR 227561, under which it had performed an apparent cause evaluation for emergency diesel generator reliability. The apparent cause evaluation concluded that one of the apparent causes was the station's lack of a process for managing the health of electrolytic capacitors. Corrective actions for this apparent cause included developing procedure SYS-4-24 for age management of electrolytic capacitors and issuing actions for system engineers to implement the procedure. SYS-4-24, "Age Management of Electrolytic Capacitors," became effective on December 12, 2011. On March 9, 2012, the licensee closed as complete the action to finalize the procedure and issue final tracking actions for system engineers to implement the new procedure.

On October 3, 2012, the licensee initiated operating-experience-type action request (AR-OER) 271744 to review NRC Information Notice 2012-11, "Age-Related Capacitor Degradation," and to evaluate its applicability to the facility. The Information Notice discussed recent examples of capacitor failures. It suggested periodic preventative maintenance as an effective way to address the adverse effects of aging capacitors in equipment circuitry and to prevent resultant equipment failures. The licensee's extent of condition review determined that Columbia Generating Station had many safety-related components that contained critical electrolytic capacitors, and that those capacitors were susceptible to age-related failure. The evaluation also identified two previous events that had occurred at Columbia Generating Station due to age-related failures of electrolytic capacitors—a reactor trip in 2004, and a reactor water cleanup system isolation event at the station in 2007.

During its review of the Information Notice, the licensee determined that it had previously established procedure SYS-4-24 to ensure effective maintenance, monitoring, and storage of critical electrolytic capacitors. Therefore, no further actions were needed to address the concern discussed in Information Notice 2012-11. The licensee closed AR-OER 271744 on January 16, 2013 with no further actions taken.

On June 28, 2013, the team noted that an attachment to SYS-4-24, Revision 0, which was to provide a list of all identified critical electrolytic capacitors, had not been completed to identify or establish preventative maintenance tasks for any of the 281 critical electrolytic capacitors installed in the plant. System engineers had not determined the age of electrolytic capacitors in their systems, identified existing preventative maintenance tasks that would include replacing the electrolytic capacitors within the ten year replacement guideline, or established preventative maintenance tasks if none existed. Consequently, the licensee was unaware of the age of critical electrolytic capacitors installed in the plant. Further, the licensee did not know whether it had established preventative maintenance tasks to replace critical capacitors at the recommended frequency of once every ten years.

The team determined that the licensee had failed to implement SYS-4-24 as required. Further, the licensee had improperly closed the corrective action from CR 227561 because actions had not been issued to system engineers and the age management

procedure was not being implemented. The team also noted that the licensee's effectiveness review of the apparent cause had failed to observe that this particular corrective action had been closed out without being fully implemented.

The licensee documented this issue in its corrective action program as CR 288912.

Analysis. The licensee's failure to fully implement the requirements of its age management of electrolytic capacitors procedure was a performance deficiency. The performance deficiency was more than minor, because if left uncorrected, the failure to establish preventative maintenance schedules for critical electrolytic capacitors per procedure would have the potential to lead to a more significant safety concern. Specifically, the failure to manage age-related degradation of electrolytic capacitors could cause equipment containing electrolytic capacitors to fail, resulting in a plant transient or in safety-related equipment being inoperable or unavailable. Using Inspection Manual Chapter 0609, Appendix A, Exhibit 2, the team determined the finding was of very low safety significance (Green) because there was no loss of operability or functionality as a result of the performance deficiency. The inspectors determined the finding had a cross-cutting aspect in the corrective action program component of the problem identification and resolution cross-cutting area because the licensee failed to take appropriate corrective action to ensure that an issue potentially impacting nuclear safety was addressed in a timely manner, commensurate with its safety significance and complexity (P.1(d)).

Enforcement. Technical Specification 5.4.1.a requires that written procedures shall be established, implemented, and maintained as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Contrary to this requirement, from December 11, 2011, through June 28, 2013, the licensee failed to implement and maintain written procedures recommended in Regulatory Guide 1.33, Revision 2. Specifically, paragraph 9.b of Regulatory Guide 1.33, Appendix A, provides that preventative maintenance schedules should be developed to specify, among other things, inspection or replacement of parts that have a specific lifetime. On December 11, 2011, the licensee developed procedure SYS-4-24 to implement this requirement for critical electrolytic capacitors. However, as of June 28, 2013, it had failed to implement the procedure. Consequently, the licensee had failed to establish or implement preventative maintenance schedules for components with critical electrolytic capacitors. The licensee entered the performance deficiency into its corrective action program as CR 288912. Because the finding was of very low safety significance (Green) and was entered into the licensee's corrective action program, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000397/2013008-05, "Failure to Implement Procedure for Age Management of Electrolytic Capacitors."

f. Inadequate Evaluation of Nonconforming Condition Resulting in Potential Missed Report (Unresolved Item)

Introduction. The team identified an unresolved item involving a potential failure to submit a required licensee event report following discovery of a non-seismically qualified temperature switch in the diesel mixed air system. If this switch would have been unable

to perform its safety function following a seismic event, its installation would have represented a condition prohibited by the plant's technical specifications.

Description. On April 24, 2012, the licensee initiated CR 262245 documenting that the then-installed diesel mixed air temperature indicating switch DMA-TIS-22B was not seismically qualified. DMA-TIS-22B controls a heater that supports the train B emergency diesel generator; the switch is required to be Seismic Category I. Equipment qualification report QID 342003-01 listed the seismically qualified switch as model T26S-18; the licensee discovered that the installed switch was non-seismic model T22. The licensee was unable to determine when the nonseismic switch had been installed. On April 25, 2012, the licensee replaced the nonqualified switch with the correct, seismically qualified component under work order 01183010. To determine if the installation of the nonseismic switch represented a condition prohibited by technical specifications and therefore required a Licensee Event Report to be submitted to the NRC, the licensee initiated Seismic Qualification Task W01939-001. This engineering evaluation qualitatively compared the two switches and concluded that Model T22 switch was "as seismically qualified" as the Model T26S-18 switch. Based on the results of the engineering evaluation, the licensee concluded that the issue described in CR 262245 did not require a report to the NRC.

The team determined that the engineering evaluation performed under W01939-001 did not meet the seismic qualification requirements specified in the Columbia Generating Station Final Safety Analysis Report (FSAR). Specifically, the FSAR, Section 3.10.1.2.2.4, provides for "Mandatory Dynamic Testing" in certain circumstances:

When potential failure of Class 1E equipment cannot be evaluated structurally (e.g., opening or closing of electrical circuits), then vibration tests are required to demonstrate seismic adequacy. No analytical procedures are considered acceptable in these instances.

The team determined that because diesel mixed air temperature indicating Switch DMA-TIS-22B has a required function involving the opening or closing of electrical circuits, the FSAR, Section 3.10.1.2.2.4, precludes qualitative analysis of the non-qualified switch to determine that the nonseismic switch was "as seismically qualified"; vibration tests were required to demonstrate that the switch met Seismic Class I criteria.

If the Model T22 switch cannot be demonstrated by acceptable methods to have met Seismic Class I requirements while installed, the licensee's determination that the train B emergency diesel generator remained operable with the nonqualified switch is invalid. If the emergency diesel generator was inoperable while the nonseismic switch was installed, a licensee event report would have been required for a condition prohibited by technical specifications in accordance with 10 CFR 50.73(a)(2)(i)(B). This report would have been required by June 23, 2012, sixty days after the April 24, 2012, discovery of the nonconforming condition.

At the conclusion of the inspection, the licensee planned to perform vibration testing of a model T22 switch. Following completion of that testing, additional review will be required to determine if this issue constituted a violation of NRC requirements. This issue is identified as URI 05000397/2013008-06, "Inadequate Evaluation of Nonconforming Condition Resulting in Potential Missed Report."

The licensee's failure to prevent nonconforming parts from being installed in safety-related applications is documented separately as a licensee-identified violation in Section 4OA7 of this report.

#### **4OA6 Meetings**

##### Exit Meeting Summary

On July 12, 2013, the team presented the inspection results to Mr. Mark E. Reddemann, Chief Executive Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information that the team reviewed had been returned or destroyed.

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

The following two violations of very low safety significance (Green) were self-identified by the licensee. The violations of NRC requirements meet the criteria of Section 2.3.2.a of the NRC Enforcement Policy for disposition as non-cited violations.

- Title 10 CFR, Part 50, Appendix B, Criterion III, "Design Control," requires in part that measures shall be established to assure that applicable regulatory requirements and the design basis, as defined in § 50.2 and as specified in the license application, for those structures, systems, and components to which the appendix applies are correctly translated into specifications, drawings, procedures, and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled. Contrary to this requirement, the licensee failed to establish measures that included provisions to assure that deviations from appropriate quality standards were controlled. Specifically, prior to April 24, 2012, the licensee failed to implement measures to control the seismic design qualification for diesel mixed air temperature indicating switch DMA-TIS-22B. The licensee self-identified this violation and entered it into the corrective action program as CR 262245. The performance deficiency was more than minor because it affected the design control attribute of the mitigating systems cornerstone objective. A senior reactor analyst performed a detailed risk evaluation for this finding. The finding was of very low safety significance (Green) because the bounding change to the core damage frequency was  $1.5 \times 10^{-7}$ /year. This finding did not have a significant impact to the large early release frequency.
- Title 10 CFR, Part 50, Appendix B, Criterion III, "Design Control," requires in part that measures shall be established to assure that applicable regulatory

requirements and the design basis, as defined in § 50.2 and as specified in the license application, for those structures, systems, and components to which the appendix applies are correctly translated into specifications, drawings, procedures, and instructions. These measures shall include provisions to assure that appropriate quality standards are specified and included in design documents and that deviations from such standards are controlled. Contrary to this requirement, the licensee failed to establish measures that included provisions to assure that deviations from appropriate quality standards were controlled. Specifically, prior to September 12, 2012, the licensee failed to implement measures to control the environmental qualification requirements for residual heat removal flow transmitters RHR-FT-15A and RHR-FT-15C. The licensee self-identified this violation and entered it into the corrective action program as CR 289724. The performance deficiency was more than minor because it affected the design control attribute of the mitigating systems cornerstone objective. The finding was determined to be of very low safety significance because it did not represent an actual loss of a safety function.

ATTACHMENTS:

1. Supplemental Information
2. Information Request
3. Supplemental Information Request



## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### **Licensee Personnel**

S. Christianson, Engineer, Regulatory Affairs  
C. England, Manager, Organizational Effectiveness  
C. Golightly, RCA Analyst, Organizational Effectiveness  
M. Hedges, Engineer, Regulatory Affairs  
S. Nappi, Corrective Action Program Supervisor, Organizational Effectiveness  
T. Powell, Maintenance Specialist, Maintenance Services  
F. Schill, Operating Experience Coordinator, Organizational Effectiveness  
C. Scott, Engineer, Design Engineering  
I. Singh, Engineer, System Engineering  
J. Trautvetter, Compliance Supervisor, Regulatory Affairs  
L. Woods, Engineer, System Engineering

#### **NRC Personnel**

M. Hayes, Resident Inspector  
G. Replogle, Senior Reactor Analyst

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

#### **Opened and Closed**

05000397/2013008-01	NCV	Programmatic Failure to Promptly Evaluate Safety Impact of Degraded Conditions
05000397/2013008-02	FIN	Failure to Classify Condition Reports in Accordance with Procedures
05000397/2013008-03	NCV	Failure to Identify and Correct Environmental Qualification Deficiency
05000397/2013008-04	NCV	Failure to Control Inadequate Surveillance Procedure
05000397/2013008-05	NCV	Failure to Implement Procedure for Age Management of Electrolytic Capacitors

#### **Opened**

05000397/2013008-06	URI	Inadequate Evaluation of Nonconforming Condition Resulting in Potential Missed Report
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## LIST OF DOCUMENTS REVIEWED

### Condition Reports (CRs)

183902	213344	234444	256667	271413	281165
186590	213415	234680	256960	271640	281399
188443	213420	235331	257642	271701	282326
191774	213426	236249	258318	271706	282921
191824	213431	236706	258319	271744	283081
191890	213524	237513	258542	271826	284982
193579	213600	237571	258712	273011	285563
193809	213799	237755	259217	273061	285598
193934	213849	237814	259724	273137	285863
199817	213966	237912	260007	273408	287281
202028	214307	238013	260250	273595	287594
203992	214708	240219	260831	273763	287819
204146	214796	241387	261146	273874	288223
204384	215445	243588	262040	274242	288542
205519	215958	243750	262166	274317	288645
207225	216099	244476	262245	274677	288647
207230	217980	246315	263746	274750	288673
207363	217986	246585	264204	275587	288704
207415	218082	246897	264261	275590	288705
207580	218090	246901	264735	276400	288708
207934	219122	247598	265422	276620	288742
208137	219170	247891	265449	276937	288747
208389	219328	247912	265719	277229	288761
208869	219873	248435	266019	277530	288762
210324	220109	248452	266179	277650	288816
210350	221668	248456	266371	278392	288818
211603	223313	249240	266377	278479	288821
212173	224358	250016	266381	278664	288843
212274	224632	250019	266831	278912	288864
212719	226178	250150	267522	278932	288872
213208	226186	252176	267538	279048	288912
213278	227505	252200	267712	279059	288934
213305	227561	252484	267770	279127	288954
213306	228715	252569	267979	279164	289215
213310	229256	253627	268099	279213	289239
213313	230546	253637	269022	279303	289448
213315	230993	253999	270166	279332	289449
213339	233148	254936	270221	279768	289538
213340	233209	255019	270438	280320	289577
213341	233229	255400	271173	280516	289586
213343	234072	255748	271244	280665	289587

Work Orders

01141852	01156960	0116289305	0118992301
01141856	02000608	0118227101	0203534301
01150424	02008781	0118629705	0204127701

Work Requests

29089212	29098385	29098813	29106886
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Procedures

NUMBER	TITLE	REVISION(S)
CDM-01	Cause Determination Manual	5-9
DES 4-1	Preparation, Verification and Approval of Calculations	15
DES-2-11	Preparation of Engineering Evaluations	012
ESP-BSPARE-A101	12 Month Spare Battery Cell Inspection	5
ESP-BSPARE-Q101	Quarterly Spare Battery Testing	2
ICP-RPS-X301	Primary Containment Pressure Monitoring Calibration	5
ISP-HPCS-X302	HPCS Flow Rate Low (Minimum Flow) – CC	3
ISP-MS-Q912	ECCS – LPCS (A) and LPCS Valve Permissive on Low Reactor Pressure – Channels A and C – CFT/CC	5
ISP-MS-Q920	ECCS – LPCI B/C Valve Permissive on Low Reactor Pressure – Channels B & D – CFT/CC	7
ISP-RHR-X304	ECCS-LPCI (B and C) Pump Discharge Low (Minimum Flow) – CC	4
OI-09	Operations Standards and Expectations	58
OI-14	CGS Operational Challenges and Risk Program	9
OI-68	Operational Aggregate Risk Assessment Process	0
OPEX-01	Operating Experience Program Implementation Manual	4
OSP-LPCS/IST-Q702	LPCS System Operability Test	16
PPM 1.3.66	Operability and Functionality Evaluation	20-27
PPM 1.3.68	Work Management Process	28
PPM 1.3.83	Protected Equipment Program	15
PPM 10.25.105	Motor Control Center And Switchgear Maintenance	32
PPM 10.25.14	Reform DC Aluminum Electrolytic Capacitors	10

NUMBER	TITLE	REVISION(S)
PPM 15.4.5	Penetration Seal Installation and Maintenance	14
QSI-19	Escalation Process	7
SOP-RHR-SDC-BYPASS	Bypassing RHR Shutdown Cooling Isolation Logic in Mode 4 and 5	13
SPIP-SEC-26	Post 21 Checkpoint Procedures	26
SWP-AIT-01	Action Request – Initiation, Evaluation and Assignment Activities	8
SWP-ASU-01	Evaluations of Programs, Processes, and Suppliers	25
SWP-CAP-01	Corrective Action Program	27
SWP-CAP-03	Operating Experience Program	13
SWP-CAP-06	Condition Review Group (CRG)	20
SWP-MAI-02	Station Materiel Condition Inspection And Housekeeping Program	20
SWP-PRO-02	Preparation, Review, Approval and Distribution of Procedures	32-37
SYS-4-24	Age Management of Electrolytic Capacitors	0

#### Audits

NUMBER	AREA	DATE
AU-RPRW-11	Radiation Protection Process Control Programs	November 10, 2011
AU-EN-FP-12	Engineering and Fire Protection Audit	February 23, 2012
AU-TQ-12	Training and Qualification Program Audit	July 12, 2012
AU-SE-PADS-12	Security and PADS Audit	September 13, 2012
AU-CH-12	Chemistry, Environmental, and Effluent Monitoring Program Audit	October 11, 2012
AU-CL-12	EN Standards Laboratory Program Audit	December 20, 2012
AU-MN-13	Maintenance Program	February 14, 2013
AU-EP-13	Emergency Preparedness Program	February 21, 2013
AU-CA-13	Corrective Action Program	March 28, 2013

Other

NUMBER	TITLE	REVISION/DATE
	1st Quarter 2013 Station Roll-up Meeting (SRUM) Results	June 3, 2013
	Business Plan Performance Report	May 2013
	Business Plan Performance Report	April 2013
	Maintenance Rule Expert Panel April 10 Meeting Minutes	April 27, 2010
	Maintenance Rule Expert Panel August 08 Meeting Minutes	September 2, 2008
	Maintenance Rule Expert Panel July 2010 Meeting Minutes	July 27, 2010
	Maintenance Rule Expert Panel July 2011 Meeting Minutes	July 26, 2011
	Maintenance Rule Expert Panel October 08 Meeting Minutes	October 28, 2008
	Nuclear Safety Culture Monitoring Panel Minutes and Report 1Q2012	
	Nuclear Safety Culture Monitoring Panel Minutes and Report 2Q2011	
	Nuclear Safety Culture Monitoring Panel Minutes and Report 3Q2011	January 30, 2011
	Nuclear Safety Culture Monitoring Panel Minutes and Report 3rd Quarter 2012	
	Nuclear Safety Culture Monitoring Panel Minutes and Report 4Q2011	April 19, 2012
	Site Leadership Team Nuclear Safety Culture Review Report	February 9, 2012
	Site Leadership Team Nuclear Safety Culture Review Report	August 24, 2012
Calculation 5.51.054	System Pipe Break Analysis	2
Calculation E/I-02-91-1059	Setpoint Range and Allowable Value Determination for Instrument Loop RHR-FIS-10A	1
Calculation ME-02-02-02	Reactor Building Flooding Analysis	2
Drawing E838-9	Electrical Installation Details	16
Drawing M521-1	Flow Diagram Residual Heat Removal Loop "A"	112

NUMBER	TITLE	REVISION/DATE
Drawing M521-3	Flow Diagram Residual Heat Removal Loop "C"	9
Drawing M527-1	Flow Diagram Condensate Supply System Reactor, Turbine Gen., and Radwaste Buildings, Radwaste/Reactor Buildings Corridor	102
Drawing M738	Compr. Air, Fire Prot., Cond., Demin, Water and Misc. Piping – Plant and Section at El. 572'-0" Reactor Building	17
EC 0000010450	Calc 216-92-003 Rev 1 – Evaluate HPCS-V-4 Yoke for AR CR 247598	September 2, 2011
EC 0000012124	Evaluation to Support Past Operability of HPCS- V-4 Yoke for AR CR 247598-03	June 29, 2013
EC 12128	Revise ME-02-02-02 for Rx. Bldg Room R611 and R612 to Reflect Calc. 5.51.58 Results	0
QID W01939	Seismic Qualification for a MFG/Model: Johnsons Controls/T22 for Past Operability	May 3, 2012
SA-01	Self-Assessment/Benchmarking Guidebook	1-2

**Information Request**  
**Biennial Problem Identification and Resolution Inspection**  
**Columbia Generating Station**  
**April 26, 2013**

**Inspection Report: 50-397/2013-008**  
**On-site Inspection Dates: June 24-28 & July 8-12, 2013**

This inspection will cover the period from September 15, 2011 through July 12, 2013. All requested information should be limited to this period or to the date of this request unless otherwise specified. To the extent possible, the requested information should be provided electronically in Adobe PDF (preferred) or Microsoft Office format. Any sensitive information should be provided in hard copy during the team's first week on site; do not provide any sensitive or proprietary information electronically.

Lists of documents should be provided in Microsoft Excel or a similar sortable format. Please be prepared to provide any significant updates to this information during the team's first week of on-site inspection. "Corrective action documents" refers to condition reports, notifications, action requests, cause evaluations, and/or other similar documents, as applicable to Columbia Generating Station.

Please provide the following information no later than June 10, 2013:

1. Document Lists

Note: For these summary lists, please include the document/reference number, the document title, initiation date, current status, and long-text description of the issue.

- a. Summary list of all corrective action documents related to significant conditions adverse to quality that were opened, closed, or evaluated during the period
- b. Summary list of all corrective action documents related to conditions adverse to quality that were opened or closed during the period
- c. Summary lists of all corrective action documents which were upgraded or downgraded in priority/significance during the period (these may be limited to those downgraded from, or upgraded to, apparent-cause level or higher)
- d. Summary list of all corrective action documents initiated during the period that "roll up" multiple similar or related issues, or that identify a trend
- e. Summary lists of operator workarounds, operator burdens, temporary modifications, and control room deficiencies currently open, or that were evaluated or closed during the period
- f. Summary list of safety system deficiencies that required prompt operability determinations (or other engineering evaluations) to provide reasonable assurance of operability

- g. Summary list of plant safety issues raised or addressed by the Employee Concerns Program (or equivalent) (sensitive information can be made available during the team's first week on site)
- h. Summary list of all Apparent Cause Evaluations completed during the period
- i. Summary list of all Root Cause Evaluations planned or in progress but not complete at the end of the period, with planned completion or due date

2. Full Documents with Attachments

- a. Root Cause Evaluations completed during the period
- b. Quality Assurance audits performed during the period
- c. All audits/surveillances, performed during the period, of the Corrective Action Program, of individual corrective actions, and of cause evaluations
- d. Functional area self-assessments and non-NRC third-party assessments (i.e., peer assessments performed as part of routine or focused station self- and independent assessment activities; do not include INPO assessments) that were performed or completed during the period; include a list of those that are currently in progress
- e. Any assessments of the safety-conscious work environment at Columbia Generating Station
- f. Corrective action documents generated during the period associated with the following:
  - i. NRC findings and/or violations issued to Columbia Generating Station
  - ii. Licensee Event Reports issued by Columbia Generating Station
- g. Corrective action documents generated for the following, if they were determined to be applicable to Columbia Generating Station (for those that were evaluated but determined not to be applicable, provide a summary list):
  - i. NRC Information Notices, Bulletins, and Generic Letters issued or evaluated during the period
  - ii. Part 21 reports issued or evaluated during the period
  - iii. Vendor safety information letters (or equivalent) issued or evaluated during the period
  - iv. Other external events and/or Operating Experience evaluated for applicability during the period



- h. Corrective action documents generated for the following:
  - i. Emergency planning drills and tabletop exercises performed during the period
  - ii. Maintenance preventable functional failures which occurred or were evaluated during the period
  - iii. Adverse trends in equipment, processes, procedures, or programs that were evaluated during the period
  - iv. Action items generated or addressed by offsite review committees during the period

3. Logs and Reports

- a. Corrective action performance trending/tracking information generated during the period and broken down by functional organization (if this information is fully included in item 3.c, it need not be provided separately)
- b. Corrective action effectiveness review reports generated during the period
- c. Current system health reports, Management Review Meeting package, or similar information; provide past reports as necessary to include ≥12 months of metric/trending data
- d. Radiation protection event logs during the period
- e. Security event logs and security incidents during the period (sensitive information can be made available during the team's first week on site)
- f. Employee Concern Program (or equivalent) logs (sensitive information can be made available during the team's first week on site)
- g. List of training deficiencies, requests for training improvements, and simulator deficiencies for the period

Note: For items 3.d–3.g, if there is no log or report maintained separate from the corrective action program, please provide a summary list of corrective action program items for the category described.

4. Procedures

- a. Corrective action program procedures, to include initiation and evaluation procedures, operability determination procedures, apparent and root cause evaluation/determination procedures, and any other procedures that implement the corrective action program at Columbia Generating Station

- b. Quality Assurance program procedures (specific audit procedures are not necessary)
- c. Employee Concerns Program (or equivalent) procedures
- d. Procedures which implement/maintain a Safety Conscious Work Environment

5. Other

- a. List of risk-significant components and systems, ranked by risk worth
- b. Organization charts for plant staff and long-term/permanent contractors
- c. For each week the team is on site,
  - i. Planned work/maintenance schedule for the station
  - ii. Schedule of management or corrective action review meetings (e.g. operations focus meetings, CR screening meetings, CARBs, MRMs, challenge meetings for cause evaluations, etc.)
  - iii. Agendas for these meetings

Note: The items listed in 5.c may be provided on a weekly or daily basis after the team arrives on site.

- d. Electronic copies of the UFSAR, 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 on CD or DVD. One copy of the CD or DVD should be provided to the senior resident inspector at Columbia Generating Station; three additional copies should be sent to the team lead, to arrive no later than June 10, 2013:

Eric A. Ruesch  
 U.S. NRC Region IV  
 1600 East Lamar Blvd.  
 Arlington, TX 76011-4511

**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.

**Supplemental Information Request  
Biennial Problem Identification and Resolution Inspection  
Columbia Generating Station  
June 19, 2013**

**Inspection Report: 50-397/2013-008**  
**On-site Inspection Dates: June 24-28 & July 8-12, 2013**

This request supplements the original information request. Where possible, the information should be available to the inspection team immediately following the entrance meeting. This inspection will cover the period from September 15, 2011 through July 12, 2013. The scope of the requested information is limited to this period.

Please provide the following:

1. As part of the inspection, the team will do a five-year in-depth review of issues and corrective actions related to the high pressure core spray (HPCS) system, including the HPCS diesel generator. The following documents are to support this review:
  - Copies of all upper and lower tier cause evaluations (category A & B AR-CRs) performed on the HPCS system within the last 5 years, including root cause evaluations not already provided
  - List of all surveillances run on the HPCS system within the last five years, sortable by component if possible, and including acceptance criteria
  - List of all corrective maintenance work orders performed on the HPCS system within the last 5 years
  - List of maintenance rule functional failure assessments—regardless of the result—performed on the HPCS system within the last 5 years
  - System training manual(s) for the HPCS system
  - Engineering forms/logs containing notes from the last two engineering walk-downs of the HPCS system
2. Conduct of Operations procedure (or equivalent) and any other procedures governing control room conduct, operator burdens and workarounds, etc.
3. Prior revisions of the CAP procedures that were provided in response to item 4.a of the April 26 information request. This should include all prior revisions that were in effect at any time during the inspection period.
4. Condition reports:

• AR 226178	• AR 267712	• AR 278392
• AR 226186	• AR 270221	• AR 278664
• AR 249240	• AR 270438	• AR 279303
• AR 250150	• AR 271701	• AR 281165
• AR 252484	• AR 271706	• AR 282326
• AR 255748	• AR 271744	• AR 2
• AR 261146	• AR 277530	• 82921

In addition to the list above, please provide any updates to the information previously provided in response to the April 26, 2013, information request.

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.