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

August 6, 2014

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 05000397/2014003

Dear Mr. Reddemann:

On June 23, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Columbia Generating Station. On June 26, 2014, the NRC inspectors discussed the results of this inspection with Mr. Bruce MacKissock, Plant General Manager, and other members of your staff. The inspectors documented the results of this inspection in the enclosed inspection report.

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

Further, inspectors documented three licensee-identified violations which were determined to be of very low safety significance in this report. 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 or a finding not associated with a regulatory requirement 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 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 Signed by Robert C. Hagar for/

Nicholas H.Taylor, Chief
Project Branch D
Division of Reactor Projects

Docket No.: 50-397
License No: NPF-21

Enclosure: Inspection Report 05000397/2014003
w/ Attachments
1. Supplemental Information
2. Requested Items for Occupational Radiation Safety Inspection

Agencywide Documents Access and Management System (ADAMS). ADAMS is accessible from the NRC Web site at http://www.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

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Letter to M.E. Reddeman from Nicholas H. Taylor dated August 6, 2014

SUBJECT: COLUMBIA GENERATING STATION – NRC INTEGRATED INSPECTION REPORT 05000397/2014003

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000397
License:	NPF-21
Report:	05000397/2014003
Licensee:	Energy Northwest
Facility:	Columbia Generating Station
Location:	North Power Plant Loop Richland, WA 99354
Dates:	March 24, 2014 through June 23, 2014
Inspectors:	J. Groom, Senior Resident Inspector D. Reinert, Resident Inspector D. Bradley, Resident Inspector P. Elkmann, Senior Emergency Preparedness Inspector L. Ricketson, Senior Health Physicist B. Baca, Health Physicist
Approved By:	Nick Taylor Chief, Project Branch D Division of Reactor Projects

SUMMARY

IR 05000397/2014003; 03/24/2014 – 06/23/2014; Columbia Generating Station; Equipment Alignment, License Operator Requalification Program and Licensed Operator Performance, Occupational ALARA Planning and Controls, Problem Identification and Resolution, Follow-up of Events and Notices of Enforcement Discretion.

The inspection activities described in this report were performed between March 24 and June 23, 2014, by the resident inspectors at Columbia Generating Station and inspectors from the NRC's Region IV office. Six findings of very low safety significance (Green) are documented in this report. Five of these findings involved violations of NRC requirements. Additionally, NRC inspectors documented in this report one Severity Level IV violation with no associated finding and three licensee-identified violations of very low safety significance. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter (IMC) 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: Initiating Events

- Green. The inspectors reviewed a self-revealing Green finding of Technical Specifications 5.4.1.a for the licensee's failure to verify that circuit breaker E-CB-S5 was properly installed in accordance with procedure SOP-ELEC-BKR-OPS, "AC Electrical Breaker Racking," Revision 10. The improper installation of breaker E-CB-S5 resulted in an unexpected loss of bus E-SH-5 during a bus transfer and trip of reactor recirculation pump RRC-P-1A. The licensee entered this issue into their corrective action program as Action Request (AR) 302282.

  The finding was more than minor because it affected the configuration control attribute of the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. This finding is of very low safety significance (Green) because it did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. This finding has a cross-cutting aspect in the area of human performance because the licensee failed to ensure that tools, equipment and other resources were available to adequately support verification of breaker racking activities [H.1]. (Section 4OA2)

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions" for the licensee's failure to implement corrective actions to address identified weaknesses in the preventative maintenance program. Specifically, the licensee failed to perform required inspections of the residual heat removal and low pressure core spray pumps which were identified during an extent of cause evaluation following the failure of service water pump 1A in June 2005. As a corrective action, the licensee asked the pump vendor to inspect the pump that was removed in May, 2013. The

licensee also entered this issue into their corrective action program as AR 301887.

This finding was more than minor because, if left uncorrected, the failure to periodically inspect the residual heat removal and low pressure core spray pumps could become a more significant safety concern. Specifically, because these pumps are subject to NRC Part 21 report 1998-51-1, involving broken cast iron suction heads in type APKD pumps, the failure to inspect could result in unrecognized degraded conditions on these components that could potentially affect pump performance. This finding is of very low safety significance (Green) because: (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. This finding does not have a cross-cutting aspect because the decision to defer required inspections of the residual heat removal pumps and low pressure core spray pumps was made in May 2007 and was not reflective of current performance. (Section 1R04)

- Green. The inspectors identified a green non-cited violation of Technical Specification 5.4.1.a for the licensee's failure to implement procedures that ensure operators could perform time-critical steps for fire events. The licensee restored compliance by initiating (AR) 306204 documenting the non-compliance with PPM 1.3.1 "Operating Policy, Programs, and Practices," Revision 117, and issued Night Order 1527 reminding all operating crews of the requirements of PPM 1.3.1 for leaving the Protected Area.

  This performance deficiency was more than minor because it was associated with the protection against external factors attribute of the Mitigating System Cornerstone and affected the cornerstone's objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. A senior reactor analyst assessed this finding using NRC Inspection Manual Chapter 0609, Appendix F, "Fire Protection Significance Determination," dated September 20, 2013 and NRC Inspection Manual 0308, Attachment 3, Appendix F, "Technical Basis Fire Protection Significance Determination Process (Supplemental Guidance for Implementing IMC 0609, Appendix F) At Power Operations," dated February 28, 2005. This finding has a cross-cutting aspect in the area of human performance associated with change management because the licensee failed to use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority [H.3.] (Section 1R11)

- Green. The inspectors identified a green non-cited violation of Technical Specification 5.4.1.a for the licensee's failure to maintain procedures for mitigating a design-basis volcanic ashfall event. The licensee restored compliance by initiating AR 304380 and modifying the staged combustion filters for the emergency diesel generator. Additionally, the licensee issued Night Order 1520 until the ABN-ASH "Ash Fall" procedure could be updated.

  This performance deficiency was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone's objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The finding was of very low safety significance (Green) because it did not involve a loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating

event. This finding has a cross-cutting aspect in the area of problem identification and resolution because the licensee did not implement a corrective action program with a low threshold for issues. [P.1]. (Section 4OA2)

Cornerstone: Barrier Integrity

- Green. The inspectors reviewed a Green non-cited violation for the licensee's failure to properly pre-plan calibrations of differential pressure controllers used to maintain secondary containment pressure. Specifically, the licensee failed to establish and maintain the appropriate gain settings for the reactor building normal ventilation system differential pressure controllers in accordance with procedure DES-2-19, "Instrument Master Data Sheets," Revision 0. As a corrective action, the licensee properly adjusted the gain settings for the affected controllers. The licensee also entered this issue into their corrective action program as AR 300787.

  This performance deficiency was more than minor because it affected the equipment performance attribute of the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to establish and maintain configuration control of reactor building ventilation differential pressure controllers resulted in multiple instances of unplanned inoperability of secondary containment. The finding is of very low safety significance (Green) because the finding only represents a degradation of the radiological barrier function provided for by the standby gas treatment system. This finding had a cross-cutting aspect in the area of problem identification and resolution because the licensee failed to thoroughly evaluate concerns related to the operation of the normal reactor building differential pressure controller such that the resolution addressed the causes of the observed sluggish response [P.2]. (Section 4OA3)

Cornerstone: Occupational Radiation Safety

- Green. The inspectors reviewed a Green, self-revealing, non-cited violation of Technical Specification 5.7.2, which was caused by licensee personnel's failure to control a high radiation area with radiation levels greater than 1 rem/hour when lifting the moisture separator during reactor vessel reassembly. Licensee personnel corrected the error by lowering the moisture separator into the reactor pool. The violation was entered into the licensee's corrective action program as AR 287521.

  The performance deficiency was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation because licensee personnel did not implement barriers intended to prevent workers from receiving unexpected dose. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, the inspectors determined the violation had very low safety significance because: (1) it was not an as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised. This finding has a cross-cutting aspect in the human performance area, associated with the work management component, because the organization did not implement a process of

planning, controlling, and executing work activities such that nuclear safety is the overriding priority [H.5]. (Section 2RS2)

Other Findings and Violations

- Severity Level IV. The inspectors identified a non-cited violation involving 10 CFR 50.73, "Licensee event report system." Specifically, the inspectors identified that the licensee failed to submit a required licensee event report, within specified time limits, for an unanalyzed condition involving unfused DC ammeters. The licensee entered this issue into their corrective action program as AR 309600.

  The inspectors determined that the failure to make a required licensee event report within the time limits specified in regulations was a violation of 10 CFR 50.73. The violation was evaluated using Section 2.2.4 of the NRC Enforcement Policy, because the failure to submit a required licensee event report may impact the ability of the NRC to perform its regulatory oversight function. As a result, this violation was evaluated using traditional enforcement. In accordance with Section 6.9 of the NRC Enforcement Policy, this violation was determined to be a Severity Level IV, non-cited violation. The team determined that a cross-cutting aspect was not applicable because the issue involving untimely reports to the NRC was strictly associated with a traditional enforcement violation. (Section 4OA3)

Licensee-Identified Violations

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

PLANT STATUS

The plant began the inspection period at 100 percent power. On May 22, 2014 the plant reduced power to 65 percent power at the request of the grid operator for economic dispatch. The plant returned to 100 percent power on May 27, 2014. On May 28, 2014 the plant reduced power to 85 percent power at the request of the grid operator for economic dispatch. The plant returned to 100 percent power on June 2, 2014 and remained at essentially full power for the remainder of the inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R01 Adverse Weather Protection (71111.01)

.1 Summer Readiness for Offsite and Alternate AC Power Systems

a. Inspection Scope

On May 30, 2014, the inspectors completed an inspection of the station's off-site and alternate-ac power systems. The inspectors inspected the material condition of these systems, including transformers and other switchyard equipment to verify that plant features and procedures were appropriate for operation and continued availability of off-site and alternate-ac power systems. The inspectors reviewed outstanding work orders and open action requests for these systems. The inspectors walked down the switchyard to observe the material condition of equipment providing off-site power sources. The inspectors assessed corrective actions for identified degraded conditions and verified that the licensee had considered the degraded conditions in its risk evaluations and had established appropriate compensatory measures.

The inspectors verified that the licensee's procedures included appropriate measures to monitor and maintain availability and reliability of the off-site and alternate-ac power systems.

These activities constituted one sample of summer readiness of off-site and alternate-ac power systems, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

.2 Readiness for Seasonal Extreme Weather Conditions

a. Inspection Scope

On May 20, 2014, the inspectors completed an inspection of the station's readiness for seasonal extreme weather conditions. The inspectors reviewed the licensee's adverse weather procedures for seasonal high temperatures and evaluated the licensee's implementation of these procedures. The inspectors verified that prior to the onset of

hot weather; the licensee had corrected weather-related equipment deficiencies identified during the previous hot weather season.

The inspectors selected three risk-significant systems that were required to be protected from hot weather:

- Critical switchgear room cooling systems
- Process Radiation Monitoring System including air conditioning systems for detector electronics
- Tower makeup system power supply transformers and cooling fans

The inspectors reviewed the licensee's procedures and design information to ensure the systems would remain functional when challenged by high ambient temperatures. The inspectors verified that operator actions described in the licensee's procedures were adequate to maintain readiness of these systems. The inspectors walked down portions of these systems to verify the physical condition of structures, systems and components needed during periods of hot weather.

These activities constituted one sample of readiness for seasonal adverse weather, as defined in Inspection Procedure 71111.01.

b. Findings

No findings were identified.

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- April 18, 2014, standby liquid control system
- April 21, 2014, division 2 125 VDC battery and charger during work on radwaste mixed air fan WEA-FN-53B
- June 18, 2014, reactor core isolation cooling 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 were correctly aligned for the existing plant configuration.

These activities constituted three partial system walkdown samples as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On May 21-23, 2014, the inspectors performed a complete system walkdown inspection of the low pressure core spray system. The inspectors reviewed the licensee's procedures and system design information to determine the correct system lineup for the existing plant configuration. The inspectors also reviewed outstanding work orders, open condition reports, design calculations, and other open items tracked by the licensee's operations and engineering departments. The inspectors then visually verified that the system was correctly aligned for the existing plant configuration.

These activities constituted one complete system walkdown sample, as defined in Inspection Procedure 71111.04.

b. Findings

Introduction. The inspectors identified a Green non-cited violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Actions" for the licensee's failure to implement corrective actions to address identified weaknesses in the preventative maintenance program. Specifically, the licensee failed to perform required inspections of the residual-heat-removal and low-pressure core spray pumps which were identified during an extent-of-cause evaluation following the failure of service water pump 1A in June 2005.

Description. On June 14, 2005, plant operators declared standby service water pump SW-P-1A inoperable after identifying abnormally low pump discharge pressure and flow. On June 18, 2005, during an inspection of SW-P-1A, the licensee identified that the degraded pump performance was due to a failure of the pump shaft and wear of the pump impeller and bowl. Following identification of the failed shaft on SW-P-1A, the licensee determined that SW-P-1B could be susceptible to a similar failure mechanism. Similar to SW-P-1A, a subsequent inspection of the as-found condition of SW-P-1B identified a failure of one pump shaft segment and wear of the pump impeller and bowl.

The licensee initiated Problem Evaluation Request (PER) 205-0417 documenting the failure of SW-P-1A and PER 207-0716 documenting the as-found conditions of SW-P-1B. The licensee classified those conditions as significant conditions adverse to quality. The licensee's root cause evaluation for PER 205-0417 identified that the degraded conditions discovered on the service water pumps were attributed to a failure of the preventative maintenance program. The licensee's root cause identified that the standby service water pumps had not received any preventative maintenance such as time-based inspection or replacement because their maintenance program lacked sufficient rigor to establish and implement adequate preventative maintenance bases and allowed a maintenance program driven by condition monitoring. The extent-of-cause section of the root-cause evaluation identified that the lack of rigor in the preventative maintenance program extends to all components in the plant. To address these potential shortcomings in the preventative maintenance program, the licensee identified the following corrective action to prevent recurrence (CAPR): PER 205-0417,

CAPR-01: Implement preventative maintenance bases through model work orders for critical components.

On April 28, 2006, PER 205-0417, Action 1 implemented the preventative maintenance bases through model work orders. This action included implementation of Preventative Maintenance Background Information Document BID-PUMP-1, "Preventative Maintenance Background Information Large Pumps (PUMP-1)", Revision 1, to establish Preventative Maintenance Task 24.6, to sample inspect one of the residual-heat-removal and low-pressure-core-spray pumps every ten years. The licensee created Model Work Orders 1132200, 1132201, 1132202 and 1132203 for inspection of the low pressure core spray and residual heat removal pump on March 8, 2007. The licensee planned for an inspection of residual heat removal pump RHR-P-2B in Refueling Outage R18 which began in May 2007. The licensee's effectiveness review of PER 205-0417 determined, in part, that CAPR-01 was effective based on the scheduled inspection of pump RHR-P-2B.

The inspectors reviewed the maintenance history for the low pressure core spray and residual heat removal pumps and found that the licensee did not inspect pump RHR-P-2B in Refueling Outage R18. The inspectors also found that the licensee had not performed a substitute inspection of any pump in this group in accordance with BID-PUMP-1. The licensee's correction action program procedure SWP-CAP-01, "Correction Action Program," Revision 11-28, states that a CAPR that is changed or canceled requires approval of the corrective action review board (CARB). However, the inspectors found no documentation to indicate that the CARB had approved changing or cancelling CAPR-01 for PER 205-0417. The inspectors therefore concluded that the licensee had not implemented corrective actions for identified weaknesses associated with the preventative maintenance program.

The inspectors determined that inspection of the residual heat removal and low pressure core spray pumps was particularly important because NRC Part 21 Report 1998-51-1, "Model APKD pump suction head failure," had alerted licensees of a potential safety issue involving broken cast iron suction heads in type APKD pumps. The Columbia Generating Station residual heat removal and low pressure core spray pumps are type APKD pumps. The Part 21 report recommended that the pumps be inspected at reasonable intervals for possible damage to the suction head, suction head journal sleeve, and retaining key. The inspectors also noted that RHR-P-2B was recently replaced in May 2013 because of observed degraded performance.

Following identification of this issue, the licensee initiated AR 301887 documenting that required inspections of the residual heat removal and low pressure core spray pumps had not been performed. The licensee also requested the residual heat removal pump vendor conduct an inspection of the internals of pump RHR-P-2B that was removed in May 2013.

Analysis. The failure to take corrective actions to address the extent-of-cause identified in PER 205-0417 involving weaknesses in the preventative maintenance program was a performance deficiency. This finding was more than minor because, if left uncorrected, the failure to periodically inspect the residual heat removal and low pressure core spray pumps could become a more significant safety concern. Specifically, because these pumps are vulnerable to the failure described in NRC Part 21 Report 1998-51-1 involving broken cast iron suction heads in type

APKD pumps, the failure to inspect the pumps could result in unrecognized degraded conditions on these components that could potentially affect pump performance. The inspectors initially screened the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 2, " Mitigating Systems Screening Questions," the inspectors determined this finding is of very low safety significance (Green) because: (1) the finding was not a deficiency affecting the design or qualification of a mitigating system; (2) the finding did not represent a loss of system and/or function; (3) the finding did not represent an actual loss of function of a single train for greater than its technical specification allowed outage time; and (4) the finding does not represent an actual loss of function of one or more non-technical specification trains of equipment designated as high safety-significant in accordance with the licensee's maintenance rule program for greater than 24 hours. The inspectors determined that this finding did not have a cross-cutting aspect because the decision to defer required inspections of the residual heat removal pumps and low pressure core spray pumps was made in May 2007 and was not reflective of current performance.

Enforcement. Title 10 of the Code of Federal Regulations, 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 identified and corrected. Contrary to the above, from April 28, 2006, through January 29, 2014, measures established by the licensee did not assure that a condition adverse to quality was corrected. Specifically, for the condition adverse to quality described in PER 205-0417 which the licensee characterized as a lack of rigor in the preventative maintenance program, the licensee developed corrective actions as CAPR-01, but did not implement those corrective actions between April 28, 2006, and January 29, 2014. Because this finding is of very low safety significance and was entered into the licensee's corrective action program as AR 301887, the violation is being treated as a non-cited violation consistent with Section 2.3.2.a of the NRC Enforcement Policy: NCV 5000397/2014003-01, "Failure to Take Corrective Actions to Address Extent of Cause for Service Water Pump Coupling Failures."

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:

- April 2, 2014, Fire Area DG-1, diesel generator building 441' elevation
- May 2, 2014, Fire Area DG-8 and DG-9, diesel generator fuel oil day tank rooms
- May 30, 2014, Fire Area R-18, motor control center room division 2
- June 2, 2014, Fire Area R-1, R-3 and R-5, reactor building 422' elevation

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 April 14, 2014, 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 selected the following plant area containing risk-significant structures, systems, and components that were susceptible to flooding:

- Room C414, Main Control Room

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

No findings were identified.

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

.1 Review of Licensed Operator Requalification

a. Inspection Scope

On April 9, 2014, 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.

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 May 15, 2014, 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 maintenance and testing. The inspectors observed the operators' performance of the following activities:

- Diesel generator 3 surveillance testing
- Post-maintenance testing of control room emergency chiller B

In addition, the inspectors assessed the operators' adherence to plant procedures, including PPM 1.3.1 "Operating Policy, Programs, and Practices," Revision 117, 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

Introduction. The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a for the licensee's failure to ensure operators could perform time-critical steps for fire events.

Description. On September 2, 2013, at 2003, the Shift Manager authorized the Equipment Operator designated as OPS3 to leave the PA to compile equipment logs. PPM 1.3.1, "Operating Policy, Programs, and Practices," revision 117, classifies watch positions as either Category 1 or Category 2. Category 1 includes personnel such as the Staff Technical Advisor and Emergency Action Level Notifier, while Category 2 includes not only the Shift Manager, all three Reactor Operators, and the Control Room Supervisor, but also the Equipment Operator positions designated as OPS2 and OPS3. PPM 1.3.1 states that while Category 1 personnel may leave the PA with a risk evaluation and permission of the Shift Manager, Category 2 personnel, "should not leave the protected area unless an emergent condition is jeopardizing the plant" and they "respond to an event that requires action within 10 minutes."

Licensee procedure ABN-CR-EVAC, "Control Room Evacuation and Remote Cooldown," Revision 33, directs action for Category 2 personnel in the event of a control room fire. Specifically for post-fire safe-shutdown, Category 2 personnel must complete certain actions within 10 minutes.

Based on questions from the resident inspectors on May 16, 2014, the licensee performed a timed walkthrough of post-fire safe-shutdown actions for Equipment Operator OPS3. That walkthrough found that from outside the PA, the OPS3 Equipment Operator was not able to complete certain post-fire safe-shutdown actions within 10 minutes. Instead, the OPS3 operator completed those actions within 11 minutes and 33 seconds.

The inspectors concluded that by allowing Category 2 personnel to leave the PA, the licensee had not preserved the assumptions of available personnel in ABN-CR-EVAC to reach safe-shutdown conditions for a control room fire. Therefore, licensee was not implementing written procedures for plant fires and responsibilities for safe operation as required by Technical Specification 5.4.1.a through Appendix A of Regulatory Guide 1.33, "Quality Assurance Program Requirements (Operation)," Revision 2.

In response to this conclusion, the licensee initiated AR 306204 to document the non-compliance with PPM 1.3.1 and to perform a cause evaluation. Additionally, the licensee issued Night Order 1527, reminding all operating crews of the requirements of PPM 1.3.1 for leaving the PA. The licensee initiated AR 307879 to document the inability to meet the post-fire safe-shutdown actions in 10 minutes during a timed walkthrough. The inspectors considered that the Shift Manager who authorized the OPS3 operator to leave the protected area on September 2, 2013, had deviated from PPM 1.3.1, in that he had authorized an activity that was not allowed by that procedure. The Shift Manager did not follow the instructions in procedure SWP-PRO-01, "Procedure and Work Instruction Use and Adherence," which describes how to deviate from or change a procedure. The inspectors considered that if the Shift Manager had followed the instructions in SWP-PRO-01, he likely would have recognized the nuclear-safety impact of the OPS3 operator leaving the protected area, and, consequently, would not have authorized the OPS3 operator to leave the protected area. The inspectors therefore considered the cause of this finding to be the Shift Manager deviated from PPM 1.3.1 without using the process described in SWP-PRO-01.

Analysis. The failure to implement written procedures to ensure that Category 2 personnel can complete certain post-fire safe-shutdown actions within 10 minutes was a performance deficiency. This performance deficiency was more than minor because it was associated with the protection against external factors attribute of the Mitigating System Cornerstone and affected the cornerstone's objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors screened the finding in accordance with NRC Manual Chapter IMC 0609, Attachment 4, "Initial Characterization of Findings." In table 3, the inspectors answered "yes" to question E.2 because the finding affects the ability to reach and maintain safe shutdown conditions in case of a fire. Therefore, to assess this finding a senior reactor analyst used NRC IMC 0609, Appendix F, "Fire Protection Significance Determination," dated September 20, 2013. The analyst noted that the degradation rating examples in Attachment 2 of that appendix were not well suited for this finding. Therefore, the analyst used the generic guidance from NRC IM 0308, Attachment 3, Appendix F, "Technical Basis Fire Protection Significance Determination Process (Supplemental Guidance for Implementing IMC 0609, Appendix F) At Power Operations," dated February 28, 2005. This guidance stated, in part:

> …the definition of "low degradation" implies that the performance and/or reliability of the fire protection feature is not substantially impacted by the noted degradation finding. Hence, the feature would be given essentially full credit in the PRA-based analysis. In this case, the risk change is essentially zero, and the finding should be screened to Green.

For this finding, procedure ABN-CR-EVAC directed operator OPS3 to trip the condensate and condensate booster pumps within 10 minutes, but due to this finding,

that action could be delayed to the 11.5 minute point. The subject action was intended to prevent taking the plant to a "solid" (completely filled) condition. However, the analyst noted that the failure to take this action would not increase the core damage probability. (Overfilling events at boiling water reactors soon after shutdown should not drive core damage and are not included in the probabilistic risk assessment model.) Instead, this action is a desired step that was intended to establish positive control over reactor vessel pressure and level. In addition, the exposure period for this finding was very short (less than one day). Since the failure to perform this action within 10 minutes would not adversely affect a quantitative assessment, this finding was of very low safety significance (Green). Because the cause of this finding was that the licensee had deviated from procedure PPM 1.3.1 that was not part of a systematic process and did not prioritize nuclear safety, this finding has a cross-cutting aspect in the area of human performance associated with change management because the licensee failed to use a systematic process for evaluating and implementing change so that nuclear safety remains the overriding priority [H.3].

Enforcement. Technical Specification 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained for activities described in Appendix A of the Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, Section 1.b requires administrative procedures for authorities and responsibilities for safe operation and shutdown. Contrary to this requirement, on September 2, 2013, the licensee failed to implement procedures for authorities and responsibilities for safe operation and shutdown. Licensee procedure PPM 1.3.1, "Operating Policy, Programs, and Practices," Revision 117 establishes authorities and responsibilities for safe operation and shutdown and states that Category 2 personnel should not leave the protected area unless an emergent condition is jeopardizing the plant and they respond to an event that requires action within 10 minutes. On September 2, 2013, a Category 2 equipment operator left the protected area when no emergent condition existed. Consequently, the operator was not able to complete certain time-critical operator actions associated with fire events as required by procedure ABN-CR-EVAC.

The licensee restored compliance by initiating AR 306204 to document the non-compliance with PPM 1.3.1 and to perform a cause evaluation. Additionally, the licensee issued Night Order 1527 reminding all operating crews of the requirements of PPM 1.3.1 for leaving the Protected Area. Because this violation was of very low safety significance and was entered into the licensee's corrective action program as AR 303216, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000397/2014003-02. "Failure to Implement Procedures That Ensure Operators Could Perform Time Critical Steps for Fire Events."

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):

- April 25, 2014, ultimate heat sink including service water spray ponds
- June 19, 2014, reactor core isolation cooling system

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 constituted 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 two 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:

- March 24, 2014, planned yellow risk during preventative maintenance on diesel generator 2
- May 28, 2014, planned yellow risk during preventative maintenance on standby gas treatment system B

The inspectors verified that these risk assessments 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 two 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 five operability determinations that the licensee performed for degraded or nonconforming SSCs:

- April 2, 2014, AR 304266, operability determination associated with missing tornado uplift bolting on standby service water manhole covers

- April 2, 2014, AR 304380, operability determination associated with NRC identified procedural deficiencies in the abnormal procedure for ashfall

- April 4, 2014, AR 305229, operability determination associated with emergency diesel generator loading calculation following a loss of offsite power

- April 18, 2014, AR 305115, operability determination associated with drywell oxygen levels varying by values greater than instrument tolerances

- May 15, 2014, AR 307714, operability determination of associated with identified drift of setting on mechanical governor for emergency diesel generator 1A2

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 five operability and functionality review samples, as defined in Inspection Procedure 71111.15.

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed three post-maintenance testing activities that affected risk-significant SSCs:

- April 14, 2014, post-maintenance test of service water temperature control valve SW-TCV-11A following maintenance under Work Order 02048371

- April 17, 2014, post-maintenance test of high pressure core spray condensate storage tank test bypass valve control switch following replacement under Work Order 0203005505

- April 21, 2014, post-maintenance test of diesel exhaust air fan DEA-FN-21 following motor starter maintenance under Work Order 02026511

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 three post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19.

b. Findings

No findings were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed three risk-significant surveillance tests and reviewed test results to verify that these tests adequately demonstrated that the SSCs were capable of performing their safety functions:

In-service test:

- April 3, 2014, procedure OSP-SLC/IST-Q701, "Standby Liquid Control Pump Operability Test," Revision 25

Reactor coolant system leak detection test:

- April 2, 2014, procedure OSP-INST-H101, "Shift and Daily Instrument Checks (Modes 1, 2, 3)," Revision 81

Other surveillance test:

- March 27, 2014, procedure ISP-CIA-Q902, "ADS Accumulator Backup Low Pressure Alarm Division II – CFT/CC," Revision 7

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 three surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

The inspector performed an in-office review of these licensee procedures,

- 13.1.1, “Classifying the Emergency”, Revision 44, dated March 17, 2014
- 13.1.1, “Classifiying the Emergency,” Revision 45, dated May 20, 2014
- 13.1.1A, “Classifying the Emergency – Technical Bases,” Revision 28, dated 2014
- 13.1.1A, “Classifying the Emergency – Technical Bases,” Revision 29, dated May 20, 2014

These revisions,

- Revised values on Table 3, “Effluent Monitor Classification Thresholds” for monitor TEA-RIS-13, Turbine Building Exhaust Low
- Revised values on Table 3, “Effluent Monitor Classification Thresholds” for monitor WEA-RIS-14, Rad Waste Building Exhaust Low
- Combined TEA-RIS-13A, Turbine Building Exhaust Intermediate, with TEA RIS 13 on Table 3, “Effluent Monitor Classification Thresholds”
- Combined WEA-RIS-14A, Rad Waste Building Exhaust Intermediate, with WEA RIS-14 on Table 3, “Effluent Monitor Classification Thresholds”
- Defined the term, “security condition”
- Adopted the Security Threat category emergency action levels from Nuclear Energy Institute Report 99-01, “Emergency Action Level Methodology,” Revision 5, in accordance with the guidance of Frequently Asked Question 2009-48, dated October 15, 2009:
    - 9.1.U.1, “Confirmed Security Condition or threat which indicates a potential degradation in the level of safety of the plant”
    - 9.1.A.1, “Hostile Action within the Owner Controlled Area or airborne attack threat”
    - 9.1.S.1, “Hostile Action within the Protected Area”
    - 9.1.G.1, “Hostile Action resulting in loss of physical control of the facility”
- Updated procedure references

The inspectors compared these revisions 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, to Nuclear Energy Institute Report 99-01, “Emergency Action Level Methodology,” Revision 4, and to the standards in 10 CFR 50.47(b), to determine if the revisions 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. This review was not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, these 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.

1EP6 Drill Evaluation (71114.06)

Training Evolution Observation

a. Inspection Scope

On May 6, 2014, 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.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2RS2 Occupational ALARA Planning and Controls (71124.02)

a. Inspection Scope

The inspectors assessed licensee performance with respect to maintaining occupational individual and collective radiation exposures as low as is reasonably achievable (ALARA). During the inspection, the inspectors interviewed licensee personnel and reviewed licensee performance in the following areas:

- Site-specific ALARA procedures and collective exposure history, including the current 3-year rolling average, site-specific trends in collective exposures, and source-term measurements

- ALARA work activity evaluations/post-job reviews, exposure estimates, and exposure mitigation requirements

- The methodology for estimating work activity exposures, the intended dose outcome, the accuracy of dose rate and man-hour estimates, and intended versus actual work activity doses and the reasons for any inconsistencies

- Records detailing the historical trends and current status of tracked plant source terms and contingency plans for expected changes in the source term due to changes in plant fuel performance issues or changes in plant primary chemistry

- Radiation worker and radiation protection technician performance during work activities in radiation areas, airborne radioactivity areas, or high radiation areas

- Audits, self-assessments, and corrective action documents related to ALARA planning and controls since the last inspection

These activities constitute completion of one sample of occupational ALARA planning and controls as defined in Inspection Procedure 71124.02.

b. Findings

Introduction. The inspectors reviewed a Green, self-revealing, non-cited violation of Technical Specification 5.7.2, which was caused by licensee personnel's failure to control a high radiation area with radiation levels greater than 1 rem/hour.

Description. On June 8, 2013, as part of the reactor pressure vessel reassembly during Refueling Outage R-21, licensee personnel removed the moisture separator from its temporary storage in the dryer-separator pool and encountered higher than anticipated radiation dose rates. They were alerted to the higher dose rates when two workers received electronic dosimeter dose rate alarms. The applicable radiation work permit had established a dose rate setpoint of 0.8 rem/hour. The head rigger, who was directing the overhead crane operator and was closest to the moisture separator, entered a field of 1.7 rem/hour. A radiation protection technician measured 2 rem/hour at one point on the auxiliary bridge, near where the head rigger was standing. Another worker, who was helping ensure the moisture separator was positioned correctly, entered a field of 0.898 rem/hour, according to his electronic dosimeter. Licensee personnel continued the evolution until the moisture separator was placed safely on the reactor pressure vessel and submerged in the reactor pool. Licensee personnel stated it typically took about five minutes to move the moisture separator from the temporary storage pool to its position on the reactor pressure vessel in the reactor pool. The head rigger received the highest dose (0.068 rem).

Licensee personnel documented the occurrence in the corrective action program and investigated the dose rate alarms. During this investigation, licensee personnel recognized the refueling floor had not been posted as a high radiation area. They determined the apparent cause for the lack of posting and initiated corrective actions. In the apparent cause evaluation, licensee personnel identified problems with planning, controlling, and executing the work activity. For example, the ALARA planning personnel incorrectly categorized the movements of the dryer and the moisture separator as an "elevated" risk rather than a "high" risk. (A high risk classification would have required additional planning, barriers, and oversight.) At one point following a survey by a radiation protection technician, the crane operator raised the moisture separator until 12 to 18 inches of the moisture separator was above the surface of the

water and then moved it horizontally with no hold point to allow the radiation protection technician to evaluate the change in work area dose rates. At another point, the head rigger rode the auxiliary bridge closer to the exposed moisture separator than had been planned and discussed in the pre-job briefing.

The inspectors reviewed the licensee's documentation of the occurrence and noted in addition to the failure to post the high radiation area, the licensee failed to implement barricading and flashing lights (for areas with dose rates greater than 1 rem/hour) as required by the technical specifications. Although the licensee identified planning deficiencies, the final collective dose for the work activity did not exceed the planned dose by 50 percent and did not exceed 5 person-rem. No individual worker's dose exceeded 10 CFR Part 20 dose limits. The inspectors reviewed the moisture separator dose rate information from the final safety analysis report and concluded it was not possible to construct a reasonable scenario in which a minor alteration of circumstances would have resulted in a violation of the 10 CFR Part 20 limits. The inspectors confirmed the workers wore passive dosimetry certified by the National Voluntary Laboratory Accreditation Program and electronic dosimetry calibrated periodically by the licensee's personnel, so there was no problem assessing the workers doses.

Analysis. The failure to control a high radiation area with radiation levels greater than 1 rem/hour is a performance deficiency. The requirement not met was Technical Specification 5.7.2. Pool areas do not have to be controlled as high or very high radiation areas solely because of the materials in them provided control measures are implemented to ensure that activated materials are not raised above or brought near the surface of the pool water. However, licensee personnel did not implement appropriate control measures. As a result, they raised activated material, in the form of portions of the moisture separator, above or near the surface of the dryer/separator pool water, creating a high radiation area with a dose rate greater than 1 rem/hour without implementing the required high radiation area controls. The performance deficiency was more than minor because it was associated with the Occupational Radiation Safety Cornerstone attribute of program and process (exposure control) and adversely affected the cornerstone objective of ensuring adequate protection of worker health and safety from exposure to radiation because licensee personnel did not implement barriers intended to prevent workers from receiving unexpected dose. Using Inspection Manual Chapter 0609, Appendix C, "Occupational Radiation Safety Significance Determination Process," dated August 19, 2008, the inspectors determined the violation had very low safety significance because: (1) it was not an as low as is reasonably achievable (ALARA) finding, (2) there was no overexposure, (3) there was no substantial potential for an overexposure, and (4) the ability to assess dose was not compromised.

This finding has a cross-cutting aspect in the human performance area, associated with the work management component, because the organization did not implement a process of planning, controlling, and executing work activities such that nuclear safety is the overriding priority [H.5].

Enforcement. Technical Specification 5.7.2, states, in part, that individual areas with radiation levels greater than or equal to 1 rem/hour (at 30 centimeters from the radiation source), accessible to personnel, that are located within large areas such as reactor containment, where no enclosure exists for purposes of locking, or that is not continuously guarded, and where no enclosure can be reasonably constructed around the individual area, shall be barricaded and conspicuously posted, and a flashing light

shall be activated as a warning device. Contrary to these requirements on June 8, 2013 an individual area with radiation levels greater than 1 rem/hour (at 30 centimeters from the radiation source), accessible to personnel, located within reactor containment where no enclosure existed for purposes of locking was not barricaded and conspicuously posted, and a flashing light was not activated as a warning device for the area. Specifically, locked high radiation area controls were not established around the dryer separator pool when the moisture separator was lifted from the pool, resulting in a radiation worker being exposed to a dose rate of 1.7 rem/hour. Licensee representatives stated this evolution typically lasts for approximately five minutes. Licensee personnel corrected the immediate situation by placing the moisture separator in the reactor pool, which eliminated the higher than anticipated dose rate. The licensee documented the event in the corrective action program, investigated the workers' dose rate alarms, and conducted an apparent cause evaluation of the failure to post the area correctly for the radiological conditions. Because this violation was of very low safety significance and it 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 Enforcement Policy. The violation was entered into the licensee's corrective action program as AR 287521: NCV 05000397/2014003-03, "Failure to Implement High Radiation Area Controls in an Area with a Dose Rate Greater Than 1 rem/hour."

2RS4 Occupational Dose Assessment (71124.04)

a. Inspection Scope

The inspectors evaluated the accuracy and operability of the licensee's personnel monitoring equipment, verified the accuracy and effectiveness of the licensee's methods for determining total effective dose equivalent, and verified that the licensee was appropriately monitoring occupational dose. The inspectors interviewed licensee personnel, walked down various portions of the plant, and reviewed licensee performance in the following areas:

- External dosimetry accreditation, storage, issue, use, and processing of active and passive dosimeters
- The technical competency and adequacy of the licensee's internal dosimetry program
- Adequacy of the dosimetry program for special dosimetry situations such as declared pregnant workers, multiple dosimetry placement, and neutron dose assessment
- Audits, self-assessments, and corrective action documents related to dose assessment since the last inspection

These activities constitute completion of one sample of occupational dose assessment as defined in Inspection Procedure 71124.04.

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 Safety System Functional Failures (MS05)

a. Inspection Scope

For the period of April 1, 2013 through April 1, 2014, the inspectors reviewed licensee event reports (LERs), maintenance rule evaluations, and other records that could indicate whether safety system functional failures had occurred. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, and NUREG-1022, "Event Reporting Guidelines: 10 CFR 50.72 and 50.73," Revision 3, to determine the accuracy of the data reported.

These activities constituted verification of the safety system functional failures performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Reactor Coolant System Total Leakage (BI02)

a. Inspection Scope

The inspectors reviewed the licensee's records of reactor coolant system total leakage for the period of April 1, 2013, through April 1, 2014 to verify the accuracy and completeness of the reported data. The inspectors observed the performance of OSP-INST-H101, "Shift and Daily Instrument Checks (Modes 1, 2, 3)," Revision 81 on May 15, 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 reported data.

These activities constituted verification of the reactor coolant system leakage 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 Semiannual Trend Review

a. Inspection Scope

To verify that the licensee was taking corrective actions to address identified adverse trends that might indicate the existence of a more significant safety issue, the inspectors reviewed corrective action program documentation associated with the following licensee-identified trends:

- A negative trend involving multiple instances of icing of building HVAC filters during cold weather periods. (AR 300171)

- A negative trend involving the material conditions of reserve filters needed to implement procedure ABN-ASH, "Ash Fall", Revision 19. (AR 304270)

Also, because the licensee identified an emergent cross-cutting theme in P.3 ("*Resolution: The organization take effective corrective actions to address issues in a timely manner commensurate with their safety significance*"), the inspectors reviewed the licensee's response to that theme to verify that the licensee had taken, was taking, and/or planned to take appropriate actions to address it.

The specific documents reviewed during this trend review are listed in the attachment.

These activities constitute completion of one semiannual trend review sample, as defined in Inspection Procedure 71152.

b. Observations and Assessments

The inspectors' review of the trends identified above produced the following observations and assessments:

- For the negative trend involving multiple instances of icing of building HVAC

filters during cold weather periods, the licensee performed a condition evaluation which included an extent of condition review. Action 2 of the licensee's action request established a corrective action to review the need for system modification to prevent icing of building HVAC filters. The due date for this action is
August 24, 2014, prior to the next onset of cold weather.

The inspectors considered that in response to this trend, the licensee had completed an appropriate evaluation and had developed appropriate corrective actions.

- For the negative trend involving the material conditions of reserve filters needed to implement procedure ABN-ASH, the licensee performed a condition evaluation and determined that the current storage of these filters did not meet station procedural requirements or industry standards. The licensee implemented interim corrective actions to relocate the required filters to a more suitable storage location. At the end of the inspection period, the licensee was evaluating more long term corrective actions needed with regard to storage of reserve filters needed to implement procedure ABN-ASH.

  The inspectors considered that in response to this trend, the licensee had completed an appropriate evaluation and had developed appropriate corrective actions.

- For the cross-cutting theme in P.3, the licensee initiated AR 292766 soon after the NRC issued the fourth finding during the current assessment cycle that had a cross-cutting aspect in P.3. As described in AR 292766, the licensee's review of the associated findings determined that all four of the cross-cutting aspects in the theme were associated with timeliness of corrective actions. The licensee therefore initiated and completed changes to the corrective action program which included new procedural requirements associated with extensions of corrective actions and implementation of a performance indicator that tracks corrective action resolution. The licensee also trained managers and supervisors on the importance associated with timely resolution of issues entered into the corrective action program.

  For this cross-cutting theme, the inspectors determined that the licensee had entered the theme into their corrective-action program in a timely manner, completed an appropriate evaluation of the theme, developed and scheduled appropriate corrective actions to address identified weaknesses and areas for improvement, and had completed most of those corrective actions by the time of this inspection.

c. Findings

Introduction. The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a for the licensee's failure to maintain procedures for mitigating a design-basis volcanic ashfall event.

Description. On April 2, 2014, the inspectors reviewed air filters used to mitigate a design-basis volcanic ashfall event for adverse trends including recent inventories of

filters and associated condition report action requests. The ashfall filter inventories were performed under Work Order 02046624 in March 2014 and Work Order 02005018 in April 2011. These inventories resulted in six action requests documenting inadequate inventory, storage container leaks, and water damage to filters. The inspectors noted that one of the types of required ashfall filters inventoried, the diesel engine combustion filter, is a quality-class 1 component that must be commercially dedicated for safety-related use.

The design-basis ashfall is a 20-hour event which includes two hours when offsite power is lost. During those two hours, the emergency diesel generators (DGs) are required to provide electrical power for safety-related systems. Calculation ME-02-87-95, "Filter Loading for DG HVAC and Combustion Air," Revision 2, credits the combustion filters as components used to reduce the amount of contaminants reaching the engine cylinders. The inspectors also noted that licensee procedure ABN-ASH, "Ash Fall," Revision 19, directs how the licensee staff will replace and monitor filters to ensure that the emergency diesel generators are operable during the design-basis event.

In their evaluation of work orders, the inspectors reviewed the acceptance criteria to install the quality-class 1 DG combustion filters and identified a deficiency in the ABN-ASH procedure. Specifically, the issue ticket attached to the combustion filters by the warehouse states that the filters are "not approved for generic SR use…prior to installation, modify per EMS (Equipment Modification Specification) 30146…to complete commercial grade dedication, perform post installation test." ABN-ASH, in contrast, does not mention needing to perform a quality-class 1 component modification and instead simply states in Step 4.1.4 "install ash filters…in locations listed." Further, none of the combustion filters staged for the ashfall event were modified per EMS 30146, which drills holes for installing seismic mounting clips. ABN-ASH also does not require a post-installation test. The inspectors concluded the licensee had failed to maintain the ABN-ASH procedure and could not implement the procedure as written.

In response to this conclusion, the licensee initiated AR 304380 documenting the non-conforming conditions and initiated a prompt operability determination. The licensee determined that the staged combustion filters required modification and performed the modification as an immediate corrective action. The licensee also issued night order 1520 until the ABN-ASH procedure could be updated.

The inspectors learned that in March 2011, the licensee had completed a walkthrough of ABN-ASH and addressed identified problems in AR 236015. However, that action request did not identify this issue. Also, licensee ashfall filter inventories in April 2011, under Work Order 02005018 and March 2014, under Work Order 02046624 failed to identify this issue. Because neither the procedure walkthrough nor two separate filter inventories had identified this performance deficiency, the inspectors concluded that the cause of this performance deficiency was that, with respect to the ABN-ASH procedure, the licensee did not have an appropriate threshold for identifying conditions adverse to quality.

Analysis. The failure to maintain written procedures to ensure that ABN-ASH could mitigate the design basis ashfall event was a performance deficiency. This performance deficiency was more than minor because it was associated with the procedure quality attribute of the mitigating systems cornerstone and adversely affected the cornerstone's objective of ensuring the availability, reliability, and capability of systems that respond to

initiating events to prevent undesirable consequences. Specifically, the inadequacy of ABN-ASH resulted in required parts being unavailable to support the safety-related function of the diesel generators. The inspectors screened 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 the finding was of very low safety significance (Green) because it did not involve a loss or degradation of equipment or function specifically designed to mitigate a seismic, flooding, or severe weather initiating event. This finding has a cross-cutting aspect in the area of problem identification and resolution because the licensee did not implement a corrective action program with a low threshold for issues [P.1].

Enforcement. Technical Specification 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained for activities described in Appendix A of the Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, section 6.w requires procedures for combating emergencies and other significant events including acts of nature. Licensee procedure ABN-ASH, "Ash Fall," Revision 19, establishes the procedure for combating a design-basis volcanic ashfall event. Contrary to the above, prior to April 2, 2014, the licensee failed to maintain written procedures required by Regulatory Guide 1.33. Specifically, the licensee failed to ensure that the emergency diesel generator combustion filters, designated for and required to be installed in ABN-ASH, were modified and dedicated for safety-related use.

The licensee restored compliance by initiating AR 304380 and modifying the staged combustion filters. Additionally, the licensee issued night order 1520 until the ABN-ASH procedure could be updated. Because this violation was of very low safety significance and was entered into the licensee's corrective action program as Action Request 304380, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000397/2014003-04, "Failure to Maintain Procedures for a Design Basis Ashfall Event."

.3 Annual Follow-up of Selected Issues

a. Inspection Scope

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

- May 20, 2014, AR 302282 documenting an unplanned loss of electrical bus SH-5. 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.

- June 5, 2014, AR 302376 documenting industry operating experience related to compliance with Technical Specification 3.4.11, "[Pressure/Temperature] Limits."

  The inspectors assessed the licensee's problem identification threshold, extent of condition reviews and reportability evaluation. 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 reviewed a self-revealing Green finding for the licensee's failure to verify that circuit breaker E-CB-S5 was properly installed in accordance with procedure SOP-ELEC-BKR-OPS, "AC Electrical Breaker Racking," Revision 10.

Description. On February 5, 2014, while transferring electrical bus E-SH-5 to the startup transformer following a planned replacement of circuit breaker E-CB-S5 under Work Order 02048432, the licensee experienced an unexpected loss of bus E-SH-5 and a trip of reactor recirculation pump RRC-P-1A. The loss of RRC-P-1A resulted in a significant reduction in core flow, an unplanned entry into single-recirculation-loop operations, and an unplanned power reduction to approximately 45 percent power. The licensee's investigation determined that when the licensee racked breaker E-CB-S5 into its electrical cubicle on February 5, 2014, the floor tripper lever for the breaker had been resting on the floor tripper rail, which is a safety feature that prevents the breaker from being installed in a cubicle while in a closed position. With the floor tripper lever in this configuration, the elevated floor tripper lever would act to mechanically trip breaker E-CB-S5. The licensee's root cause evaluation performed under AR 302282 identified inadequacies in the process used to set-up and verify "breaker to cubicle" fit for first-time breaker replacement for specific cubicles.

The inspectors reviewed the root-cause evaluation performed under AR 302282 and determined that on February 5, 2014, the licensee had failed to accomplish procedure SOP-ELEC-BKR-OPS, "AC Electrical Breaker Racking," Revision 10, when racking in circuit breaker E-CB-S5. Specifically, the Step 5.18.19 of that procedure required the operators to "refer to Attachment 6.1 and verify both floor tripper cams in down position," and the licensee failed to complete that step. With the floor tripper lever slightly elevated, circuit breaker E-CB-S5 was in a trip-free condition, which prevented the successful transfer of electrical bus E-SH-5 to the startup transformer. The inspectors determined that the cause of this finding was that the licensee's process for installing circuit breakers into electrical cubicles relied on individual judgment based on visual observation of the floor tripper cams when performing racking operations, and did not include sufficient tools and resources to verify breaker-to-cubicle fit. The licensee's corrective actions included development of additional tools and processes to ensure that electrical circuit breakers are properly fit into their cubicles during replacement activities.

Analysis. On February 5, 2014, the failure of licensee personnel to verify that electrical circuit breaker E-CB-S5 was properly installed in accordance with procedure SOP-ELEC-BKR-OPS was a performance deficiency. The finding was more than minor because it affected the configuration control attribute of the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations, in that this finding resulted in an event that upset plant stability. The inspectors used Inspection Manual Chapter 0609, Appendix A, "The Significance Determination Process (SDP) for Findings at-Power," Exhibit 1, Initiating Events, to determine that this finding is of very low safety significance (Green) because it did not cause a reactor trip and the loss of mitigation equipment relied upon to transition the plant from the onset of the trip to a stable shutdown condition. Because the cause of this finding was that the licensee's process

for installing circuit breakers into electrical cubicles did not include sufficient tools and resources to verify breaker-to-cubicle fit, this finding has a cross-cutting aspect in the area of human performance because the licensee failed to ensure that tools and other resources were available to adequately support nuclear safety [H.1].

Enforcement. Enforcement action does not apply because the performance deficiency did not involve a violation of regulatory requirements. The finding is of very low safety significance and the issue was entered into the licensee's corrective action program as AR 302282: FIN 05000397/2014003-05, "Failure to Perform Adequate Verification of Breaker Cubicle Fit Results in Loss of Reactor Recirculation Pump."

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

.1 (Closed) Licensee Event Report 2013-007-00 and 2013-007-01, "Secondary Containment Pressure Exceeded During Severe Weather Conditions."

a. Inspection Scope

On August 25, 2013, a thunderstorm near Columbia Generating Station produced high winds and several sudden changes in wind direction. During this thunderstorm event, secondary containment pressure exceeded 0.0 inches water gauge (INWG) with respect to atmosphere. The failure to maintain secondary containment vacuum greater than negative 0.25 INWG resulted in an unplanned entry into Technical Specification 3.6.4.1, "Secondary Containment," due to a failure to satisfy Surveillance Requirement 3.6.4.1.1. Since secondary containment is a system required to control the release of radioactive material and because the licensee failed to meet Technical Specification Surveillance Requirement 3.6.4.1.1 the event was determined to be reportable under 10 CFR 50.72(b)(3)(v)(C) and (D). The inspectors reviewed the licensee event reports associated with this event and determined that they adequately documented the summary of the event and the potential safety consequences. The inspectors identified that Licensee Event Report 2013-007-00 incorrectly determined the cause of the event to be a design issues with the reactor building ventilation differential pressure system controller. Based on a review of the corrective action program, the inspectors determined that the more predominant cause of the loss of secondary containment differential pressure on August 25, 2013 was a sluggish response of the train A reactor building ventilation system differential pressure controller. Subsequent investigation by the licensee determined that the gain settings for reactor building ventilation system differential pressure controller were not optimally set to automatically maintain secondary containment differential pressure. The inspectors determined that the licensee's failure to document the correct cause in LER 2013-007-00 was a minor violation of 10 CFR 50.73, "Licensee Event Report System," which was subsequently corrected in LER 2013-007-01. The inspectors also determined that the licensee's failure to establish and maintain the appropriate gain settings for the reactor building normal ventilation system differential pressure controllers was contrary to licensee procedure DES-2-19, "Instrument Master Data Sheets," Revision 0 and a self-revealing finding which is documented in Part b below. This licensee event report is closed.

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 properly pre-

plan calibrations of differential pressure controllers used to maintain secondary containment pressure. Specifically, the licensee failed to establish and document the gain settings for the reactor building normal ventilation system differential pressure controllers in accordance with procedure DES-2-19, "Instrument Master Data Sheets," Revision 0.

Description. On August 25, 2013 a thunderstorm near Columbia Generating Station produced high winds and several sudden changes in wind direction. During this thunderstorm event, the pressure in secondary containment exceeded -0.25 INWG with respect to atmosphere. During normal operations, the reactor building normal ventilation system is designed to maintain the secondary containment at a -0.25 INWG with respect to atmosphere by automatically varying the pitch of the main exhaust fan blades, thereby changing fan capacity. Columbia Generating Station Technical Specification Surveillance Requirement (TSSR) 3.6.4.1.1 required the licensee to verify secondary containment vacuum is greater than -0.25 INWG to ensure the secondary containment boundary is being maintained in a sufficiently leak tight condition. Based on the failure to meet TSSR 3.6.4.1.1, plant operators declared secondary containment inoperable and entered the applicable actions of Limiting Condition for Operation 3.6.4.1, "Secondary Containment." The licensee also determined that the unplanned inoperability resulted in an event or condition where the secondary containment system could have been prevented from fulfilling its safety function and was therefore reportable under 10 CFR 50.73(a)(2)(v). The licensee submitted Licensee Event Report (LER) 05000397/2013-007-00, "Secondary Containment Pressure Exceeded During Severe Weather Conditions," on October 24, 2013.

The inspectors reviewed LER 2013-007-00 and noted that the licensee attributed the unplanned inoperability of secondary containment to a design issue whereas the reactor building ventilation differential pressure system controller was not designed to respond to very quick changes in building differential pressure due to nearly instantaneous shifts in wind direction. The inspectors determined that this conclusion was contrary to the system design as described in the Final Safety Analysis Report (FSAR). Specifically, FSAR section 6.2.3.2 states that "the system is designed to eliminate fluctuations in reactor building pressure by such factors as wind gusts." The inspectors reviewed the maintenance and operational history of the reactor building pressure control system and identified the following action requests where plant operators had documented degraded performance of the train A differential pressure controller:

- AR 254121, initiated February 8, 2012, which documented a loss of secondary containment differential pressure due to icing of the reactor building fresh air intakes. The apparent cause evaluation for this action request identified a concern by licensed operators that the train A differential pressure controller was acting sluggishly. During disposition of this action request, the licensee did review the instrument master data sheet for the controllers but determined that the settings were appropriate.

- AR 269420, initiated on August 24, 2012, which documented that train A differential pressure controller was responding slowly during standby gas treatment system surveillance testing that resulted in changing air flows in the reactor building.

- AR 293230, initiated on September 4, 2013, which documented that the train A differential pressure controller was sluggish and often required manual control to maintain reactor building differential pressure within technical specification limits. The inspectors noted that as interim corrective action for this action request, the licensee's staff implemented Night Order 1484, which placed limitations on the use of train A due to its "sluggish response."

The inspectors confirmed that the train A differential pressure controller had been in service on August 25, 2013, and concluded that the degraded performance of this controller had been a significant contributor to the event documented in LER 2013-007-00. However, the inspectors noted that the licensee had not documented degraded performance of this controller as a cause of that event. The licensee initiated AR 305388 documenting the cause of the August 25, 2013 loss of secondary containment differential pressure was not sufficiently investigated prior to submitting LER 2013-007-00.

Between January 9 and February 17, 2014, the licensee experienced four additional events where secondary containment pressure was not maintained less than the technical specification limit of -0.25 INWG. In three of four of these events, the licensee received control room annunciator "Sec Press DP High," indicating that pressure in secondary containment had exceeded 0.0 INWG with respect to atmosphere. On March 10, 2014, Energy Northwest submitted LER 2014-001-00, "Secondary Containment Pressure Exceeded," which reported these four additional events. During this subsequent investigation, the licensee discovered that the gain for the REA-DPIC-1A pressure controller was set significantly lower than the gain for pressure controller REA-DPIC-1B. The as-found gain setting for REA-DPIC-1A was 0.36, the as-found gain setting for REA-DPIC-1B was 1.05. Since gain is a function of a controller's output signal in proportion to its input signal, the lower gain setting for REA-DPIC-1A explained the sluggish response of that train's controller. The licensee also discovered that the gain settings for both REA-DPIC-1A and REA-DPIC-1B did not have established gain set points, and neither controller was set optimally to allow the reactor building normal ventilation system to respond to changing weather conditions as described in FSAR section 6.2.3.2.

Based on their evaluation of LERs 2013-007-00 and 2014-001-00, the inspectors concluded that the licensee had failed to establish and maintain appropriate gain setting for controllers REA-DPIC-1A and REA-DPIC-1B. Procedure DES-2-19, "Instrument Master Data Sheets," Revision 0, Step 2.1.4 states that "if the device is a controller, there must be a proportional band or gain, and a setpoint or control band listed." Contrary to this standard, the licensee did not have any gain values listed on the instrument master data sheets for REA-DPIC-1A and REA-DPIC-1B and consequently neither controller was set optimally to perform its important to safety function of maintaining secondary containment differential pressure during normal operations. The inspectors also determined that the licensee had missed opportunities to correct configuration errors in the reactor building normal ventilation system because they had not fully evaluated prior instances of loss of secondary containment pressure and concerns from licensed operators regarding the sluggish response of the train A differential pressure controller. The inspectors therefore concluded that the cause of this finding was the licensee did not thoroughly evaluate those prior instances.

Following the five loss of secondary containment pressure events that occurred between August 25, 2013 and February 17, 2014, the licensee performed testing and analysis to determine the appropriate gain settings for controllers REA-DPIC-1A and REA-DPIC-1B. The licensee tuned the gain for controllers REA-DPIC-1A and REA-DPIC-1B on

May 14, 2014 and April 17, 2014. The licensee also submitted supplements to LER 2013-007-00 and 2014-001-00 to document that both REA-DPIC-1A and REA-DPIC-1B did not have established gain set points and neither controller was set optimally to allow the reactor building normal ventilation system to respond to changing weather conditions. The licensee entered this issue into their correction action program as ARs 300787, 300788, 300999, 301091, 302890 and 306037.

Analysis. The failure to establish and maintain the appropriate gain settings for the reactor building normal ventilation controllers in accordance with station procedure DES-2-19 was a performance deficiency. This performance deficiency was more than minor because it affected the equipment performance attribute of the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Specifically, the failure to establish and maintain configuration control of reactor building ventilation differential pressure controllers resulted in multiple instances of unplanned inoperability of secondary containment. The inspectors performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process (SDP) for Findings At-Power." Using IMC 0609, Appendix A, Exhibit 3, "Barrier Integrity Screening Questions," the inspectors determined that this finding is of very low safety significance (Green) because the finding represents only a degradation of the radiological barrier function provided by the standby gas treatment system. Because the cause of this finding was that the licensee had not thoroughly evaluated prior instances of loss of secondary containment pressure and concerns from licensed operators regarding the sluggish response of the train A differential pressure controller, this finding had a cross-cutting aspect in the area of problem identification and resolution in that the licensee did not thoroughly evaluate issues to ensure that resolutions address causes and extent of conditions commensurate with their safety significance [P.2].

Enforcement. Technical Specification 5.4.1.a requires, in part, that written procedures shall be established, implemented, and maintained for activities described in Appendix A of the Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, section 9.a requires, in part, that maintenance that can affect the performance of safety-related equipment should be properly pre-planned and performed in accordance with written instructions appropriate to the circumstances. Licensee Procedure DES-2-19, "Instrument Master Data Sheets," Revision 0, is a procedure used to properly pre-plan maintenance and calibration activities of controllers that can affect the performance of safety related equipment. Contrary to this requirement, prior to June 13, 2014, the licensee failed to properly pre-plan maintenance that can affect the performance of safety-related equipment in accordance with written instructions appropriate to the circumstances. Specifically, the licensee failed to establish a proportional band or gain setting for controllers REA-DPIC-1A and REA-DPIC-1B in accordance with Procedure DES-2-19. Consequently, during planned maintenance and calibration activities of these controllers conducted prior to June 13, 2014, the licensee did not correctly set the gain of these controllers such that the components could control pressure in the safety-related secondary containment structure under all conditions. Upon discovery of this issue, the licensee performed testing and analysis to establish the correct gain settings for controllers REA-DPIC-1A and REA-DPIC-1B. Because this violation was of very low safety significance and was entered into the licensee's corrective action program as AR 303216, this violation is being treated as a non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000397/2014003-06, "Failure to Properly Pre-Plan Maintenance on Reactor Building Ventilation Differential Pressure Controllers."

.2 (Closed) Licensee Event Report 2014-001-00 and 2014-001-01, "Secondary Containment Pressure Exceeded."

Between January 9 and February 17, 2014, the licensee experienced four events where secondary containment pressure was not maintained less than the technical specification limit of -0.25 INWG due to changing weather conditions. In three of four of these events, the licensee received control room annunciator "Sec Press DP High," indicating that pressure in secondary containment had exceeded 0.0 INWG with respect to atmosphere. The failure to maintain secondary containment vacuum greater than -0.25 INWG resulted in an unplanned entry into Technical Specification 3.6.4.1, "Secondary Containment," due to a failure to satisfy Surveillance Requirement 3.6.4.1.1. Since secondary containment is a system required to control the release of radioactive material and because the licensee failed to meet Technical Specification Surveillance Requirement 3.6.4.1.1 the event was determined to be reportable under 10 CFR 50.72(b)(3)(v)(C) and (D). On March 10, 2014, Energy Northwest submitted LER 2014-001-00, "Secondary Containment Pressure Exceeded," which reported these events where secondary containment pressure was not maintained less than the technical specification limit. Subsequent investigation by the licensee determined that the gain settings for reactor building ventilation system differential pressure controller were not optimally set to automatically maintain secondary containment differential pressure. The licensee submitted a supplement to LER 2014-001 on May 29, 2014. The inspectors reviewed the licensee event reports associated with these events and determined that they adequately documented the summary of the event including the cause of the event and potential safety consequences. The inspectors identified a self-revealing finding associated with the licensee's failure to establish and maintain the appropriate gain settings for the reactor building normal ventilation system differential pressure controllers which contrary to licensee procedure DES-2-19, "Instrument Master Data Sheets," Revision 0, which is documented in section 4OA3.1, Part B of this report. These licensee event reports are closed.

.3 (Closed) Licensee Event Report 2014-002-00, "Unanalyzed Condition Resulting from Direct Current (DC) Ammeter Circuits without Overcurrent Protection."

a. Inspection Scope

On February 24, 2014 and March 11, 2014, the licensee completed review of industry operating experience and initiated AR 303326 and 304147, which documented that Columbia Generating Station was susceptible to secondary fires due to hot shorts from unfused ammeters in the direct current distribution system. The secondary fires could impact equipment needed to place the plant in a safe shutdown condition which had not been previously analyzed in accordance with 10 CFR 50 Appendix R or the licensee's fire hazards analysis. The inspectors reviewed the licensee event report associated with this event and determined that the report adequately documented the summary of the event including the potential safety consequences and corrective actions required to address the identified design deficiency. The inspectors identified a licensee identified violation of License Condition 2.C.14. The enforcement aspects of this violation are listed in section 4OA7 of this report. The inspectors also identified that Licensee Event Report 2014-002 was submitted beyond the specified time limits in 10 CFR 50.73 for an unanalyzed condition that significantly degrades plant safety. The enforcement aspects associated with this late report is discussed in Part b below. This licensee event report is closed.

b. Findings

Introduction. The inspectors identified a Severity Level IV non-cited violation of 10 CFR 50.73, "Licensee event report system," because the licensee failed to submit a required licensee event report within specified time limits for an unanalyzed condition involving unfused DC ammeters.

Description. On December 10, 2013, the licensee initiated operating experience AR 299213 documenting a generic issue within the nuclear industry where unfused DC ammeters could short and cause fires in more than one plant fire area. On February 24, 2014, the licensee completed their review of this operating experience and initiated AR 303326, which documented that the operating experience was applicable to Columbia Generating Station. Specifically, the licensee determined that a short to ground in unfused DC ammeters could cause fires including postulated secondary fires in the following plant fire areas:

- Fire Area RC-2, cable spreading room
- Fire Area RC-3, cable chase
- Fire Area RC-4, electrical equipment room 1
- Fire Area RC-7, electrical equipment room 2
- Fire Area RC-10, main control room
- Fire Area RC-12, unit B air conditioning room

On March 11, 2014, the licensee completed an extent-of-condition review and initiated AR 304147 to document that additional unfused DC ammeters could result in a design-basis fire in addition to secondary fires in other plant areas. The licensee submitted Licensee Event Report 2014-002-00, "Unanalyzed Condition Resulting from Direct Current (DC) Ammeter Circuits without Overcurrent Protection," on May 2, 2014.

The inspector reviewed the issues documented in AR 303326 and 304147 and compared the unanalyzed conditions to the Columbia Generating Station FSAR, Appendix F, Fire Protection Evaluation, section F.4.4.4, "Detailed Fire Hazard Analysis by Area." The fire hazards analysis for the main control room, fire area RC-10, concluded that a design basis fire will be confined to the control room and systems needed for post-fire safe shutdown will remain free of fire damage. Since Division 1 equipment, which includes the emergency diesel generator and residual heat removal train A, are not protected from the effects of a control room fire, FSAR section F.4.3.2, "Remote Post-Fire Safe Shutdown Equipment", states that the remote post-fire shutdown system consists of:

- residual heat removal B
- service water system B
- automatic depressurization system and main steam relief valves
- supporting HVAC system
- system status monitoring instrumentation

- supporting power train including diesel generator 2 and division 1 and division 2 battery

Fire areas RC-7 and RC-12 contain equipment needed to achieve safe shutdown following a control room fire, including supporting power train equipment for diesel generator 2 and supporting HVAC systems which includes the room cooler for the remote shutdown panel area. Consequently, the inspectors determined that the issue identified in AR 303326 represented an unanalyzed condition that significantly degraded plant safety because an unfused DC ammeter could cause a fire in the main control room (fire area RC-10) and a fire in areas RC-7 or RC-12, which houses equipment needed for safe shutdown.

The licensee first identified this unanalyzed condition on February 24, 2014 in AR 303326. Title 10 CFR 50.73 (a)(1) required the licensee to submit a license event report (LER) with 60 days of discovery. Given the discovery date of February 24, 2014, the LER should have been sent no later than April 25, 2014. However, the licensee submitted LER 2014-002-00 on May 2, 2014.The inspectors therefore concluded that the licensee had submitted LER 2014-002-00 more than 60 days following discovery of an event requiring an LER.

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

Enforcement. Title 10 CFR 50.73(a)(1) requires, in part, that licensees shall submit a licensee event report for any event of the type described in paragraph 10 CFR 50.73(a)(1) within 60 days after the discovery of the event. Contrary to the above, from April 25, 2014, to May 2, 2014, the licensee failed to submit a licensee event report within 60 days after the discovery of the event. Because this violation has been entered into the corrective action program as AR 309600, compliance was restored in a reasonable amount of time, and the violations are not repetitive or willful, this Severity Level IV violation is being treated as non-cited violation, consistent with Section 2.3.2.a of the Enforcement Policy: NCV 05000397/2014003-07, “Failure to Report an Unanalyzed Condition within Required Time Limits.”

.4 (Closed) Licensee Event Report 2014-003-00, "Degraded Tornado Missile Barrier"

On March 12, 2014, the licensee discovered that electrical manhole covers MH-10, MH-11 and MH-15 were missing their required hold down bolts. These hold down bolts ensure that the manhole covers will stay in place when exposed to uplift forces from a postulated design basis tornado and are required to provide tornado missile protection for underground cables in the standby service water system. Upon discovery, the licensee implemented a compensatory measure to restored functionality of the manhole covers by placing large concrete blocks over the covers that would ensure that unground cables in the standby service water system would be protected from potential tornado missile. Subsequent review by the licensee determined that the hold down bolts for electrical manhole MH-11 were first identified as missing on September 6, 2013. The licensee had not previously recognized that these missing hold down bolts impacted a tornado missile barrier. Consequently, division 2 standby service water was inoperable from September 6, 2013 to March 12, 2014 which is a condition prohibited by the plant's technical specifications and is reportable under 10 CFR 50.73(a)(2)(i)(B). The inspectors reviewed the licensee event report associated with this event and determined that the report adequately documented the summary of the event including the cause of the event and potential safety consequences. The inspectors reviewed a licensee identified violation of Technical Specification 3.7.1, "Standby Service Water (SW) System and Ultimate Heat Sink (UHS)." The enforcement aspects of this violation are listed in section 4OA7 of this report. This licensee event report is closed

These activities constitute completion of four event follow-up samples, as defined in Inspection Procedure 71153.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On June 19, 2014, regional inspectors presented the radiation safety inspection results to Mr. G. Hettel, Vice President, Operations, 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 June 24, 2014, a regional inspector conducted a telephonic exit meeting to present the results of the in-office inspection of changes to the licensee's emergency plan and emergency action levels to Mr. D. Suarez, Licensing Engineer, and other members of the licensee staff. The licensee acknowledged the issues presented.

On June 26, 2014, the resident inspectors presented the inspection results to Mr. Bruce MacKissock, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

4OA7 Licensee-Identified Violations

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

- Columbia Generating Station Operating License, Condition 2.C(14), requires, in part, that the licensee shall implement and maintain in effect all provisions of the approved fire protection program as described in section 9.5.1 and Appendix F of the FSAR for the facility. Columbia Generating Station FSAR, Appendix F, Fire Protection Evaluation, section F.4.4.4, "Detailed Fire Hazard Analysis by Area," states, in part, for the main control room (Fire Area RC-10), a design basis fire will be confined to the fire area and systems needed for post-fire safe shutdown will remain free of fire damage. Contrary to the above, prior to February 24, 2014, the licensee failed to implement and maintain in effect all provisions of the approved fire protection program as described in Appendix F of the FSAR. Specifically, because of unfused DC ammeters in the main control room, the licensee failed to ensure that for a design basis fire, the fire will be confined to Fire Area RC-10 and that the systems needed for post-fire safe shutdown will remain free of fire damage. This finding was identified by the licensee and entered in the licensee's corrective action program as AR 303326 and AR 304147. A senior reactor analyst performed a detailed risk evaluation and determined that the associated change to the core damage frequency was approximately 3.8E-7. The change to the large early release frequency was approximately 5E-8/year. Therefore, the finding was of very low safety significance (Green). The dominant core damage sequences involved a control room fire initiating event in Panel P-800, loss of Division I and Division II emergency AC power sources, and failure of the high pressure core spray system (failure of either the diesel or pump). The Division II emergency diesel generator failed because of secondary fires. The ability to recover the Division I emergency diesel generator at the remote shutdown panel helped to minimize the risk.

- Technical Specification 3.7.1, "Standby Service Water (SW) System and Ultimate Heat Sink (UHS)," requires, in part, that the Division 1 and 2 SW subsystems and UHS shall be operable in Modes 1, 2 and 3. The technical specification requires that with "one SW subsystem inoperable," the licensee must either restore the inoperable subsystem to operable status within 72 hours, or place the unit in Mode 3 within the next twelve hours and in Mode 4 within the following 36 hours. Contrary to the above, from September 6, 2013 until March 12, 2014, the Division 2 service water subsystem was inoperable due to a degraded tornado missile barrier and action was not taken to restore the inoperable service water subsystem to an operable status within 72 hours or to place Columbia Generating Station in Mode 3 within the following 12 hours. This finding was identified by the licensee and entered in the licensee's corrective action program as AR 304266. The senior resident inspector performed the initial significance determination for the performance deficiency using NRC Inspection Manual 0609, Appendix A, Exhibit 4, "External Events Screening Questions," dated July 1, 2012. The finding required a detailed risk evaluation because it involved the potential loss of one train of a risk significant system. Therefore, a Region IV senior reactor analyst performed a bounding detailed risk evaluation. The bounding change to the core damage frequency was 7E-8/year (Green). The dominant core damage sequences included: A tornado induced loss of offsite power, tornado induced loss of all the Division II trains, random failures of the Division I and III emergency diesel generators, and failure to recover either offsite power or an emergency diesel generator in 12 hours. The low tornado induced loss of offsite power initiating event frequency and the reactor core isolation cooling system helped to minimize the risk significance.

- Title 10 CFR 50.54(q)(2) requires a licensee to follow and maintain in effect an emergency plan that meets the requirements of 50.47(b). Planning standard

10 CFR 50.47(b)(4) requires a licensee have a standard emergency action level scheme. Licensee procedure 13.1.1, “Classifying the Emergency,” Revision 44, implements the licensee’s standard emergency action level scheme. Emergency action levels 2.1.U.1 and 2.1.A.1 require classification of an emergency based on reactor coolant system leakage and requires the use of the drywell floor drain flow transmitter, FDR-FT-38, to calculate unidentified reactor coolant system leakage as a component of total reactor coolant system leakage. Contrary to the above, between March 30, 2014 and April 1, 2014, the licensee did not follow an emergency plan meeting the requirements of 50.47(b). Specifically, the licensee’s ability to classify emergency action levels 2.1.U.1 and 2.1.A.1 was degraded because FDR-FT-38 was isolated. This finding was identified by the licensee and entered in the licensee’s corrective action program as AR 305488. This finding was determined to be of very low safety significance because it did not involve Emergency Action Levels greater than Alert per table 5.4-1 of Inspection Manual Chapter 0609 Appendix B, “Emergency Preparedness Significance Determination Process.”

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

S. Abney, Assistant Operations Manager
P. Allen, System Engineer, System Engineering
J. Darling, NSSS Supervisor, System Engineering
C. Forrester, Emergency Planner
M. Hedges, Principle Licensing Engineer, Regulatory Affairs
M. Holle, System Engineer, System Engineering
G. Hettel, Vice President, Operations
A. Javorik, Vice President, Engineering
R. Prewett, Manager, Operations
B. MacKissock, Plant General Manager
B. Sawatzke, Vice President Nuclear Generation and Chief Nuclear Officer
D. Suarez, Licensing Engineer, Regulatory Affairs
R. Treadway, Assistant Operations Manager
J. Trautvetter, Manager, Regulatory Affairs
L. Williams, Licensing Supervisor
D. Wolfgramm, Licensing Engineer, Regulatory Affairs

NRC Personnel

G. Replogle, Senior Reactor Analyst

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000397-2014003-01	NCV	Failure to Take Corrective Actions to Address Extent of Cause for Service Water Pump Coupling Failures (Section 1R04)
05000397-2014003-02	NCV	Failure to Implement Procedures That Ensure Operators Could Perform Time Critical Steps For Fire Events (Section 1R11)
05000397-2014003-03	NCV	Failure to implement high radiation area controls in an area with a dose rate greater than 1 rem/hour.
05000397-2014003-04	NCV	Failure to Maintain Procedures For a Design Basis Ashfall Event (Section 4OA2)

05000397-2014003-05	FIN	Failure to Perform Adequate Verification of Breaker Cubicle Fit Results in Loss of Reactor Recirculation Pump (Section 4OA2)
05000397-2014003-06	NCV	Failure to Properly Pre-Plan Maintenance on Reactor Building Ventilation Differential Pressure Controllers (Section 4OA3)
05000397-2014003-07	NCV	Failure to Report an Unanalyzed Condition within Required Time Limits (Section 4OA3)

Closed

05000397-2013-007-00	LER	Secondary Containment Pressure Exceeded During Severe Weather Conditions (Section 4OA3)
05000397-2013-007-01	LER	Secondary Containment Pressure Exceeded During Severe Weather Conditions (Section 4OA3)
05000397-2014-001-00	LER	Secondary Containment Pressure Exceeded (Section 4OA3)
05000397-2014-001-01	LER	Secondary Containment Pressure Exceeded (Section 4OA3)
05000397-2014-002-00	LER	Unanalyzed Condition Resulting from Direct Current (DC) Ammeter Circuits without Overcurrent Protection (Section 4OA3)
05000397-2014-003-00	LER	Degraded Tornado Missile Barrier (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

Number	Title	Revision
SOP-HVAC/RW-LU	Radwaste Building HVAC System Lineup	1
SOP-HVAC/TB-LU	Turbine Generator Building HVAC System Valve and Breaker Lineup	1
SOP-TMU-LU	Tower Makeup Water Valve and Breaker Lineup	2
SOP-WARMWEATHER-OPS	Warm Weather Operations	10

Action Requests (AR)

292186	297897	299946	300790	304464
306791	306871			

Work Orders

02047890

Miscellaneous Documents

Number	Title	Date
Technical Memo #68	Makeup Water Pump House Power Supply	10/4/71

Drawings

Number	Title	Revision
M520	Flow Diagram HPCS and LPCS Systems Reactor Building	102
M546-1	Flow Diagram Heating, Ventilating, & Air Conditioning Turbine Generator Building	56
M548-1	Flow Diagram HVAC for Control and Switchgear Rooms Radwaste Building	101
M551	Flow Diagram HVAC, Circ Water, Make-Up Water & Service Water Pump Houses & Diesel Generator Bldg	65

Calculations

Number	Title	Revision
2.05.07	Calculation for Plant Batteries Hydrogen Release	0
ME-02-86-67	SLC Piping	0

Section 1R04: Equipment Alignment

Procedures

Number	Title	Revision
1.3.1	Operating Policies, Programs, and Practices	117
1.3.66	Operability and Functionality Evaluation	29
ABN-CR-EVAC	Control Room Evacuation and Remote Cooldown	33
OI-69	Time Critical Operator Actions	4
OSP-LPCS/IST-Q702	LPCS System Operability Test	36
OSP-LPCS/IST-R701	LPCS Check Valve Operability – Refueling Shutdown	3
SOP-LPCS-LU	LPCS Valve and Breaker Lineup	3
SOP-HVAC/CR-SHUTDOWN	Control, Cable, and Critical Switchgear Rooms HVAC Shutdown	5

Procedures

Number	Title	Revision
SOP-RCIC-LU	RCIC Valve and Breaker Lineup	1

Drawings

Number	Title	Revision
M519	Flow Diagram Reactor Core Isolation Cooling System	97
M520	Flow Diagram HPCS and LPCS Systems Reactor Building	102

Action Requests (AR)

013553	118367	241336	241981	247109
248619	249208	249423	256598	258673
261972	262203	262521	262802	262865
263652	264883	265235	265531	265598
265756	265759	265958	265972	266146
266796	266821	266993	267085	267408
267746	268268	268310	268633	269423
270736	270804	270829	270831	271328
271352	272139	274375	274677	275513
275766	276878	277664	278598	279794
279909	280676	284658	285238	285280
285683	285696	285856	285950	285960
286701	286836	286947	286959	287518
287886	288336	288620	289135	289764
289932	290720	290869	292119	292236
292518	292527	292634	292940	293284
293781	294378	295555	295617	296287
297126	297620	297841	297896	298929
301887	302072	302182	302389	302432
302851	302852	303458	304453	304596
305555	305871	307013	307040	307193
307516				

Calculations

Number	Title	Revision
NE-02-85-19	Calculation Post-Fire Safe Shutdown (PFSS) Analysis	7
ME-02-92-43	Room Temperature Calculation for DG Building, Reactor Building, Radwaste Building and Service Water	9

Engineering Change (EC)

7920 12935

Work Orders (WO)

1106675 1132200 1132201 1132202 1132203

02046349

Miscellaneous Documents

Number	Title	Date
	Instrument Master Data Sheet for LPCS-FI-600	9/15/88
BID-PUMP-1	Preventive Maintenance Background Information Large Pump (Pump-1)	0 through 1

Section 1R05: Fire Protection

Procedures

Number	Title	Revision
1.3.10C	Control of Transient Combustibles	17

Miscellaneous Documents

Number	Title	Revision
PRE-FIRE PLAN	Columbia Generating Station Pre-Fire Plan	7

Section 1R06: Flood Protection Measures

Calculations

Number	Title	Revision
5.51.55	Flooding Analysis	2
5.51.58	Flooding Safe Shutdown Analysis	4
EQ-02-86-361978-01	Calculation for Seismic Qualification of Reilable Automatic Sprinkler Co.	0
ME-02-02-23	Calculation for PFSS Flooding Analysis Radwaste Building	0

Calculations

Number	Title	Revision
ME-02-03-04	Radwaste Building Flooding Analysis	0

Procedures

Number	Title	Revision
ABN-FLOODING	Flooding	16

Action Requests (AR)

306252

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

Procedures

Number	Title	Revision
1.3.1	Operating Policy, Programs, and Practices	117
1.3.76	Integrated Risk Management	39
OI-09	Operations Standards and Expectation	60
OI-69	Time Critical Operator Actions	4

Action Requests (AR)

306204

Section 1R12: Maintenance Effectiveness

Procedures

Number	Title	Revision
10.1.13	Foreign Materials Controls for Systems and Components	26
ABN-SW	Service Water Trouble	15
SYS-4-22	Maintenance Rule Program	6

Action Requests (AR)

264391	264883	265759	265891	267746
271328	275546	275591	275726	275750
275762	278484	278932	286836	286947
288785	290508	291297	292236	292358

295889	296184	297822	297894	298299
304453				

Work Orders (WO)

02047516

Calculations

Number	Title	Revision
ME-02-85-79	Standby Service Water Spray Pond Temperature Transient Without Sprays	3

Miscellaneous Documents

Number	Title	Revision
233-00,8	Oriented Spray Cooling System Instruction and Maintenance Manual	1

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

Number	Title	Revision
1.3.76	Integrated Risk Management	39

Action Requests (ARs)

300660	301086	301508	303957

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

Number	Title	Revision
1.3.66	Operability and Functionality Determinations	29
ABN-ASH	Ash Fall	19
DES-2-1	Plant Design Changes	49
ICP-CMS-B301	Containment Hydrogen/Oxygen Analyzer Press. And Temp. Sensors – Div 1 – CC	2
ICP-CMS-Q301	Accident Monitoring Instruments Containment Hydrogen/Oxygen Analyzer – Div 1 – C	1
MI-1.8	Conduct of Maintenance	59
TSP-DG1/LOP-B501	Standby Diesel Generator DG1 Loss of Power Test	18

Action Requests (AR)

236015	260385	278896	302853	303573
303890	304261	304266	304343	304380
304418	304512	304733	305115	305229
307714				

Work Orders (WO)

1036297	1180351	2055701	29112732

Drawings

Number	Title	Revision
E502-3	Main One Line Diagram	23
E502-2	Main One Line Diagram	60

Calculations

Number	Title	Revision
E/I-02-91-03	Standby Diesel Generator (DG-1) Load Calculation Automatically Applied Loads for Shutdown with LOOP	17
EC 12934	Evaluation of Oxygen Readings from CMS-SR-13	March 27, 2014

Section 1R19: Post-Maintenance Testing

Procedures

Number	Title	Revision
10.25.74	Testing Motor Operated Valve Motors and Controls	29
10.25.105	Motor Control Center and Switchgear Maintenance	32
10.25.136	ITT Hydramotor Actuator Adjustment, Calibration, and Inspection	18
OSP-HPCS/IST-Q701	HPCS System Operability Test	45

Action Requests (AR)

249959	255249	305843

Work Orders (WO)

01192652	02026511	0203005505	0203590305	0204837102

02048371

Miscellaneous Documents

Number	Title	Revision
C92-0388	Component Classification Record	1

Drawings

Number	Title	Revision
E535	Connection Wiring Diagrams Motor Control Centers, Sheet No. 52A	18
SW-TCV-11A	Instrument Master Data Sheet	4

Section 1R22: Surveillance Testing

Procedures

Number	Title	Revision
ABN-LEAKAGE	Reactor Coolant Leakage	6
13.1.1A	Classifying The Emergency – Technical Bases	28
13.1.1	Classifying the Emergency	44
1.3.57	Barrier Impairment	29
1.3.66	Operability and Functionality Evaluation	29
ISP-FDR/EDR-X301	Drywell Sump Flow Monitors – CC	10
ISP-CIA-Q902	ADS Accumulator Backup Low Pressure Alarm Division II – CFT/CC	7
OSP-INST-H101	Shift and Daily Instrument Checks (Modes 1, 2, 3)	81
OSP-SLC/IST-Q701	Standby Liquid Control Pumps Operability Test	25
SOP-FDR-OPS	Floor Drain System Operation	2
SWP-PRO-01	Procedure and Work Instruction Use and Adherence	26

Action Requests (AR)

305233 305488

Work Orders (WO)

0204673203

Miscellaneous Documents

Number	Title	Revision
283041-01	Equipment Qualification Record Environmental	16
25-00, 25, 10	Time Delay Relays	5
C93-0697	Washington Public Power Supply System	0
TM-2004	Evaluation Of Safety-Significant Equipment For Moisture Intrusion Potential	1
TM-2019	Summary of Equipment Qualification Environmental Profiles	12

I

Section 1EP6: Drill Evaluation

Procedures

Number	Title	Revision
ABN-AIRBORNE-ATTACK	Imminent Airborne Attack	10
13.1.1A	Classifying The Emergency – Technical Bases	28
13.1.1	Classifying the Emergency	44
5.1.2	RPV Control – ATWS	22
5.2.1	Primary Containment Control	22
5.3.1	Secondary Containment Control	19

Action Requests (AR)

307595 307645

Section 2RS02: Occupational ALARA Planning and Controls

Procedures

Number	Title	Revision
GEN-RPP-01	ALARA Program Description	007
GEN-RPP-02	ALARA Planning and Radiation Work Permits	031
GEN-RPP-13	ALARA Committee	010
SWP-CAP-01	Corrective Action Program	030
CDM-01	Cause Determination Manual	013

Action Requests (AR)

00288825 00290609 00291474 00293766 00294159

00287158	00286897	00288402	00301946

Senior Site ALARA Committee Jobs (Work Activities)

Title

Shaffolding

Valve Work

Flow Accelerated Corrosion

Reactor Water Cleanup Heat Exchanger 1A Elbow Cutout

Section 2RS04: Occupational Dose Assessment

Procedures

Number	Title	Revision
GEN-RPP-06	Dosimetry Program Description	010
HPI-2.2	Skin Dose Evaluation	013
HPI-4.30	Processing, Evaluation, and Reporting of DLR Exposure Data	010
HPI-5.9	Evaluation of In-Vivo Bioassay Results Following a Potential Intake	013
HPI-6.4	Administering an Occupational Radiation Exposure History File	023
PPM 11.2.13.11	Characterization of Alpha Radioactivity	001
PPM 11.2.15.13	Control of Personnel Skin and Clothing Contamination	007

Action Requests (AR)

270229	277609	282026	285252	285400
286897	297548	286175	286775	286897
287521	287158	288402	297548	

Audits and Self-AssessmentsNumber	Title	Date
255214	Annual Review of the Columbia Generating Station Radiation Protection Program (RPP) to fulfill the requirements of 10CFR20.1101(c) for CY2011	March 20, 2013
277609	Landauer Process Review	August 1, 2013
285400	Focused Assessment on External Dosimetry	November 13, 2013
299231	Radiation Protection readiness for NRC routine baseline inspection on Occupational Dose Assessment using NRC Inspection Procedure (IP) 71124.04	April 10, 2014

Miscellaneous

Number	Title	Date
07-02	Radiation Protection Calculation: Passive Internal Monitoring Sensitivity of the GEM-5 Portal Monitor	August 30, 2007
08-02	Technical Basis Document: Review of Site Isotopic Composition and Internal Dose ALI values Evaluating Difficult to Detect (DTD), TRU and Passive Monitoring Capabilities	April 1, 2008
DIC 1554.5	Columbia Generating Station Scaling Factors - Year: 2012	July 15, 2012

Section 4OA1: Performance Indicator Verification

Procedures

Number	Title	Revision
OSP-INST-H101	Shift and Daily Instrument Checks (Modes 1, 2, 3)	77

Action Requests (ARs)

288421	288706	299701	301091	302890
303326	304266	305240	305388	305488
309319	309600			

Section 4OA2: Problem Identification and Resolution

Procedures

Number	Title	Revision
ABN-ASH	Ash Fall	19
EMS-30146	Secure Fastener Attachments By Drilling Holes in Air Filter	0

Procedures

Number	Title	Revision
SOP-ELEC-BKR-OPS	AC Electrical Breaker Racking	10
OSP-CCH/IST-M702	Control Room Emergency Chiller System B Operability	34
QAP-ASU-07	Peer Verification Program Planning	1
SWP-MMP-02	Warehousing	9

Action Requests (AR)

236015	243821	259406	287334	298981
299451	300171	300470	300943	302282
302376	302453	303230	303340	303727
304002	304040	304234	304270	304270
304334	304380	304419	304512	304574
304733	305268	305268	306027	307356
307469	307688	307703	307798	307798
307801	307827	307899	308056	308083
308226	308751	308887	308892	308993

Work Orders

01036297	0110351	02005018	02030814	02046624
2047251	02048432	02048525	02054635	29112725

Drawings

Number	Title	Revision
M512-1	Flow Diagram Diesel Oil & Miscellaneous Systems Diesel Generator Building	44
M521-1	Flow Diagram Residual Heat Removal System Loop “A”	115

Calculations

Number	Title	Revision
NE-02-85-19	Calculation Post-Fire Safe Shutdown (PFSS) Analysis	7

Miscellaneous Documents

Number	Title	Revision
CIVES-6	Design Requirements for Nonsafety-Related Items in Seismic Category 1 Areas	6

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

Procedures

Number	Title	Revision
MOT-DAMP-1-1	Dampers	4
10.2.13	Approved Lubricants	63
SWP-TST-01	Post Maintenance Testing Program	15
DES-2-19	Instrument Master Data Sheets	0

Action Requests (AR)

193000	235880	254121	254727	269420
270980	291951	292638	293230	299213
300787	300788	300999	301091	302890
303326	303989	304147	306037	309600

Miscellaneous Documents

Number	Title	Revision
CVI 22A-00	Joy Manufacturing, Instruction Manual for Nuclear Containment Axivane Fan	
EWD-50E-017	Electrical Wiring Diagram, DC Electrical Distribution System, 250V DC Battery Charger E-C2-1	11
EWD-50E-030	Electrical Wiring Diagram, DC Electrical Distribution System, 125V DC Battery Charger E-C1-7	9
EWD-50E-026A	Electrical Wiring Diagram, DC Electrical Distribution System, 125V DC Station Battery E-B1-2	3
EWD-50E-027	Electrical Wiring Diagram, DC Electrical Distribution System, 125V DC Battery Chargers E-C1-2A and E-C1-2B	11
EWD-50E-025	Electrical Wiring Diagram, DC Electrical Distribution System, 125V DC Battery Chargers E-C1-1A and E-C1-1B	9
EWD-50E-024A	Electrical Wiring Diagram, DC Electrical Distribution System, 125V DC Station Battery E-B1-1	2
	Instrument Master Data Sheet for REA-DPIC-1A	8/4/92

Section 4OA7: Licensee-Identified Violations

Action Requests (ARs)

303326	304147	304266	305488

The following items are requested for the
Occupational Radiation Safety Inspection
at Columbia Generating Station
June 16-19, 2014
Integrated Report 2014003

Inspection areas are listed in the attachments below.

Please provide the requested information on or before May 19, 2014.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.0**1** should be in a file/folder titled "**1**- A," applicable organization charts in file/folder "**1**- B," etc.

If information is placed on *ims.certrec.com*, please ensure the inspection exit date entered is at least 30 days later than the onsite inspection dates, so the inspectors will have access to the information while writing the report.

In addition to the corrective action document lists provided for each inspection procedure listed below, please provide updated lists of corrective action documents at the entrance meeting. The dates for these lists should range from the end dates of the original lists to the day of the entrance meeting.

If more than one inspection procedure is to be conducted and the information requests appear to be redundant, there is no need to provide duplicate copies. Enter a note explaining in which file the information can be found.

If you have any questions or comments, please contact:
Larry Ricketson at (817) 200-1165 or Larry.Ricketson@nrc.gov. **or**
Natasha Greene at (817) 200-1154 or Natasha.Greene@nrc.gov

PAPERWORK REDUCTION ACT STATEMENT

This letter does not contain new or amended information collection requirements subject to the Paperwork Reduction Act of 1995 (44 U.S.C. 3501 et seq.). Existing information collection requirements were approved by the Office of Management and Budget, control number 3150-0011.

2. Occupational ALARA Planning and Controls (71124.02)
Date of Last Inspection: June 3, 2013

A. List of contacts and telephone numbers for ALARA program personnel

B. Applicable organization charts

C. Copies of audits, self-assessments, and LERs, written since date of last inspection, focusing on ALARA

D. Procedure index for ALARA Program

E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures may be requested by number after the inspector reviews the procedure indexes.
1. ALARA Program
2. ALARA Committee
3. Radiation Work Permit Preparation

F. A summary list of corrective action documents (including corporate and subtiered systems) written since date of last inspection, related to the ALARA program. In addition to ALARA, the summary should also address Radiation Work Permit violations, Electronic Dosimeter Alarms, and RWP Dose Estimates

NOTE: The lists should indicate the significance level of each issue and the search criteria used. Please provide in document formats which are "searchable" so that the inspector can perform word searches.

G. List of work activities greater than 1 rem, since date of last inspection
Include original dose estimate and actual dose.

H. Site dose totals and 3-year rolling averages for the past 3 years (based on dose of record)

I. Outline of source term reduction strategy

J. A copy of the ALARA outage report for the *most recently* completed outage

4. Occupational Dose Assessment (Inspection Procedure 71124.04)

Date of Last Inspection: August 13, 2012

A. List of contacts and telephone numbers for the following areas:
   1. Dose Assessment personnel

B. Applicable organization charts

C. Audits, self assessments, vendor or NUPIC audits of contractor support, and LERs written since date of last inspection, related to:
   1. Occupational Dose Assessment

D. Procedure indexes for the following areas
   1. Occupational Dose Assessment

E. Please provide specific procedures related to the following areas noted below. Additional Specific Procedures will be requested by number after the inspector reviews the procedure indexes.
   1. Radiation Protection Program
   2. Radiation Protection Conduct of Operations
   3. Personnel Dosimetry Program
   4. Radiological Posting and Warning Devices
   5. Air Sample Analysis
   6. Performance of High Exposure Work
   7. Declared Pregnant Worker
   8. Bioassay Program

F. List of corrective action documents (including corporate and subtiered systems) written since date of last inspection, associated with:
   1. National Voluntary Laboratory Accreditation Program (NVLAP)
   2. Dosimetry (TLD/OSL, etc.) problems
   3. Electronic alarming dosimeters
   4. Bioassays or internally deposited radionuclides or internal dose
   5. Neutron dose

   NOTE: The lists should indicate the <u>significance level</u> of each issue and the <u>search criteria</u> used. Please provide in document formats which are “searchable” so that the inspector can perform word searches.

G. List of positive whole body counts since date of last inspection, names redacted if desired

H. Part 61 analyses/scaling factors

I The most recent National Voluntary Laboratory Accreditation Program (NVLAP) accreditation report or, if dosimetry is provided by a vendor, the vendor’s most recent results