



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

April 29, 2015

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

SUBJECT: COLUMBIA GENERATING STATION – NRC INTEGRATED INSPECTION
REPORT 05000397/2015001

Dear Mr. Reddemann,

On March 31, 2015, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Columbia Generating Station. On April 2, 2015, the NRC inspectors discussed the results of this inspection with Mr. B. Sawatzke, Chief Nuclear Officer and Chief Operating Officer, and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

NRC inspectors documented three findings of very low safety significance (Green) in this report. All of these findings involved violations of NRC requirements. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

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

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

In accordance with Title 10 of the *Code of Federal Regulations* (10 CFR) 2.390, "Public Inspections, Exemptions, Requests for Withholding," a copy of this letter, its enclosure, and your

M. Reddemann

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response (if any) will be available electronically for public inspection in the NRC's Public Document Room or from the Publicly Available Records (PARS) component of the NRC's Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Wayne C. Walker, Chief
Reactor Projects Branch A
Division of Reactor Projects

Docket Nos. 50-397
License Nos.: NPF-21

Enclosure: Inspection Report 05000397/2015001
w/ Attachment: Supplemental
Information

cc w/ encl: Electronic Distribution

M. Reddemann

- 2 -

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Letter to M.E. Reddeman from W. Walker April 29, 2015

SUBJECT: COLUMBIA GENERATING STATION – NRC INTEGRATED INSPECTION
REPORT 05000397/2015001

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000397

License: NPF-21

Report: 05000397/2015001

Licensee: Energy Northwest

Facility: Columbia Generating Station

Location: North Power Plant Loop
Richland, WA 99354

Dates: January 1, 2015 through March 31, 2015

Inspectors: D. Bradley, Resident Inspector
P. Elkmann, Senior Emergency Preparedness Inspector
J. Groom, Senior Resident Inspector
S. Makor, Senior Resident Inspector (Acting)
N. Taylor, Senior Project Engineer

Approved By: Wayne C. Walker
Chief, Project Branch A
Division of Reactor Projects

SUMMARY

IR 05000397/2015001; 01/01/2015 – 03/31/2015; Columbia Generating Station; Flood Protection Measures, Post-maintenance testing, Problem Identification and Resolution

The inspection activities described in this report were performed between January 1 through March 31, 2015, by the resident inspectors at Columbia Generating Station and inspectors from the NRC's Region IV office. Three findings of very low safety significance (Green) are documented in this report. All of these findings involved violations of NRC requirements. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process." Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Components Within the Cross-Cutting Areas." Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of Technical Specification 3.5.1, "ECCS - Operating," for the licensee's failure to maintain the low-pressure coolant injection system operable. Specifically, the licensee failed to implement adequate compensatory measures for a removed barrier used to protect the residual heat removal system from flooding caused by a moderate energy line crack, resulting in inoperability of the system for a period greater than allowed by the plant's technical specifications. To restore compliance, the licensee issued Night Order 1621 to prevent future equipment inoperability due to inadequate compensatory measures. The licensee entered this issue into their corrective action program as Action Requests (ARs) 319653, 323449, and 323450.

The performance deficiency was more than minor because it affected the configuration control attribute of the Mitigating System Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The resident inspector performed the initial significance determination for the performance deficiency using NRC Inspection Manual 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions," dated July 1, 2012. The finding required a detailed risk evaluation because it involved the loss of a single train of mitigating equipment for longer than the technical specification allowed outage time. Therefore, a Region IV senior reactor analyst performed a bounding detailed risk evaluation. The bounding change to the core damage frequency was 5E-12/year (Green). The dominant sequences included an internal flooding induced transient followed by random failures of the Division I and III systems. The risk was mitigated because other redundant systems remained available. This finding had a cross-cutting aspect in the area of human performance, procedure adherence, because the licensee failed to follow the barrier impairment procedure to install an adequate temporary flood curb [H.8]. (Section 1R06)

- Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1.a, "Procedures," for the licensee's failure to provide adequate work instructions for performing maintenance on 480-volt motor control center starter PRA-42-8AA4B. Consequently, the starter's thermal overload mounting screws were over-torqued resulting in an unexpected loss of pump house recirculation air fan PRA-FN-1B. The

licensee repaired the improperly torqued thermal overload mounting screws and initiated AR 321368 to address the inadequate work instructions that resulted in the unexpected trip of the thermal overloads for fan PRA-FN-1B.

The performance deficiency was more than minor because it affected the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors performed the initial significance determination using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions." The inspectors determined that the finding was of very low safety significance because (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding had a cross-cutting aspect in the area of human performance, resources, in that the licensee failed to ensure that appropriate insights from the vendor manual were utilized when preparing work documents [H.1]. (Section 1R19)

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instruction, Procedures and Drawings," associated with the licensee's failure to initiate condition reports for conditions adverse to quality as required by station procedures. Specifically, following identification that maintenance instructions did not provide the correct torque specifications for sixty-four thermal overloads, the licensee failed to initiate a condition report as required by procedure SWP-CAP-01, "Corrective Action Program," Revision 30. The licensee initiated AR 324450 to document the sixty-four improperly assembled thermal overload relays and completed an operability evaluation for this non-conforming condition. The licensee also initiated AR 324458 to address the failure to initiate a condition report for an identified extent of condition issue as required by station procedures.

The performance deficiency was more than minor because it affected the human performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors performed the initial significance determination using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions." The inspectors determined that the finding was of very low safety significance because (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding had a cross-cutting aspect in the area of human performance, field presence, in that the engineering department corrective action review board failed to identify and correct deviations from standards involving initiation of condition reports for identified extent of condition concerns [H.2]. (Section 4OA2)

PLANT STATUS

Columbia Generating Station began the inspection period at approximately 100 percent power and operated at approximately 100 percent power for the entire inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- February 2, 2015, division 3 electrical distribution system
- February 13, 2015, high pressure core spray system

The inspectors reviewed the licensee's procedures and system design information to determine the correct lineup for the systems. They visually verified that critical portions of the systems or trains were correctly aligned for the existing plant configuration.

These activities constituted two partial system walk-down samples as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Inspection

a. Inspection Scope

The inspectors evaluated the licensee's fire protection program for operational status and material condition. The inspectors focused their inspection on four plant areas important to safety:

- February 2, 2015, Fire Area R-6/2, reactor core isolation cooling pump room
- February 10, 2015, Fire Areas SW-1 and SW-2, standby service water pump houses
- February 12, 2015, Fire Area R-1, reactor building, 572' elevation

- February 20, 2015, Fire Areas R-1, R-18/2 and M-27/2, reactor building 522' elevation including division 2 motor control center room and electrical instrument rack E-IR-H22/P027 enclosure

For each area, the inspectors evaluated the fire plan against defined hazards and defense-in-depth features in the licensee's fire protection program. The inspectors evaluated control of transient combustibles and ignition sources, fire detection and suppression systems, manual firefighting equipment and capability, passive fire protection features, and compensatory measures for degraded conditions.

These activities constituted four quarterly inspection samples, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On January 7, 2015, the inspectors completed an inspection of the station's ability to mitigate flooding due to internal causes. After reviewing the licensee's flooding analysis, the inspectors chose one plant area containing risk-significant structures, systems, and components that were susceptible to flooding:

- reactor building 471' elevation during removal of residual heat removal room B floor plug

The inspectors reviewed plant design features and licensee procedures for coping with internal flooding. The inspectors walked down the selected areas to inspect the design features, including the material condition of seals, drains, and flood barriers. The inspectors evaluated whether operator actions credited for flood mitigation could be successfully accomplished.

These activities constitute completion of one flood protection measures sample as defined in Inspection Procedure 71111.06.

b. Findings

Introduction. The inspectors identified a Green non-cited violation of Technical Specification 3.5.1, "ECCS - Operating," for the licensee's failure to maintain the low-pressure coolant injection system operable. Specifically, the licensee failed to implement adequate compensatory measures for a removed barrier used to protect the residual heat removal system from flooding caused by a moderate energy line crack, resulting in inoperability of the system for a period greater than allowed by the plant's technical specifications.

Description. On December 3, 2014, the licensee removed a floor plug from the reactor building 471' elevation to support a planned modification to the train B residual heat removal (RHR-B) system. Removing the 82" long x 32" wide x 18" thick tapered

concrete plug above the RHR-B room allows the use of a crane to move heavy materials into the RHR-B room that cannot be transferred via the water-resistant doors at the 422' elevation. The RHR-B system provides an accident mitigation function known as Division 2 low-pressure coolant injection that is subject to the operational requirements of Limiting Condition for Operation 3.5.1, "ECCS – Operating."

Licensee procedure PPM 1.3.57, "Barrier Impairment," Revision 31, specified that the reactor building 471' elevation floor plug constitutes part of the ceiling of the RHR-B room and serves as a barrier between adjacent reactor building spaces for scenarios involving fire, high energy line break, radiation, and flooding. Attachment 9.4 of PPM 1.3.57 describes compensatory measures used to maintain operability of the components with a removed floor plug. Procedure PPM 1.3.57 provided two options for compensatory measures to address flooding concerns caused by the missing barrier, (1) an hourly flood tour, or (2) installation of a 2" temporary flood curb around the opening.

On December 18, 2014, the inspectors performed a plant tour and observed the compensatory measures for the removed floor plug. At the time of inspection, the licensee was crediting the hourly flood tour as the compensatory measure to maintain RHR-B operable, and additionally had installed a temporary flood curb. The inspectors noted that the flood curb was not fully around the plug opening such that water from a reactor building 471' elevation flooding scenario would fall into the RHR-B room. The inspectors reported this condition to the control room and the licensee documented the issue in AR 319491. The licensee's immediate operability determination for AR 319491 determined the RHR-B system remained operable since an hourly flood tour was ongoing. The licensee also took actions to install an adequate 2" temporary flood curb that fully surrounded the floor plug opening.

The inspectors challenged the effectiveness of an hourly flood tour as a compensatory measure for maintaining operability of the RHR-B system. Licensee calculation ME-02-02-02, "Reactor Building Flooding Analysis," Revision 1, established a limiting flooding scenario for the reactor building 471' as a moderate energy line crack of a 14" RHR pipe that results in a leak of 486.2 gallons per minute. This leak rate causes a peak height of water on the reactor building 471' elevation of 1.4 inches. Appendix M of ME-02-02-02 discusses the human performance aspect of isolating a leak and assumes that upon an initial report of flooding, control room operators isolate the source of the leak within 20 minutes. Since flood tours occur every hour, the timeline for operator response would result in unmitigated flooding for at least 80 minutes.

Calculation ME-02-02-02 assumes floor plugs are installed for all evaluated scenarios. The licensee could not provide any qualitative or quantitative evaluation of the effects of flooding from the reactor building 471' into the RHR-B room via the 82" x 32" open floor plug for a duration of 80 minutes. Further, the abnormal procedure for this scenario, ABN-FLOODING, "Flooding," Revision 16, directs the following actions in step 7.1.1:

If the flood results in RHR B Pump Room Flooding, then perform the following:

- 1) Stop RHR-P-2B*
- 2) Pull the control power fuses for RHR-P-2B to prevent auto start.*

The inspectors determined that the above actions would cause the control room operators to disable the RHR-B pump upon the report of flooding, procedurally rendering

the pump inoperable. Based upon the NRC's challenge, the licensee performed a qualitative evaluation of flooding on the reactor building 471' elevation with individual floor plugs removed and determined hourly flood tours to be non-conservative. For example, if the reactor building 471' floor plug was removed above the reactor core isolation cooling (RCIC) room, the water level in the room would adversely affect RCIC components in approximately 28 minutes. For the case of the plug associated with RHR-B, the water level in the room would adversely affect components in 84 minutes.

The inspectors determined the compensatory measures for the RHR-B system were inadequate between December 3, 2014 and December 18, 2014. Specifically, the hourly flood tour did not maintain, enhance, or restore operability of the RHR-B system for a flooding scenario. Technical Specification Limiting Condition for Operation (LCO) 3.0.1 requires in part that LCOs shall be met during the modes or other specified conditions in the applicability. The inspectors determined that LCO 3.5.1, "ECCS – Operating," was not met in a required mode of applicability because the RHR-B subsystem was inoperable for 16 days, in excess of Technical Specification 3.5.1 Condition A that required the licensee to restore the low-pressure ECCS injection/spray subsystem to operable status within 7 days.

In response to this conclusion, the licensee initiated ARs 319653, 323449, and 323450 to correct associated procedures and perform past operability determinations. The licensee also issued Night Order 1621 to prevent future equipment inoperability due to inadequate compensatory measures.

Analysis. The failure to maintain the low pressure coolant injection system operable as required by the plant's technical specifications was a performance deficiency. The performance deficiency was more than minor because it affected the configuration control attribute of the Mitigating System Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process for (SDP) for Findings At-Power". Using IMC 0609 Appendix A, Exhibit 2 – Mitigating Systems Screening Questions, the inspectors determined that a detailed risk assessment is required because the finding represented a loss of function of a single train for greater than its technical specification allowed outage time.

A Region IV senior reactor analyst performed a bounding detailed risk evaluation to assess the flood barrier concern. The analyst noted that the 471' elevation of the reactor building housed 1,858 feet of system piping. The analyst considered all of this piping (in various systems) as potential sources of floodwater that could impair the function of the Division II residual heat removal system. Next, the analyst identified the approximate frequency for a piping break or crack. NUREG/CR-6929, "Industry-Average Performance for Components and Initiating Events at U.S. Commercial Nuclear Power Plants," dated January, 2007 specified the mean frequencies for piping breaks and cracks. As a conservative step, the analyst utilized the highest frequency among the piping classes. That frequency was 1.38E-10/foot-hour. Third, the analyst used the Columbia Generating Station Standardized Plant Analysis Risk (SPAR) model, Revision 8.16, with a truncation limit of 1E-11, to calculate the incremental conditional core damage probability (ICCDP) for a piping break on the 471' elevation of the reactor

building that caused the Division II residual heat removal train failure. The ICCDP was 1.9E-5.

Considering the 16 day exposure period, the change to the core damage frequency (Δ CDF) was:

$$\Delta\text{CDF} = (16 \text{ days}/365\text{days})/\text{year} \times 1858 \text{ feet} \times 1.38\text{E}-10/\text{foot-hour} \times 24 \text{ hours}/\text{day} \times 1.9\text{E}-5 = 5.1\text{E}-12/\text{year} \text{ (Green)}$$

Since the Δ CDF was less than 1E-6, the finding was of very low safety significance (Green). In addition, since the Δ CDF was less than 1E-7, this finding was not significant for external events or the large early release frequency.

The dominant sequences included an internal flooding induced transient followed by random failures of the Division I and III systems. The risk was mitigated because other redundant systems remained available.

This finding had a cross-cutting aspect in the area of human performance, procedure adherence, because the licensee failed to follow the barrier impairment procedure to install an adequate temporary flood curb [H.8].

Enforcement. Technical Specification 3.5.1, "ECCS – Operating," requires, in part, that each ECCS injection/spray subsystem shall be operable in Modes 1, 2 and 3. Technical Specification 3.5.1, Condition A, requires that if one low pressure ECCS injection/spray subsystem is inoperable, then restore the low pressure ECCS injection/spray subsystem to operable status within 7 days. Technical Specification 3.5.1, Condition D, states, in part, that if the required action and associated completion time of Condition A is not met, then be in Mode 3 in 12 hours and be in Mode 4 in 36 hours. Contrary to the above, from December 3 – 18, 2014, the Division II low pressure coolant injection system was inoperable due to inadequate compensatory measures for flooding from a moderate energy line crack and action was not taken to place Columbia Generating Station in Mode 3 within 12 hours and Mode 4 within an additional 36 hours as required by Technical Specification 3.5.1, Required Actions D.1 and D.2. The licensee's immediate corrective actions to restore compliance included installing an adequate flood barrier and initiating corrective action to correct associated procedures. Because this violation was of very low safety significance and was entered into the licensee's corrective action program as ARs 319491, 319653, 323449, and 323450, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000397/2015001-01. "Failure to Comply with ECCS Technical Specifications."

1R11 Licensed Operator Requalification Program and Licensed Operator Performance (71111.11)

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On January 28, 2015, the inspectors observed an evaluated simulator scenario performed by an operating crew. The inspectors assessed the performance of the operators and the evaluators' critique of their performance. The inspectors also assessed the modeling and performance of the simulator during the requalification activities.

These activities constitute completion of one quarterly licensed operator requalification program sample, as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

.2 Review of Licensed Operator Performance

a. Inspection Scope

On January 5, 2015, the inspectors observed the performance of on-shift licensed operators in the plant's main control room. At the time of the observations, the plant was in a period of heightened risk due to a planned lowering of spent fuel pool level to support maintenance activities. The inspectors observed the operators' performance of the following activities:

- Procedure SOP-FUELPOOL-DRAIN, "Fuel Pool Partial Drain," Revision 1
- Monitoring of fuel pool temperature in accordance with procedure OI-65, "Spent Fuel Time to 200 Guidelines," Revision 1

In addition, the inspectors assessed the operators' adherence to plant procedures, including OI-9, "Operations Standards and Expectation," Revision 61 and other operations department policies.

These activities constitute completion of one quarterly licensed operator performance sample, as defined in Inspection Procedure 71111.11.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors reviewed two instances of degraded performance or condition of safety-related structures, systems, and components (SSCs):

- January 19, 2015, fuel pool cooling system review
- January 19, 2015, high pressure core spray system review

The inspectors reviewed the extent of condition of possible common cause SSC failures and evaluated the adequacy of the licensee's corrective actions. The inspectors reviewed the licensee's work practices to evaluate whether these may have played a role in the degradation of the SSCs. The inspectors assessed the licensee's characterization of the degradation in accordance with 10 CFR 50.65 (the Maintenance Rule), and verified that the licensee was appropriately tracking degraded performance and conditions in accordance with the Maintenance Rule.

These activities constitute completion of two maintenance effectiveness samples, as defined in Inspection Procedure 71111.12.

b. Findings

No findings were identified.

1R13 Maintenance Risk Assessments and Emergent Work Control (71111.13)

a. Inspection Scope

The inspectors reviewed four risk assessments performed by the licensee prior to changes in plant configuration and the risk management actions taken by the licensee in response to elevated risk:

- January 5, 2015, orange risk during planned lowering of spent fuel pool level for valve FPC-V-141 maintenance and fuel pool cooling assist piping modifications
- February 2, 2015, yellow risk during planned residual heat removal B system outage for modification to the system suction line
- February 17, 2015, yellow risk during planned diesel generator 3 system outage
- March 24, 2015, yellow risk during planned diesel generator 2 system outage for cooling coil replacement

The inspectors verified that these risk assessment were performed timely and in accordance with the requirements of 10 CFR 50.65 (the Maintenance Rule) and plant procedures. The inspectors reviewed the accuracy and completeness of the licensee's risk assessments and verified that the licensee implemented appropriate risk management actions based on the result of the assessments.

These activities constitute completion of four maintenance risk assessments and emergent work control inspection samples, as defined in Inspection Procedure 71111.13.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

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

- January 9, 2015, AR 320275 documenting gaps in diesel mixed air cooling coil DMA-CC-11
- January 9, 2015, AR 320034 documenting a leak on diesel fuel oil pump DO-P-2

- January 20, 2015, AR 320794 documenting post seal cracks on battery HPCS-B1-DG3
- February 10, 2015, AR 321888 documenting low thermal performance for diesel cooling water heat exchanger DCW-HX-1C
- February 12, 2015, AR 317439 documenting a 3 gallon per minute packing leak on service water valve SW-V-12B
- February 13, 2015, AR 322256 documenting low thermal performance for residual heat removal exchanger RHR-HX-1A

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

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

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

On February 9, 2015, the inspectors reviewed a permanent modification to the residual heat removal system that added an additional suction flow path for use as an alternate decay heat removal system implemented under Engineering Change EC 12057. The inspectors reviewed the design and implementation of the modification. The inspectors verified that work activities involved in implementing the modification did not adversely impact operator actions that may be required in response to an emergency or other unplanned event. The inspectors verified that post-modification testing was adequate to establish the operability of the SSCs as modified.

These activities constitute completion of one sample of permanent modifications, as defined in Inspection Procedure 71111.18.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed six post-maintenance testing activities that affected risk-significant structures, systems, or components (SSCs):

- January 12, 2015, post-maintenance testing of electrical circuit breaker E-CB-7/1 following lubrication under Work Order 02017480
- January 15, 2015, post-maintenance testing of electrical circuit breaker E-CB-DG1/7 following detailed mechanism operated cell switch inspection under Work Order 02016525
- January 21, 2015, post-maintenance testing of high pressure core spray service water system following relay replacement and 480V motor starter re-wire for service water valve SW-V-29 under Work Orders 02043500 and 02026782.
- January 26, 2015, post-maintenance testing of residual heat removal valve RHR-V-3B following switch replacement under Work Order 02045368
- January 29, 2015, post-maintenance testing of pumphouse recirculation air fan PRA-FN-1B following 480V motor starter replacement under Work Order 02035957
- February 11, 2015, post-maintenance testing of control rod drive pump CRD-P-1B following detailed mechanism operated cell switch inspection under Work Order 02050455

The inspectors reviewed licensing- and design-basis documents for the SSCs and the maintenance and post-maintenance test procedures. The inspectors observed the performance of the post-maintenance tests to verify that the licensee performed the tests in accordance with approved procedures, satisfied the established acceptance criteria, and restored the operability of the affected SSCs.

These activities constitute completion of six post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19.

b. Findings

Introduction. The inspectors reviewed a self-revealing Green, non-cited violation of Technical Specification 5.4.1.a, "Procedures," for the licensee's failure to provide adequate work instructions for performing maintenance on 480-volt motor control center starter PRA-42-8AA4B. Consequently, the starter's thermal overloads mounting screws were over-torqued resulting in an unexpected loss of pump house recirculation air fan PRA-FN-1B.

Description. On January 28, 2015, the licensee completed Work Order 02035957, Task 1 to replace 480-volt motor control center starter PRA-42-8AA4B that supplies electrical power for pump house recirculation air fan PRA-FN-1B. Fan PRA-FN-1B is a recirculation fan that supplies cooling to the train B standby service water pump house.

During the replacement, the licensee declared train B standby service water and emergency diesel generator inoperable and entered the appropriate conditions of Limiting Condition for Operation (LCO) 3.7.1, "Standby Service Water (SW) System and Ultimate Heat Sink (UHS)," and LCO 3.8.1, "AC Sources — Operating." Following a post-maintenance test that started PRA-FN-1B, operations personnel declared the fan operable and exited the technical specification action statements for the train B standby service water system and emergency diesel generator. The licensee did not perform a post-maintenance test to perform thermography on the new motor control center starter under Work Order 02035957 Task 7 prior to declaring the systems operable.

On January 29, 2015, fan PRA-FN-1B failed to start to support motor diagnostic testing under Work Order 02068982. Subsequent investigation found the thermal overload relay in the tripped position. Thermography of the motor control center starter revealed a small amount of heating (approximately 16 degree Fahrenheit) at one of the electrical connections for the thermal overload relay. A condition evaluation performed by the licensee identified that the thermal overload relay mounting screws were not tightened to the value specified in contractor vendor information manual CVI 999-00,214, "Nuclear Logistics 5600 Series Motor Control Center Cubicles Instruction Manual," Revision 1. The vendor manual specified that the thermal overload relay mounting screws be tightened to 9 inch-pounds. Step 4.3 of licensee's Work Order 02035957, used for the replacement of PRA-42-8AA4B on January 28, 2015, specified that maintenance personnel tighten the screws to "snug tight." The licensee consulted with the thermal overload relay vendor to conclude that over torqueing of the overload relay mounting screw distorted the thermal element resulting in heat affecting the thermal overload relay trip performance curve.

On January 30, 2015, the licensee replaced the thermal overload relay for 480-volt motor control center starter PRA-42-8AA4B using the correct 9 inch-pound specification under Work Order 02068982. The licensee initiated AR 321368 to address the inadequate work instructions that resulted in the unexpected trip of the thermal overloads for fan PRA-FN-1B.

Analysis. The failure to provide adequate work instructions for maintenance on 480-volt motor control center starters was a performance deficiency. The performance deficiency was more than minor because it affected the equipment performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspector performed the initial significance determination using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions." The inspectors determined that the finding was of very low safety significance because (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding had a cross-cutting aspect in the area of human performance, resources, in that the licensee failed to ensure that appropriate insights from the vendor manual were utilized when preparing work documents [H.1].

Enforcement. Technical Specification 5.4.1.a, "Procedures," requires, in part, that written procedures be established, implemented, and maintained as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Paragraph 9.a of Regulatory Guide 1.33, Appendix A, requires written procedures for performing maintenance that can affect the performance of safety-related equipment. Contrary to the above, on January 28, 2015, the licensee failed to maintain written procedures as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Specifically, Step 4.3 of Work Order 02035957, failed to specify the correct torque value (9 inch-pounds) for the heater overload relay in safety related motor control center starter PRA-42-8AA4B. The licensee restored compliance by replacing the thermal overload relay for PRA-42-8AA4B under Work Order 02068982 using the correct 9 inch-pounds specification. Because this finding was of very low safety significance (Green) and entered into the licensee's corrective action program as AR 321368, this violation is being treated as a non-cited violation consistent with the Enforcement Policy: NCV 05000397/2015001-02, "Failure to Establish Appropriate Work Instructions for 480-Volt Motor Control Center Starters."

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed five risk-significant surveillance tests and reviewed test results to verify that these tests adequately demonstrated that the structures, systems, and components (SSCs) were capable of performing their safety functions:

In-service tests:

- February 10, 2015, procedure OSP-RCIC/IST-Q701, "RCIC Operability Test," Revision 54
- March 27, 2015, procedure OSP-SW/IST-Q702, "Standby Service Water Loop B Operability," Revision 29

Other surveillance tests:

- January 29, 2015, procedure ESP-ADS-Q902, "ADS Trip System B on ADS Timer," Revision 8
- February 10, 2015, procedure OSP-INST-H101, "Shift and Daily Instrument Checks (Modes 1, 2 and 3)," Revision 83
- February 11, 2015, procedure ISP-RPS-Q902, "RPS (Channel A2) and EOC Recirc Pump Trip – TGV Fast Closure RPS-PS-5C – CFT/CC," Revision 9

The inspectors verified that these tests met technical specification requirements, that the licensee performed the tests in accordance with their procedures, and that the results of the test satisfied appropriate acceptance criteria. The inspectors verified that the licensee restored the operability of the affected SSCs following testing.

These activities constitute completion of five surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert and Notification System Evaluation (71114.02)

a. Inspection Scope

The inspector verified the adequacy of the licensee's methods for testing the primary and backup alert and notification system (ANS). The inspector also reviewed the licensee's program for identifying emergency planning zone locations requiring tone alert radios and for distributing the radios and reviewed audits of distribution records. The inspector interviewed licensee personnel responsible for the maintenance of the primary and backup ANS and reviewed a sample of corrective action system reports written for ANS problems. The inspector compared the licensee's alert and notification system testing program with criteria in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1; FEMA Report REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants"; and the licensee's current FEMA-approved Alert and Notification System Design Report, Revision 1, dated July 17, 2013.

The inspector also reviewed records of three siren system battery tests, four monthly siren system inspections, and an annual radio system test.

These activities constituted completion of one alert and notification system evaluation sample as defined in Inspection Procedure 71114.02.

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Staffing and Augmentation System (71114.03)

a. Inspection Scope

The inspector verified the licensee's emergency response organization on-shift and augmentation staffing levels were in accordance with the licensee's emergency plan commitments. The inspector reviewed documentation and discussed with licensee staff the operability of primary and backup systems for augmenting the on-shift emergency response staff to verify the adequacy of the licensee's methods for staffing emergency response facilities, including the licensee's ability to staff pre-planned alternate facilities. The inspector also reviewed records of emergency response organization augmentation tests and events to determine whether the licensee had maintained a capability to staff emergency response facilities within emergency plan timeliness commitments.

These activities constitute completion of one emergency response organization staffing and augmentation testing sample as defined in Inspection Procedure 71114.03.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspector performed an in-office review of the Columbia Generating Station Emergency Plan, Revision 61. This revision added one communicator for the notification of emergency action levels and protective action recommendations to Table 2-1, "Energy Northwest Emergency Response Organization Minimum Staffing Requirements," increasing the required minimum on-shift staffing from 17 to 18.

The inspector performed an on-site review of plant procedures PPM 13.2.1, "Emergency Exposure Levels/Protective Action Guides," Revision 22; PPM 13.4.1, "Emergency Notifications," Revision 43; and PPM 13.14.4, "Emergency Equipment Maintenance and Testing," Revision 52, all dated March 9, 2015. These revisions updated instructions for issuing potassium iodide because of a change in supplier, added consideration of issuing potassium iodide to the Security Communication Center and to emergency workers outside of the plant protected area, added guidance for activating emergency response facilities at a Notification of Unusual Event emergency classification, revised procedures because of the consolidation of Department of Energy facilities, and added details about the content of follow-up notification messages to offsite authorities.

These revisions were compared to their previous revisions, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b) to determine if the revision adequately implemented the requirements of 10 CFR 50.54(q)(3) and 50.54(q)(4). The inspector verified that the revisions did not decrease the effectiveness of the emergency plan. These reviews were not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, the revisions are subject to future inspection.

These activities constitute completion of four emergency action level and emergency plan change samples as defined in Inspection Procedure 71114.04.

b. Findings

No findings were identified.

1EP5 Maintenance of Emergency Preparedness (71114.05)

a. Inspection Scope

The inspector reviewed the following elements of the licensee's emergency preparedness program for the period between August 2013 and March 2015:

- After action reports for emergency classifications and events;
- After action evaluation reports for licensee drills and exercises;

- Independent audits and surveillances of the licensee's emergency preparedness program;
- Self-assessments of the emergency preparedness program conducted by the licensee;
- Licensee evaluations of changes made to the emergency plan and emergency plan implementing procedures;
- Drill and exercise performance issues entered into the licensee's corrective action program;
- Emergency preparedness program issues entered into the licensee's corrective action program; and,
- Maintenance records for equipment supporting the emergency preparedness program.

The inspector reviewed summaries of 492 requests (corrective action program reports) associated with emergency preparedness and selected 26 to review against program requirements, to determine the licensee's ability to identify, evaluate, and correct problems in accordance with planning standard 10 CFR 50.47(b)(14) and 10 CFR Part 50, Appendix E, IV.F. The inspector verified that the licensee accurately and appropriately identified and corrected emergency preparedness weaknesses during critiques and assessments.

The inspector reviewed summaries of 36 licensee evaluations of the impact of changes to the emergency plan and implementing procedures, and selected 10 to review against program requirements to determine the licensee's ability to identify reductions in the effectiveness of the emergency plan in accordance with the requirements of 10 CFR 50.54(q)(3) and 50.54(q)(4). The inspector verified that evaluations of proposed changes to the licensee emergency plan appropriately identified the impact of the changes prior to being implemented.

The inspector reviewed summaries of five months of emergency preparedness equipment maintenance activities to determine the licensee's ability to maintain equipment in accordance with the requirements of 10 CFR 50.47(b)(8) and 10 CFR Part 50, Appendix E, IV.E. The inspector also reviewed seven monthly communications system tests, 12 facility walk-down surveillances, two emergency facility inventory surveillances, two emergency protective kit inventory surveillances, three inventories of hospital emergency kits, and an emergency response facility filtration system test.

The inspector toured the licensee's Technical Support Center, Operations Support Center, and Emergency Operations Facility to evaluate their material condition and readiness to support emergency response activities in accordance with the requirements of 10 CFR 50.47(b)(8) and 10 CFR Part 50, Appendix E, IV.E. The inspector verified that equipment and facilities were maintained in accordance with the commitments of the licensee's emergency plan

These activities constitute completion of one sample of the maintenance of the licensee's emergency preparedness program as defined in Inspection Procedure 71114.05.

b. Findings

No findings were identified.

1EP6 Drill Evaluation (71114.06)

.1 Training Evolution Observation

a. Inspection Scope

On February 24, 2015, the inspectors observed simulator-based licensed operator requalification training that included implementation of the licensee's emergency plan. The inspectors verified that the licensee's emergency classifications, off-site notifications, and protective action recommendations were appropriate and timely. The inspectors verified that any emergency preparedness weaknesses were appropriately identified by the evaluators and entered into the corrective action program for resolution.

These activities constitute completion of one training observation sample, as defined in Inspection Procedure 71114.06.

b. Findings

No findings were identified.

4. OTHER ACTIVITIES

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

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours (IE01)

a. Inspection Scope

The inspectors reviewed licensee event reports (LERs) for the period of January 1, 2014 through December 31, 2014 to determine the number of scrams that occurred. The inspectors compared the number of scrams reported in these LERs to the number reported for the performance indicator. Additionally, the inspectors sampled monthly operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of the unplanned scrams per 7000 critical hours performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Unplanned Power Changes per 7000 Critical Hours (IE03)

a. Inspection Scope

The inspectors reviewed operating logs, corrective action program records, and monthly operating reports for the period of January 1, 2014 through December 31, 2014 to determine the number of unplanned power changes that occurred. The inspectors compared the number of unplanned power changes documented to the number reported for the performance indicator. Additionally, the inspectors sampled monthly operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of the unplanned power outages per 7000 critical hours performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Unplanned Scrams with Complications (IE04)

a. Inspection Scope

The inspectors reviewed the licensee's basis for including or excluding in this performance indicator each scram that occurred between January 1, 2014 through December 31, 2014. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

These activities constituted verification of the unplanned scrams with complications performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.4 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspector reviewed the licensee's evaluated exercise and selected drill and training evolutions that occurred between July 2014 and December 2014 to verify the accuracy of the licensee's data for classification, notification, and protective action recommendation (PAR) opportunities. The inspector reviewed a sample of the licensee's completed classifications, notifications, and PARs to verify their timeliness and

accuracy. The inspector used the guidance of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of data reported by the licensee. The specific documents reviewed are described in the attachment to this report.

These activities constituted verification of the drill/exercise performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.5 Emergency Response Organization Drill Participation (EP02)

a. Inspection Scope

The inspector reviewed the licensee's records for participation in drill and training evolutions between June 2014 and December 2014 to verify the accuracy of the licensee's data for drill participation opportunities. The inspector verified that all members of the licensee's emergency response organization (ERO) in the identified key positions had been counted in the reported performance indicator data. The inspector reviewed the licensee's basis for reporting the percentage of ERO members who participated in a drill. The inspectors reviewed drill attendance records and verified a sample of those reported as participating. The inspector used the guidance of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of data reported by the licensee. The specific documents reviewed are described in the attachment to this report.

These activities constituted verification of the emergency response organization drill participation performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.6 Alert and Notification System Reliability (EP03)

a. Inspection Scope

The inspector reviewed the licensee's records of alert and notification system tests conducted between June 2014 and December 2014 to verify the accuracy of the licensee's data for siren system testing opportunities. The inspector reviewed procedural guidance on assessing alert and notification system opportunities and the results of periodic alert and notification system operability tests. The inspector used the guidance of Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of data reported by the licensee. The specific documents reviewed are described in the attachment to this report.

These activities constituted verification of the Alert and Notification System reliability performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

4OA2 Problem Identification and Resolution (71152)

.1 Routine Review

a. Inspection Scope

Throughout the inspection period, the inspectors performed daily reviews of items entered into the licensee's corrective action program and periodically attended the licensee's condition review group screening meetings. The inspectors verified that licensee personnel were identifying problems at an appropriate threshold and entering these problems into the corrective action program for resolution. The inspectors verified that the licensee developed and implemented corrective actions commensurate with the significance of the problems identified. The inspectors also reviewed the licensee's problem identification and resolution activities during the performance of the other inspection activities documented in this report.

b. Findings

No findings were identified.

.2 Annual Follow-up of Selected Issues

a. Inspection Scope

The inspectors selected two issues for an in-depth follow-up:

- January 29, 2015, AR 319488 documenting that several scaffoldings were located less than 2 inches from safety related equipment contrary to licensee procedure 10.2.53, "Scaffolding," Revision 42.
- March 23, 2015, AR 321368 documenting that the thermal overloads for 480-volt motor control center starter PRA-42-8AA4B were found in the tripped position

For each issue, the inspectors assessed the licensee's problem identification threshold, cause analyses, extent of condition reviews and compensatory actions. The inspectors verified that the licensee appropriately prioritized the planned corrective actions and that these actions were adequate to correct the condition.

These activities constitute completion of two annual follow-up samples as defined in Inspection Procedure 71152.

b. Findings

Introduction. The inspectors identified a Green, non-cited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instruction, Procedures and Drawings," associated with the licensee's failure to initiate condition reports for conditions adverse to quality as required by station procedures. Specifically, following identification that maintenance instructions

did not provide the correct torque specifications for sixty-four thermal overloads, the licensee failed to initiate a condition report as required by procedure SWP-CAP-01, "Corrective Action Program," Revision 30.

Description. On March 23, 2015, the inspectors reviewed AR 321368 involving an unexpected tripped thermal overload relay in 480-volt motor control center starter PRA-42-8AA4B following a planned replacement on January 28, 2015. The licensee attributed the unplanned trip of the thermal overloads to inadequate maintenance instructions in that the thermal overload relays mounting screws were not tightened to 9 inch-pounds as specified in contractor vendor information manual CVI 999-00,214, "Nuclear Logistics 5600 Series Motor Control Center Cubicles Instruction Manual," Revision 1. The licensee's work instructions used for the replacement of PRA-42-8AA4B specified that maintenance personnel tighten the thermal overload relay to "snug tight". The licensee concluded that the inadequate maintenance instructions resulted in over torquing of the overload relay mounting screw that distorted the thermal element resulting in a change to the thermal overload relay trip performance curve. [Additional details regarding the specific inadequate maintenance instruction are discussed earlier in this report in Section 1R19.] The licensee's extent of condition evaluation included in AR 321368 identified sixty-four additional thermal overload relays that were not tightened to 9 inch-pounds as specified in contractor vendor information manual CVI 999-00,214.

The inspectors reviewed the condition evaluation for AR 321368 completed on March 3, 2015, that included an extent of condition evaluation. The inspectors noted that the list of sixty-four improperly assembled thermal overloads relays included a number of safety-related electrical components including safety-related fans, motor operators and pumps. The plant's technical specifications required a number of these components to be operable. The inspectors reviewed the corrective action program and identified that no condition report was generated for the sixty-four additional thermal overload relays that were not tightened to the correct specification. Consequently, plant operators had not reviewed this non-conforming condition in accordance with PPM 1.3.66, "Operability and Functionality Evaluations," Revision 30. The inspectors determined that for the extent of condition identified in AR 321368, the licensee failed to follow Procedure SWP-CAP-01, "Corrective Action Program," Revision 30, Step 4.1.1, which requires, in part, that if a condition is known or suspected to involve an immediate threat to equipment operability, then initiate an AR-CR as soon as possible, but no later than the end of the shift. The inspectors also noted that the department corrective action review board reviewed the condition evaluation for AR 321368 but that oversight body also did not identify the failure to initiate a condition report for an identified extent of condition concern.

Following discovery of this issue, the licensee initiated AR 324450 to document the extent of condition concern for the additional thermal overload relays not installed using the correct specification. The licensee completed an operability evaluation for this action request that concluded that the relays were operable but non-conforming. The licensee also initiated AR 324458 for the failure to initiate a condition report for an identified extent of condition issue as required by station procedures.

Analysis. The failure to follow the requirements of the corrective action program to promptly initiate a condition report for a condition adverse to quality was a performance deficiency. The performance deficiency was more than minor because it affected the

human performance attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspector performed the initial significance determination using NRC Inspection Manual Chapter 0609, Appendix A, Exhibit 2, "Mitigating Systems Screening Questions." The inspectors determined that the finding was of very low safety significance (Green) because (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding had a cross-cutting aspect in the area of human performance, field presence, in that the engineering department corrective action review board failed to identify and correct deviations from standards involving initiating of condition report for identified extent of condition concerns [H.2].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures and Drawings," requires, in part, that, activities affecting quality shall be prescribed by documented instructions, procedure, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures or drawings. Procedure SWP-CAP-01, "Corrective Action Program," Revision 30, Step 4.1.1, requires, in part, that if a condition is known or suspected to involve an immediate threat to equipment operability, then initiate an AR-CR as soon as possible, but no later than the end of the shift. Contrary to the above, on March 3, 2015, the licensee failed to implement activities affecting quality in accordance with station procedures. Specifically, the licensee failed to promptly initiate an AR-CR, as required by procedure SWP-CAP-01, "Corrective Action Program," Revision 30, Step 4.1.1, for an identified issue involving sixty-four 480 V starters where the thermal overload relays were not tightened to 9 inch-pounds as specified in contractor vendor information manual CVI 999-00,214, "Nuclear Logistics 5600 Series Motor Control Center Cubicles Instruction Manual," Revision 1. The licensee restored compliance by initiating action requests to document the extent of condition issue and evaluate the non-conforming condition for operability. Because the finding is of very low safety significance (Green) and has been entered into the licensee's corrective action program as AR 324458, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 05000397/2015001-03, "Failure to Follow Corrective Action Program Procedures."

4OA6 Meetings, Including Exit

Exit Meeting Summary

On March 19, 2015, the inspector presented the results of the onsite inspection of the licensee's emergency preparedness program to Mr. M. Reddemann, Chief Executive Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

On April 2, 2015, the inspectors presented the inspection results to Mr. B. Sawatzke, Chief Nuclear Officer and Chief Operating Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

S. Abney, Assistant Operations Manager
C. Anderson, Supervisor, Security Operations
P. Allen, System Engineer, System Engineering
A. Black, Emergency Services General Manager
V. Bhardwaj, Manager, System Engineering
D. Brandon, Manager, Engineering
S. Brown, Manager, PSO
S. Clizbe, Manager, Emergency Preparedness
J. Darling, NSSS Supervisor, System Engineering
M. Davis, Manager, Organizational Effectiveness
K. Dittmer, Manager, Technical Services
R. Fahnestock, Program Manager, Emergency Preparedness
E. Gilmour, Manager, Information Services
D. Gregoire, Manager, Regulatory Affairs
B. Guldemon, Manager, Recovery
M. Hedges, Principle Licensing Engineer, Regulatory Affairs
G. Higgs, Manager, Maintenance
M. Holle, System Engineer, System Engineering
G. Hettel, Vice President, Operations
A. Javorik, Vice President, Engineering
D. Kettering, Manager, Design Engineering
R. Prewett, Manager, Operations
M. Reddemann, Chief Executive Officer
B. Sawatzke, Chief Nuclear Officer and Chief Operating Officer
F. Schill, Coordinator, Operating Experience Program
B. Schuetz, Plant General Manager
P. Smith, Bonneville Power Authority
B. Stanszewski, Supervisor, Security Programs
D. Suarez, Licensing Engineer, Regulatory Affairs
J. Suing, Manager, Maintenance
R. Treadway, Assistant Operations Manager
J. Trautvetter, Compliance Supervisor
L. Williams, Licensing Supervisor
D. Wolfgramm, Compliance Engineer, Regulatory Affairs

NRC Personnel

G. Replogle, Senior Reactor Analyst

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000397-2015001-01	NCV	Failure to Comply with ECCS Technical Specifications (Section 1R06)
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05000397-2015001-02	NCV	Failure to Establish Appropriate Work Instructions for 480-Volt Motor Control Center Starters (Section 1R19)
05000397-2015001-03	NCV	Failure to Follow Corrective Action Program Procedures (Section 4OA2)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SOP-HPCS-LU	HPCS Valve and Breaker Lineup	2
SWP-MMP-02	Warehousing	10

Action Requests (ARs)

266691	271136	271136	279896	301283
301287	301341	304709	306015	306325
306349	312512	315197	315201	320794
320794	320891	321752		

Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
M520	Flow Diagram HPCS and LPCS Systems Reactor Building	103

Work Orders

1111020

Engineering Changes

675	2142	6419	10710	11114
11424				

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
2.06.20	Ampacity for Power Cable in Division 1, 2, 3 Raceways	6
E/1-02-85-02	High Pressure Core Spray Battery and Battery Charger	1

Section 1R05: Fire Protection

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
	Columbia Generating Station Pre-Fire Plan	3

Action Requests (ARs)

322085

Section 1R06: Flood Protection MeasuresProcedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
1.3.57	Barrier Impairment	31
FPP-1.7	Fire Tour Implementation	5
ABN-FLOODING	Flooding	16
5.0.10	Flowchart Training Manual	19
1.3.66	Operability and Functionality Evaluation	31
5.5.27	RB 422 Max Safe Operating Level Measurement	5
SWP-MAI-02	Station Material Condition Inspection and Housekeeping Program	22

Action Requests (ARs)

030685	308843	319491	319491	319653
320593	323449	323759	323762	

Engineering Changes

7611

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ME-02-93-57	Calculation for Effects of Stairwell Flooding on Adjacent Pump Rooms 422 ft. 3 in. El.	0

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision / Date</u>
14-0289	Barrier Impairment Permit, Flood Tour R471 (L8 & 8.5)	August 15, 2014
13-0373	Barrier Impairment Permit, Floor Plugs Above LPCS Pump Room	October 4, 2013
13-0382	Barrier Impairment Permit, Floor Plugs Above RCIC Pump Room	October 15, 2013

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision / Date</u>
13-0388	Barrier Impairment Permit, Floor Plugs Above RHR A Pump Room	October 21, 2013
13-0369	Barrier Impairment Permit, Floor Plugs Above RHR-CPUMP Room	September 30, 2013
14-0290	Barrier Impairment Permit, R471 (L8 & 8.5)	August 15, 2014
02E12-12, 8	Custom 8000 Vertical Induction Motor Weather Protected Type I Solid and Hollowshaft	1
TM-2004	Evaluation of Safety-Significant Equipment for Moisture Intrusion Potential	1
Design Basis Document 309	GDC 44 – Cooling Water	15
02E12-08, 10	Ingersoll-Dresser RHR Pumps and Graphalloy Bushings	5
02E21-06, 7	Ingersoll-Rand LPCS Pump and Parts List	2
1093-00, 34	Instruction Manual for Installation & Maintenance on Low to Medium Voltage Environmentally Qualified Motors	3
02E51-06	Instruction manual for RCIC Pump	
02E12-06	Instruction Manual for Vertical Induction Motors Open Enclosures	
CCER C92-0555	LPCS Space Heater	1
Fire Protection Engineering Evaluation 1.1	Qualification of Concrete Floor Plug Seal Design	0
Fire Protection Engineering Evaluation 1.1	Re-Analysis of NRC Information Notice 88-60	0
TM-2019	Summary of Equipment Qualification Environment al Profiles	12
W01389	Task 1, Floor Plugs	September 11, 2003
W01707	Task 1, RCIC Floor Plug	April 13, 2009

Section 1R11: Licensed Operator Requalification Program and Licensed Operator Performance

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
13.1.1	Classifying the Emergency	45
13.1.1A	Classifying the Emergency – Technical Bases	29
OI-45	Color Banding of Control Room Instrumentation	6
OI-15	EOP and EAL Clarifications	24
SOP- FUELPOOL- DRAIN	Fuel Pool Partial Drain	1
TDI-08	Licensed Operator Requalification Program	11
OI-09	Operations Standards and Expectations	61
OI-65	Spent Fuel Time to 200 Guidelines	1

Action Requests (ARs)

320196	320484	320573	320609
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Engineering Changes

12057

Work Orders

2062958

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
LR002256	Cycle Simulator Scenario	0

Section 1R12: Maintenance Effectiveness

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
1.5.11	Maintenance Rule Program	12
1.5.13	Preventative Maintenance Optimization Living Program	32
SYS-4-22	Maintenance Rule Program	7

Action Requests (ARs)

279062	304453	306060	306597	317344
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320099	320969	306187	307500	315858
320389	306325	314740	319669	

Work Orders (WOs)

2066468

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OI-14	Columbia Generating Station Operational Challenges and Risk Program	11
OSP-MS-Q701	Turbine Valve Surveillance	16

Action Requests (ARs)

244578	283545	320099	320137	320196
320297	320487	320603	320609	320650
320691	320699	321583	322322	

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
02062958-01	Lowering Spent Fuel Pool (SFP) by 12" in Support of FPC-V-141 Maintenance and Fuel Pool Cooling (FPC) Assist Piping Modifications	December 30, 2014

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
1.3.66	Operability and Functionality Evaluation	30
8.4.63	Thermal Performance Monitoring of DCW-HX-1C	9

Action Requests (ARs)

292519	299342	301281	302274	302421
307927	310644	311749	312794	315864
317439	317582	320034	320275	320405
321888	322051	322159	322256	323214

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ME-02-93-58	Calculation for DO Transfer Pump Flooding Analysis	0

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ME-02-91-52	Calculation for Estimating the HPCS Fuel Oil Pump Room Temperature with Exhaust Fan Inoperable	0

Section 1R18: Plant Modifications

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SWP-DES-01	Plant Modifications & Configuration Control	15

Action Requests (ARs)

254765	284982	313135	321323	321341
321397	321583	321842		

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision / Date</u>
202710	ASME Section XI Work Plan No. 2-2710 for FPC to RHR Modification EC No. 12057 Phase 2	February 3, 2015
2062958	Lowering Spent Fuel Pool (SFP) by 12" in support of FPC-V-141 Maintenance and Fuel Pool Cooling (FPC) Assist Piping Modifications	1

Engineering Change

EC12057

Work Orders (WOs)

2059070

Section 1R19: Post-Maintenance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
10.25.13A	4.16K Vacuum Breaker Maintenance with Stored Energy Mechanism	15
EES-5	General Fuse Selection Criteria and the Electrical Protection of 460 VAC and 125-250 VDC Motors	8
10.25.105	Motor Control Center and Switchgear Maintenance	32
10.25.3	Testing Thermal Overload Devices	17

Action Requests (ARs)

287819	289215	289239	315712	321057
321331	321368	321862		

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Revision</u>
5931	Procurement Evaluation Revision Record	0
7384	Receipt Inspection Plan	0
CVI 999-00, 214	Nuclear Logistics 5600 Series Motor Control Center Cubicles Instruction Manual	1

Work Orders

2016525	2053259	2062029
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Drawings

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EWD-87E-011	Electrical Wiring Diagram Standby Service Water Pumphouse HVAC System Fan PRA-FN-1B	12
EWD-58E-058	Electrical Wiring Diagram Standby Service Water System Service Water Loop B Bypass and Inoperable Status Indication Display ANN-ANN-SW/B	7

Section 1R22: Surveillance TestingProcedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ESP-ADS-Q902	ADS Trip System B on ADS Timer	8
OSP-INST-H101	Shift and Daily Instrument Checks (Modes 1, 2, 3)	83
OSP-RCIC/IST-Q701	RCIC Operability Test	54
OSP-RHR/IST-Q703	RHR Loop B Operability Test	46
ISP-RPS-Q902	RPS (Channel A2) and EOC Recirc Pump Trip – TGV Fast Closure RPS-PS-5C-CFT/CC	9
OSP-SW/IST-Q702	Standby Service Water Loop B Operability	29

Action Requests (ARs)

297753	311710	314814	320407
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Section 1EP2: Alert and Notification System Testing

Procedures and Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
EPI-26	Tone Alert Radio Test and Survey, Revision 2	February 23, 2012
TSI 6.2.34	EP Emergency Tone Alerting Radio Acceptance and Programming, Revision 0	June 29, 2012
TSI 6.2.54	EP Sound Pressure Level Testing of Sirens, Revision 0	May 1, 2014
TSI 6.3.3	EP Siren Batteries Preventative Maintenance, Revision 1	September 18, 2012
TSI 6.3.4	EP CCF Rattlesnake Mountain Batteries, Preventative Maintenance and Testing, Revision 0	June 29, 2012
AR00289175	Annually Audit Benton-Franklin Count TAR Program	July 2, 2013
AR00288197	Annually Audit Benton-Franklin Count TAR Program	October 14, 2014
WO2047585-1	Perform Siren Battery Maintenance	April 9, 2014
WO2055840-1	Perform Siren Battery Maintenance	October 14, 2014
WO2060507-1	EP Site Evac Siren Battery Resistance Test	January 20, 2015
WO2049632-1	EP Inspect River Siren Sites	December 13, 2013
WO2049653-1	EP Inspect River Siren Sites	March 27, 2014
WO2052149-1	EP Inspect River Siren Sites	June 18, 2014
WO2056235-1	EP Inspect River Siren Sites	October 15, 2014
WO2054816-1	Annual FCC River Siren Radio Checks	October 14, 2014

Section 1EP3: Emergency Response Organization Staffing and Augmentation System

Procedures and Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
EPI-11	ERO Administration Program, Revision 8-1	June 18, 2013
EPI-13	Emergency Notification System, Revision 7-1	November 27, 2012

Procedures and Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
EPI-14	Actions in the Event of an Automated Notification System Failure, Revision 7	June 27, 2012
EPI-19	Communications Test, Revision 9	July 12, 2013
TSI 6.2.17	Annual FCC Radio Paging Audio Level Test, Revision 1	October 9, 2014
TSI 6.2.36	Annual SCC Paging Call Panel Dialer Test, Revision 4	July 8, 2014
	Evaluation Report for the Report-In Drill, conducted November 17, 2014	
	Evaluation Report for the Report-In Drill, conducted November 12, 2013	
	EPI-19 Quarterly Pager Surveillances (Third Quarter 2013 through Fourth Quarter 2014)	

Action Requests (Corrective Action Program)

300876	302290	307517	307163	310020
310558	316764	317848	318481	

Section 1EP5: Maintenance of Emergency Preparedness

Procedures and Documents

<u>Number</u>	<u>Title</u>	<u>Revision / Date</u>
EOP-01	Columbia Generating Station Emergency Plan, Revision 61	December 2014
EP-02	ERO On-Shift Staffing Analysis Report, Revision 1	December 18, 2014
EPI-10	EP Records Administration Program, Revision 4-2	May 23, 2013
EPI-12	Evacuation Time Estimate Review and Revision, Revision 3	July 17, 2013
EPI-16	50.54(Q) Change Evaluation	12
EPI-16	50.54(Q) Change Evaluation, Revision 13	April 4, 2014
EPI-21	Drill and Exercise Development and Implementation	15
EPI-21	Drill and Exercise Development and Implementation, Revision 16	December 17, 2014
EPI-27	Emergency Planner Staff Training and Qualification, Revision 1	December 8, 2009

Procedures and Documents

<u>Number</u>	<u>Title</u>	<u>Revision / Date</u>
EPI-30	Emergency Preparedness Condition Report Processing, Revision 2	March 16, 2011
SWP-ASU-1	Evaluations of Programs, Processes, and Suppliers, Revision 26	December 17, 2014
SWP-CAP-01	Corrective Action Program	30
SWP-CAP-01	Corrective Action Program, Revision 31	March 3, 2015
SWP-CAP-06	Condition Report Review	21
SWP-CAP-06	Condition Report Review, Revision 22	February 17, 2015
SWP-LIC-2	Licensing Basis Impact Determinations, 13	January 15, 2015
SWP-LIC-3	Licensing Document Change Process, Revision 16	February 26, 2015
TSI 6.2.23	EP Site Evacuation Siren Battery Preventative Maintenance, Revision 1	July 22, 2013
TSI 6.2.25	EP Site Evacuation Siren Polling Test, Revision 1	February 7, 2014
13.4.4	Emergency Equipment Maintenance and Testing	2
A-10369	Quality Activity Report: Regulatory Required Audit Frequency Evaluation for Emergency Preparedness, February 2013 through October 2013	November 4, 2013
	Quality Services Eight-Month Evaluation: Audit Frequency Evaluation Report for the Emergency Preparedness Program, October 2013 through June 2014	July 11, 2014
AU-EP-15	Quality Services Audit Report, Emergency Preparedness Program	March 5, 2015
KLD TR-663	Columbia Generating Station 2014 Population Update Analysis	September 30, 2014
300208	Snapshot Self Assessment: HAB Exercise Preparations	March 21, 2014
315107	Emergency Preparedness Pre-Inspection Readiness Self Assessment, Revision 2	December 30, 2014
	Evaluation Report for the Exercise Conducted October 29, 2013	
	Evaluation Report for the Exercise Conducted January 14, 2014	

Procedures and Documents

<u>Number</u>	<u>Title</u>	<u>Revision / Date</u>
	Evaluation Report for the Exercise Conducted March 4, 2014	
	Evaluation Report for the Exercise Conducted May 6, 2014	
	Evaluation Report for the Exercise Conducted July 8, 2014	
	Evaluation Report for the Exercise Conducted August 26, 2014	
	Evaluation Report for the Exercise Conducted October 28, 2014	
	Evaluation Report for the Drill Conducted December 19, 2013	
	Evaluation Report for the Drill Conducted December 16, 2014	
50.54(q)	Evaluation for EPP 13.14.8, Revision 18	January 6, 2015
50.54(q)	Evaluation for ERO Checklists 26531, Revision 6, and 26506, Revision 5	January 16, 2015
50.54(q)	Evaluation for EPP 13.2.1, Revision 22	February 12, 2015
50.54(q)	Evaluation for EPP 13.4.1, Revision 43	February 17, 2015
50.54(q)	Evaluation for PPM 13.14.4, Revision 52	March 2, 2015
50.54(q)	Evaluation for PPM 13.5.1, Revision 29, and PPM 13.5.5, Revision 23	July 23, 2014
50.54(q)	Evaluation for Position Checklists 26501, Revision 5, 26506, Revision 4, 26531, Revision 5	July 30, 2014
50.54(q)	Evaluation for Form 26521, Revision 1	August 4, 2014
50.54(q)	Evaluation for PPM 13.10.17, Revision 4	September 17, 2014
50.54(q)	Evaluation for Emergency Plan Revision 61	December 8, 2014
	Schedule of Work for Emergency Preparedness Equipment, November 2013	
	Schedule of Work for Emergency Preparedness Equipment, March 2014	

Procedures and Documents

<u>Number</u>	<u>Title</u>	<u>Revision / Date</u>
	Schedule of Work for Emergency Preparedness Equipment, July 2014	
	Schedule of Work for Emergency Preparedness Equipment, October 2014	
	Schedule of Work for Emergency Preparedness Equipment, February 2015	
WO20141467-1	CRASH Phone System Functional Test	December 19, 2013
WO2041473-1	Facsimile Network Functional Test	December 20, 2013
WO2044376-1	CRASH Phone System Functional Test	January 22, 2014
WO2044382-1	Facsimile Network Functional Test	January 22, 2014
WO2048538-1	CRASH Phone System Functional Test	April 17, 2014
WO2048544-1	Facsimile Network Functional Test	April 17, 2014
WO2051216-1	CRASH Phone System Functional Test	June 19, 2014
WO2051222-1	Facsimile Network Functional Test	June 23, 2014
WO2054065-1	CRASH Phone System Functional Test	August 21, 2014
WO2054071-1	Facsimile Network Functional Test	August 21, 2014
WO2056747-1	CRASH Phone System Functional Test	October 16, 2014
WO2056753-1	Facsimile Network Functional Test	October 16, 2014
WO2058972-1	CRASH Phone System Functional Test	December 18, 2014
WO2058980-1	Facsimile Network Functional Test	December 18, 2014
WO2052874-1	EP Site Evac Siren Battery Resistance Test	July 31, 2014
WO2045514-1	OFMA-HF-1H Perform HEPA Filter Test	June 24, 2014
AR319983	Emergency Center Walkdowns	January 13, 2015

Procedures and Documents

<u>Number</u>	<u>Title</u>	<u>Revision / Date</u>
AR300353	Emergency Center Walkdowns	January 23, 2014
AR311937	Emergency Center Walkdowns	August 20, 2014
AR210352-01	Inventory Hospital Emergency Kit	August 6, 2014
AR293323-03	Inventory Emergency Operations Facility	October 23, 2013
AR313886-03	Inventory Emergency Operations Facility	December 3, 2014
WO2048486-01	Inventory TSC Emergency Equipment Cabinets	April 19, 2014
WO2061617-01	Inventory TSC Emergency Equipment Cabinets	February 14, 2015
WO2051022-01	Inventory OSC Emergency Equipment Cabinets	June 13, 2014
WO2058791-01	Inventory OSC Emergency Equipment Cabinets	December 12, 2014

Action Requests (Corrective Action Program)

266771	286349	294530	298785	298965	299978
300276	301626	302821	303888	305197	307696
308136	308367	308938	310451	311392	312036
312783	315077	316743	316744	316937	317809
318193	320283	320456	320457	324172	324230
324236	324237				

Section 1EP6: Drill Evaluation

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision Date</u>
13.1.1A	Classifying The Emergency – Technical Bases	28
13.1.1	Classifying the Emergency	45
5.1.2	RPV Control – ATWS	22
5.2.1	Primary Containment Control	22
5.3.1	Secondary Containment Control	19

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
	Columbia Generating Station Team B – Drill	February 24, 2015

Section 40A1: Performance Indicator Verification

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision / Date</u>
MSPI-01-BD-0001	Mitigating System Performance Index (MSPI)	17
SYS-4-34	PSA Configuration Control	3
13.1.1	Classifying the Emergency, Revision 45	May 20, 2014
13.1.1A	Classifying the Emergency, Technical Basis, Revision 29	May 20, 2014
13.2.2	Determining Protective Action Recommendations	16
13.2.2	Determining Protective Action Recommendations, Revision 17	June 29, 2014
13.4.1	Notifications	41
13.4.1	Notifications, Revision 42	August 12, 2014
13.10.1	Control Room Operations and Shift Manager Duties	34, 35
EPI-16	Emergency Preparedness Performance Indicators	21
EPI-16	Emergency Preparedness Performance Indicators, Revision 22	January 7, 2015
TSI 6.2.22	EP Bi-Annual Emergency Response Siren System Activation Test, Revision 1	January 13, 2014
TSI 6.2.32	River Siren Polling Test, Revision 0	June 29, 2012
TSI 6.2.45	River Siren Polling Test – Manual, Revision 0	June 29, 2012

Action Requests (ARs)

293235	295111	295112	296837	308600
310659	310974	311140	311715	312212
312629	314118	314208	314211	314957
316112	319745	320457	320901	

Section 4OA2: Problem Identification and Resolution

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CDM-01	Cause Determination Manual	14
SWP-CAP-01	Corrective Action Program	30
SWP-OPX-01	Operating Experience Program	0
10.2.53	Scaffolding	42

Action Requests (ARs)

311293	311538	311623	319488	319497
319504	319530	319752	320147	320959
321205	321368	321545		

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
CE-02-87-29	Calculation for Seismic Requirements for Scaffolding	1