



**UNITED STATES
NUCLEAR REGULATORY COMMISSION**

REGION IV
1600 E. LAMAR BLVD.
ARLINGTON, TX 76011-4511

October 30, 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 05000397/2014004**

Dear Mr. Reddemann:

On September 21, 2014, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Columbia Generating Station. On September 25, 2014, the NRC inspectors discussed the results of this inspection with Mr. W. Hettel, Vice President, Operations, and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

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

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

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

M. Reddemann

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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 Website at <http://www.nrc.gov/reading-rm/adams.html> (the Public Electronic Reading Room).

Sincerely,

/RA/

Gerond George, Acting Chief
Reactor Projects Branch C
Division of Reactor Projects

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

Enclosure: Inspection Report 05000397/2014004
w/ Attachment: Supplemental
Information

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 DRS Director (Anton.Vegel@nrc.gov)
 DRS Deputy Director (Jeff.Clark@nrc.gov)
 Senior Resident Inspector (Jeremy.Groom@nrc.gov)
 Resident Inspector (Dan.Bradley@nrc.gov)
 Administrative Assistant (Douglas.Bodine@nrc.gov)
 Acting Branch Chief, DRP/D (James.Drake@nrc.gov)
 Senior Project Engineer, DRP/D (Bob.Hagar@nrc.gov)
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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000397
License: NPF-21
Report: 05000397/2014004
Licensee: Energy Northwest
Facility: Columbia Generating Station
Location: North Power Plant Loop
Richland, WA 99354
Dates: June 24, 2014 – September 21, 2014
Inspectors: D. Bradley, Resident Inspector
J. Groom, Senior Resident Inspector
P. Hernandez, Health Physicist
J. O'Donnell, Health Physicist
Approved By: Gerond George
Acting Chief, Project Branch C
Division of Reactor Projects

SUMMARY

IR 05000397/2014004; 06/24/2014 – 09/21/2014; Columbia Generating Station; Adverse Weather Protection, Maintenance Effectiveness.

The inspection activities described in this report were performed between June 24 and September 21, 2014, by the resident inspectors at Columbia Generating Station and inspectors from the NRC's Region IV office. Two findings of very low safety significance (Green) are documented in this report. Both of these findings involved violations of NRC requirements. The significance of inspection findings is indicated by their color (Green, White, Yellow, or Red), which is determined using Inspection Manual Chapter 0609, "Significance Determination Process." Their cross-cutting aspects are determined using Inspection Manual Chapter 0310, "Aspects Within the Cross-Cutting Areas." Violations of NRC requirements are dispositioned in accordance with the NRC Enforcement Policy. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process."

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of Technical Specification 3.7.1, "Standby Service Water System and Ultimate Heat Sink," for the licensee's failure to take the required actions for an inoperable ultimate heat sink. Specifically, the licensee failed to take action, as required by the plant's technical specifications, when the water level in an individual ultimate heat sink spray pond was less than 432 feet 9 inches mean sea level. Following discovery of this issue, the licensee issued a night order and revised procedures to specify that both standby service water spray ponds had to be greater than 432 feet 9 inches MSL to meet the plant's technical specification surveillance requirements. The licensee entered this issue into their corrective action program as AR 312706.

The performance deficiency was more than minor because it affected the equipment performance attribute of the Mitigating System cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors performed the initial significance determination for the performance deficiency using NRC Inspection Manual 0609, Appendix A, Exhibit 2 "Mitigating System 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 for longer than the technical specification allowed outage time. Therefore, a Region IV senior reactor analyst performed a detailed risk evaluation that determined that the finding was of very low safety significance (Green). The finding did not contribute to the large early release frequency. This finding had a cross-cutting aspect in the area of problem identification and resolution, self-assessments, because a 2013 self-assessment was not critical and thorough when reviewing the use of average spray pond level to meet technical specification inventory requirements [P.6]. (Section 1R01)

- Green. The inspectors identified a non-cited violation of Technical Specification 5.4.1.a, "Procedures," for the licensee's failure to establish preventative maintenance schedules for the emergency diesel generator fuel oil storage and day tank flame arrestor vents. A misclassification of these vents as run-to-maintenance components resulted in the failure to establish preventative maintenance schedules. In response, the licensee initiated

AR 314568 to re-evaluate the maintenance classification of the diesel fuel oil storage tank flame arrestor vents and establish preventative maintenance tasks for those components.

This performance deficiency was more than minor because it was associated with the procedure quality 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 performed an initial screening of the finding in accordance with NRC Manual Chapter IMC 0609, Appendix A, "The Significance Determination Process 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 the finding was a design or qualification where the system maintained its operability. Because the cause of this finding was that the licensee had misclassified the maintenance requirements for the flame arrestor vents upon installation, it is not reflective of current performance and no cross-cutting aspect is assigned. (Section 1R12)

PLANT STATUS

The plant began the inspection period at 100 percent power. On August 16, 2014, the licensee reduced power to approximately 62 percent following identification of an electrical ground on electrical transformer E-TR-5/53. On August 17, the licensee further reduced power to approximately 45% percent to secure reactor recirculation pump 1A to support maintenance on E-TR-5/53. On August 27, 2014, the licensee reduced power to 18 percent to recover the reactor recirculation pump 1A. The licensee returned the plant to 100 percent power on August 30, 2014. The plant remained at nearly 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 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

On August 12-14, 2014, the inspectors completed an inspection of the station's readiness for impending adverse weather conditions. The inspectors reviewed plant design features, the licensee's procedures to respond to high winds and heavy rains, and the licensee's implementation of these procedures. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant.

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

b. Findings

Introduction. The inspectors identified a Green non-cited violation of Technical Specification 3.7.1, "Standby Service Water (SW) System and Ultimate Heat Sink (UHS)," for the licensee's failure to take the required actions for an inoperable ultimate heat sink. Specifically, the licensee failed to take action, as required by the plant's technical specifications, when the water level in an individual ultimate heat sink spray pond was less than 432 feet 9 inches mean sea level (MSL).

Description. On August 13, 2014, the inspectors observed the licensee's response to a severe weather event involving high winds and heavy rains. During this event, both trains of the standby service water spray headers were in operation. The high winds from the storm resulted in lost inventory from the service water spray ponds and caused plant operators to be concerned that the water inventory may fall below the minimum specified in Technical Specification Limiting Condition for Operation 3.7.1, "Standby Service Water (SW) System and Ultimate Heat Sink (UHS)." To address this loss of inventory, plant operators secured standby service water pump SW-P-1A but left

SW-P-1B operating to support a planned surveillance of the control room HVAC system. Because a siphon line connects the two service water spray ponds, the level in the pond with the operating service water pump dropped approximately 9 inches to a level of approximately 432 feet 5 inches while the level in the other pond rose by an equivalent amount to a level of approximately 433 feet 11 inches. Since this configuration resulted in the level in one service water spray pond dropping below 432 feet 9 inches, the minimum required by the plant's technical specifications, plant operators verified ultimate heat sink inventory by applying a note in surveillance procedure OSP-INST-H101, "Shift and Daily Instrument Checks (Modes 1, 2, 3)," Revision 80, that allowed the total volume requirement to be met by averaging the levels in the two ponds.

The inspectors reviewed Procedure OSP-INST-H101 and compared the acceptance criteria to Technical Specification Surveillance Requirement (TSSR) 3.7.1.1 and the technical specification bases. The inspectors noted that TSSR 3.7.1.1 required the licensee to "verify that the water level of *each* (emphasis added) UHS spray pond is greater than or equal to 432 feet 9 inches mean sea level." This requirement was different from the acceptance criteria in the licensee's surveillance procedure and the technical specification bases that only required the average level in the two ponds to be greater than or equal to 432 feet 9 inches MSL. The inspectors determined that this use of average pond level allowed operators to declare the ultimate heat sink operable even though the system failed to meet all of its surveillance requirements. Because the technical specifications do not provide a specific condition for ultimate heat sink spray pond water level, the inspectors determined that Technical Specification 3.7.1 Condition C, "UHS inoperable for reasons other than Condition A," would apply. That condition required that the station be placed in Mode 3 within 12 hours and Mode 4 within an additional 36 hours.

The inspectors reviewed the operational history of the service water spray ponds and found, in addition to the period of inoperability on August 13, 2014, several additional instances where the level in one of the two ultimate heat sink spray ponds was less than the inventory requirements in the plant's technical specifications. In each instance, the licensee failed to take the required actions to place the station in Mode 3 within 12 hours or Mode 4 within an additional 36 hours. The inspectors also discovered that the licensee reviewed procedure OSP-INST-H101 during a 2013 self-assessment of technical specification implementing procedures but did not identify the use of average pond level as not appropriate.

Following discovery of this issue, the licensee issued Night Order 1562 on August 15, 2014 and revised procedure OSP-INST-H101 on August 20, 2014 to specify that both standby service water spray ponds had to be greater than 432 feet 9 inches MSL to meet TSSR 3.7.1.1. On August 22, 2014, the licensee submitted a license amendment request to modify TSSR 3.7.1.1 to allow using the average level in the service water spray ponds. On October 9, 2014, the licensee submitted licensee event report 05000397-2014-004, "TS Surveillance 3.7.1.1 Compliance, UHS Spray Pond Level," documenting that the use of average pond level resulted in a violation of the plant's technical specifications. The licensee entered this issue into their corrective action program as AR 312706.

Analysis. The failure to comply with the required actions for an inoperable ultimate heat sink was a performance deficiency. The performance deficiency was more than minor because it was associated with the equipment performance attribute of the Mitigating

System cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. The inspectors performed the initial significance determination for the performance deficiency using NRC Inspection Manual 0609, Appendix A, Exhibit 2 "Mitigating System 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 for longer than the technical specification allowed outage time. Therefore, a Region IV senior reactor analyst performed a detailed risk evaluation. The analyst noted that one of the spray ponds might not have remained operable for the full 30-day design basis accident mission time. However, the probabilistic risk assessment (PRA) mission time was only 24 hours. The PRA mission time forms the basis for the significance determination. The spray pond would have easily met this mission time. Since the spray pond would have remained functional for the PRA mission time, the finding was of very low safety significance (Green). The finding did not contribute to the large early release frequency. This finding had a cross-cutting aspect in the area of problem identification and resolution, self-assessments, because a 2013 self-assessment was not critical and thorough when reviewing the use of average spray pond level to meet technical specification inventory requirements [P.6].

Enforcement. 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. Technical Specification 3.7.1, Condition C, requires that if the UHS is inoperable for reasons other than Condition A, the licensee shall restore the inoperable system to operable status or be in Mode 3 within the next twelve hours and in Mode 4 within the following 36 hours. Contrary to the above, on August 13, 2014, the ultimate heat sink was inoperable because one service water spray pond level was below 432 feet 9 inches MSL and the licensee did not take action to either restore the inoperable system to operable status or place Columbia Generating Station in Mode 3 within 12 hours as required by Technical Specification 3.7.1, Required Action C.1. The station restored compliance by restoring spray pond level and by issuing issued Night Order 1562, on August 15, 2014, to specify that both standby service water spray ponds had to be greater than 432 feet 9 inches MSL to meet TSSR 3.7.1.1. Because this violation was of very low safety significance (Green) and entered into the licensee's corrective action program as Action Request AR 312706, this violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000397/2014004-01, "Failure to Comply with Ultimate Heat Sink Technical Specification Level Requirements."

1R04 Equipment Alignment (71111.04)

.1 Partial Walkdown

a. Inspection Scope

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

- July 7, 2014, emergency diesel generator 1
- August 25, 2014, high pressure core spray service water

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

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

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Inspection

a. Inspection Scope

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

- August 1, 2014, Fire Area R-7, residual heat removal pump C room
- August 20, 2014, Fire Area R-1, reactor building 501 foot general area
- September 3, 2014, Fire Area DG-2 and DG-3, diesel generator 1 and 2 rooms
- September 19, 2014, Fire Area TG 1/2, turbine building general area

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.

.2 Annual Inspection

a. Inspection Scope

On September 10, 2014, the inspectors completed their annual evaluation of the licensee's fire brigade performance. This evaluation included observation of an unannounced fire drill in response to a simulated fire in the emergency diesel generator fuel oil polishing building.

During this drill the inspectors evaluated the capability of the fire brigade members, the leadership ability of the brigade leader, the brigade's use of turnout gear and fire-fighting equipment, and the effectiveness of the fire brigade's team operation. The inspector

also reviewed the control room's evaluation of the simulated fire and reviewed whether the licensee's fire brigade met NRC requirements for training, dedicated size and membership, and equipment.

These activities constituted one annual inspection sample, as defined in Inspection Procedure 71111.05.

b. Findings

No findings were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

On August 14-16, 2014, the inspectors completed an inspection of underground bunkers susceptible to flooding. The inspectors selected three underground bunkers that contained risk-significant or multiple-train cables whose failure could disable risk-significant equipment:

- August 14, 2014, electrical manhole E-MH-E8
- August 16, 2014, electrical manhole E-MH-E13
- August 16, 2014, electrical manhole E-MH-E15

The inspectors observed the material condition of the cables and looked for evidence of cable degradation due to water intrusion. The inspectors verified that the cables and vaults met design requirements.

These activities constitute completion of one bunker/manhole sample (consisting of three individual manholes), as defined in Inspection Procedure 71111.06.

b. Findings

No findings were identified.

1R07 Heat Sink Performance (71111.07)

a. Inspection Scope

On September 12, 2014, the inspectors completed an inspection of the readiness and availability of risk-significant heat exchangers. The inspectors reviewed the data from a performance test for residual heat removal heat exchanger RHR-HX-1A.

These activities constitute completion of one heat sink performance annual review sample, as defined in Inspection Procedure 71111.07.

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 August 20, 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. The inspectors also assessed and the modeling and performance of the simulator during the requalification activities.

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

b. Findings

No findings were identified.

.2 Review of Licensed Operator Performance

a. Inspection Scope

On July 26, 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 activity due to a planned downpower to 97% for surveillance testing. The inspectors observed the operators' performance of the following activities:

- Procedure OSP-RPS-Q402, "MSIV Closure Scram Functional," Revision 14, including the pre-job brief
- Procedure OSP-MS-M701, "Bypass Valves Test," Revision 10, including the pre-job brief
- Procedure OSP-CRD-M701, "Control Rod Exercise," Revision 20, including the pre-job brief

In addition, the inspectors assessed the operators' adherence to plant procedures, including PPM 1.3.1 "Operating Policy, Programs, and Practices," Revision 118 and other operations department policies.

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

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- September 2, 2014, system review of the diesel generator fuel oil and transfer system
- September 15, 2014, system review of 6.9KV electrical distribution system including AR 312797 documenting a ground on transformer E-TR-5/53

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

Introduction. The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a, "Procedures," for the licensee's failure to establish preventative maintenance schedules for the emergency diesel generator fuel oil storage and day tank flame arrestor vents. A misclassification of these vents as run-to-maintenance components resulted in the failure to establish preventative maintenance schedules.

Description. On September 2, 2014, the inspectors reviewed the maintenance history and schedules for the emergency diesel generator (EDG) fuel oil (DO) system. The DO system is comprised of three independent and safety-related sets of tanks to provide fuel for the emergency diesel generators. Each DO sub-system contains a day tank and a larger storage tank used to refill the day tank during sustained emergency diesel generator operations. The integral flame arrestor vents for division 1, DO-FA-1A and DO-FA-3A, division 2, DO-FA-1B and DO-FA-3B, and division 3, DO-FA-2 and DO-FA-4, are normally shut but have an active safety-function to open and relieve undesired pressure, such as a vacuum, in their associated tank. A strong vacuum could cause deformation of the tank and loss of fuel supply to the associated diesel generator.

The inspectors could not find any record of maintenance performed on these active, safety-related flame arrestor vents since installation in 1993. Upon installation, the licensee categorized the diesel fuel oil storage flame arrestors as run-to-maintenance components, the lowest tier of criticality defined in licensee procedure PPM 1.5.13, "Preventative Maintenance Optimization Living Program," Revision 31. Procedure PPM 1.5.13, Attachment 8.4 defines component criticality as the following:

- Critical (C) – Equipment considered necessary for nuclear safety and power production.
- Non-Critical (N) – A classification of equipment between critical and run-to-maintenance for which a cost effective preventative maintenance strategy makes sense.
- Run-to-Maintenance (R) – A component which the consequences of failure are acceptable without any PMs being performed and there is not a cost-effective method to extend the useful life of the component. The component should be run until corrective maintenance is required.

The inspectors found that the flame arrestor vents should not be run-to-maintenance components because the consequences of a failure are not acceptable and because the flame arrestor vendor does recommend several maintenance tasks to extend the useful life of the component. Specifically, the inspectors reviewed the vendor data sheet for the installed flame arrestor vents and found several simple maintenance recommendations including annual inspections. The inspectors noted that Procedure PPM 1.5.13, Attachment 8.4 included several screening criteria used to determine the criticality of a component. In particular, the inspectors noted that the diesel fuel oil storage tank flame arrestor vents should be considered critical components because a failure of the tank vent would result in an unplanned entry into a shutdown limiting condition for operation of 72 hours or less and would result in a risk significant maintenance preventable functional failure.

The inspectors concluded that the misclassification of the criticality of the emergency diesel generator flame arrestor vents resulted in a lack of preventative maintenance schedules for these components. The failure to establish preventative maintenance schedules is contrary to Technical Specification 5.4.1.a, "Procedures," and Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. In response to this conclusion, the licensee initiated AR 314568 to re-evaluate the maintenance classification of the diesel fuel oil storage tank flame arrestor vents and establish preventative maintenance tasks for those components.

Analysis. The failure to establish preventative maintenance schedules for the flame arrestor vents associated with the EDG fuel oil tanks was a performance deficiency. This performance deficiency was more than minor because it was associated with the procedure quality 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 initially 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 this finding is of very low safety significance (Green) because the finding was a deficiency affecting the design or qualification where the system maintained its operability. Because the cause of this finding was that the licensee had misclassified the maintenance requirements for the flame arrestor vents upon installation, it is not reflective of current performance and no cross-cutting aspect is assigned.

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.b, requires, in part, that preventative maintenance schedules be developed to specify lubrication schedules, inspections of equipment, replacement of such items as filters and strainers, and inspection or replacement of parts that have a specific lifetime such as wear rings. Contrary to the above, prior to September 2, 2014, the licensee failed to develop preventative maintenance schedules for the flame arrestor vents associated with fuel oil tanks for the emergency diesel generators. The licensee restored compliance by initiating action to re-evaluate the maintenance practices on the flame arrestor vents associated with fuel oil tanks for the emergency diesel generators. Because this violation was of very low safety significance and was entered into the licensee's corrective action program as AR 314568, this violation is being treated as a non-cited violation, consistent with Section 2.3.2 of the Enforcement Policy: NCV 05000397/2014004-02. "Failure to Establish Preventative Maintenance Schedules for Fuel Oil Tank Vents."

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

a. Inspection Scope

The inspectors reviewed three 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:

- June 26, 2014, planned yellow risk for work on the Standby Gas Treatment system A, Standby Liquid Control surveillance testing, and Service Water system A piping excavation
- July 14, 2014, planned green risk for work on diesel mixed air fan DMA-FN-51 as a support system for emergency diesel generator 2
- August 29, 2014, planned yellow risk during nitrogen-inerting operations when primary containment oxygen concentration was above the technical specification limit

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.

Additionally, on September 9, 2014, the inspectors observed portions of scram discharge volume level indicating switch emergent work activities that had the potential to cause an initiating event. The inspectors verified that the licensee appropriately developed and followed a work plan for these activities. The inspectors verified that the licensee took precautions to minimize the impact of the work activities on unaffected structures, systems, and components (SSCs).

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

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

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

- June 30, 2014, AR 310046, operability determination associated with testing that revealed difficulty in closing main steam bypass valve MS-V-160D
- July 16, 2014, AR 310619 and 310919, operability determination associated with configuration of suppression pool during cleanup operations
- July 24, 2014, AR 311280, operability determination associated with non-conforming condition on safety relief valve Flexitallic gaskets

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

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Modifications

a. Inspection Scope

On September 5, 2014, the inspectors reviewed a temporary modification to the control rod drive purge flow path for reactor recirculation pump 1A that the licensee had implemented under Engineering Change EC 13123. The inspectors verified that the licensee had installed this temporary modification in accordance with technically adequate design documents. The inspectors verified that this modification did not adversely impact the operability or availability of affected SSCs. The inspectors reviewed design documentation and plant procedures affected by the modification to verify the licensee maintained configuration control.

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

b. Findings

No findings were identified.

.2 Permanent Modifications

a. Inspection Scope

On August 8, 2014, the inspectors reviewed a permanent modification to the radwaste building exhaust air and turbine building exhaust air radiation monitors implemented under Engineering Changes EC 4788 and EC 4789. The inspectors reviewed the design and implementation of the modification. The inspectors verified that work activities involved in implementing the modification did not adversely impact operator actions that may be required in response to an emergency or other unplanned event. The inspectors verified that post-modification testing was adequate to establish the operability or functionality of the SSCs as modified.

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

b. Findings

No findings were identified.

1R19 Post-Maintenance Testing (71111.19)

a. Inspection Scope

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

- July 9, 2014, post-maintenance testing of standby gas treatment hydraulic operator SGT-EHO-1A1 following replacement under Work Order 02017480
- July 16, 2014, post-maintenance testing of radwaste mixed air fan WMA-FN-51B following replacement of 480 V starter WMA-42-8F2C under Work Order 02036323
- August 8, 2014, post-maintenance testing of control rod hydraulic control unit HCU 22-55 following repair of nitrogen leaks under Work Order 02062639
- August 11, 2014, post-maintenance testing of WMA-FN-54B following relay replacement under Work Order 02023057
- August 12, 2014, post-maintenance testing of degraded voltage relay E-RLY-27/8/3 following replacement under Work Order 02054000

- August 21, 2014, post-maintenance testing of fire protection control panel FP-CP-2A following replacement under Work Order 02048658
- September 8, 2014, post-maintenance testing of control room emergency chiller CCH-CR-1A following corrective maintenance under Work Order 02054798

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

In-service tests:

- September 12, 2014, procedure ISP-MS/IST-A101, "In Service Testing of Main Steam Relief Valve Actuation Switches," Revision 3

Other surveillance tests:

- June 25, 2014, procedure ISP-APRM-S303, "APRM Channel C Modes 1 and 2 - CC," Revision 20
- July 1, 2014, procedure ISP-LPCS/RHR-X301, "ECCS-LPCI (A) and LPCS Pump Discharge Flow (Min. Flow) - CC," Revision 3
- July 22, 2014, procedure ISP-RCIC-X301, "Accident Monitoring Instrumentation RCIC Flow Indication - CC," Revision 7
- July 27, 2014, procedure ISP-FDR-X301, "ECCS Pump Room Flood Level - Calibration," Revision 3

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

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

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstones: Public Radiation Safety and Occupational Radiation Safety

2RS1 Radiological Hazard Assessment and Exposure Controls (71124.01)

a. Inspection Scope

The inspectors assessed the licensee's performance in assessing the radiological hazards in the workplace associated with licensed activities. The inspectors assessed the licensee's implementation of appropriate radiation monitoring and exposure control measures for both individual and collective exposures. The inspectors walked down various portions of the plant and performed independent radiation dose rate measurements. The inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors reviewed licensee performance in the following areas:

- The hazard assessment program, including a review of the licensee's evaluations of changes in plant operations and radiological surveys to detect dose rates, airborne radioactivity, and surface contamination levels
- Instructions and notices to workers, including labeling or marking containers of radioactive material, radiation work permits, actions for electronic dosimeter alarms, and changes to radiological conditions
- Programs and processes for control of sealed sources and release of potentially contaminated material from the radiologically controlled area, including survey performance, instrument sensitivity, release criteria, procedural guidance, and sealed source accountability
- Radiological hazards control and work coverage, including the adequacy of surveys, radiation protection job coverage and contamination controls, the use of electronic dosimeters in high noise areas, dosimetry placement, airborne radioactivity monitoring, controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools, and posting and physical controls for high radiation areas and very high radiation areas
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements
- Audits, self-assessments, and corrective action documents related to radiological hazard assessment and exposure controls since the last inspection

These activities constitute completion of one sample of radiological hazard assessment and exposure controls as defined in Inspection Procedure 71124.01.

b. Findings

No findings were identified.

2RS3 In-plant Airborne Radioactivity Control and Mitigation (71124.03)

a. Inspection Scope

The inspectors evaluated whether the licensee controlled in-plant airborne radioactivity concentrations consistent with ALARA principles and that the use of respiratory protection devices did not pose an undue risk to the wearer. During the inspection, the inspectors interviewed licensee personnel, walked down various portions of the plant, and reviewed licensee performance in the following areas:

- The licensee's use, when applicable, of ventilation systems as part of its engineering controls
- The licensee's respiratory protection program for use, storage, maintenance, and quality assurance of NIOSH certified equipment, qualification and training of personnel, and user performance
- The licensee's capability for refilling and transporting SCBA air bottles to and from the control room and operations support center during emergency conditions, status of SCBA staged and ready for use in the plant and associated surveillance records, and personnel qualification and training
- Audits, self-assessments, and corrective action documents related to in-plant airborne radioactivity control and mitigation since the last inspection

These activities constitute completion of one sample of in-plant airborne radioactivity control and mitigation as defined in Inspection Procedure 71124.03.

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

40A1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index: Emergency AC Power Systems (MS06)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of July 2013 through June 2014 to verify the accuracy and completeness of the reported data. 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 mitigating system performance index for emergency AC power systems, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.2 Mitigating Systems Performance Index: High Pressure Injection Systems (MS07)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of July 2013 through June 2014 to verify the accuracy and completeness of the reported data. 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 mitigating system performance index for high pressure injection systems, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.3 Mitigating Systems Performance Index: Residual Heat Removal Systems (MS09)

a. Inspection Scope

The inspectors reviewed the licensee's mitigating system performance index data for the period of July 2013 through June 2014 to verify the accuracy and completeness of the reported data. 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 mitigating system performance index for residual heat removal systems, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

4. Reactor Coolant System Specific Activity (BI01)

a. Inspection Scope

The inspectors reviewed the licensee's reactor coolant system chemistry sample analyses for the period of April 1, 2013 through April 30, 2014 to verify the accuracy and completeness of the reported data. The inspectors observed a chemistry technician obtain and analyze a reactor coolant system sample on June 24, 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 specific activity performance indicator, as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

5. Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors reviewed corrective action program records documenting unplanned exposures or losses of radiological control over locked high radiation areas and very high radiation areas during the period of April 1, 2013, to June 30, 2014. The inspectors reviewed a sample of radiologically controlled area exit transactions showing exposures greater than 100 mrem. 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 occupational exposure control effectiveness performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

.6 Radiological Effluent Technical Specifications (RETS)/Offsite Dose Calculation Manual (ODCM) Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors reviewed corrective action program records for liquid or gaseous effluent releases that occurred between April 1, 2013, and June 30, 2014, and were reported to the NRC to verify the performance indicator data. 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 radiological effluent technical specifications (RETS)/offsite dose calculation manual (ODCM) radiological effluent occurrences performance indicator as defined in Inspection Procedure 71151.

b. Findings

No findings were identified.

40A2 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 report screening meetings. The inspectors verified that licensee personnel were identifying problems at an appropriate threshold and entering these problems into the corrective action program for resolution. The inspectors verified that the licensee developed and implemented corrective actions commensurate with the significance of the problems identified. The inspectors also reviewed the licensee's problem identification and resolution activities during the performance of the other inspection activities documented in this report.

b. Findings

No findings were identified.

.2 Annual Follow-up of Selected Issues

a. Inspection Scope

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

- July 9, 2014, AR 305078 documenting that the 480V motor control center starter for the diesel generator 2 fuel oil transfer pump was not seismically restrained.

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

- July 29, 2014, AR 303254 documenting that diesel generator 3 failed to start on the West bank air start motors due to a possible electrical relay issue.

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

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

b. Findings

No findings were identified.

4OA6 Meetings, Including Exit

Exit Meeting Summary

On August 14, 2014, the inspectors presented the radiation safety inspection results to Mr. M. Reddemann, Chief Executive Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The licensee confirmed that any proprietary information reviewed by the inspectors had been returned or destroyed.

On September 25, 2014, the inspectors presented the inspection results to Mr. W. 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.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

S. Abney, Assistant Operations Manager
P. Allen, System Engineer, System Engineering
A. Black, Emergency Services General Manager
V. Bhardwaj, Manager, System Engineering
S. Clizbe, Manager, Emergency Preparedness
J. Darling, NSSS Supervisor, System Engineering
M. Davis, Manager, Organizational Effectiveness
M. McLain, Principal Health Physicist, Radiation Protection
D. Gregoire, Manager, Regulatory Affairs
M. Hedges, Principle Licensing Engineer, Regulatory Affairs
G. Higgs, Manager, Maintenance
M. Holle, System Engineer, System Engineering
G. Hettel, Vice President, Operations
A. Javorik, Vice President, Engineering
D. Kettering, Manager, Design Engineering
R. Prewett, Manager, Operations
B. MacKissock, Plant General Manager
M. Reddemann, Chief Executive Officer
R. Rhodes, Supervisor, Craft Maintenance
M. Rowe, Supervisor, Radiation Protection
R. Sanker, Manager (Acting), Radiation Protection
B. Sawatzke, Vice President Nuclear Generation and Chief Nuclear Officer
D. Suarez, Licensing Engineer, Regulatory Affairs
R. Thompson, Supervisor, Radiation Protection
R. Treadway, Assistant Operations Manager
J. Trautvetter, Compliance Supervisor
L. Williams, Licensing Supervisor
R. Williams, Technician, Radiation Protection
D. Wolfgramm, Compliance Engineer, Regulatory Affairs

NRC Personnel

G. Replogle, Senior Reactor Analyst

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

| | | |
|---------------------|-----|---|
| 05000397-2014004-01 | NCV | Failure to Comply with Ultimate Heat Sink Technical Specification Level Requirements (Section 1R01) |
| 05000397-2014004-02 | NCV | Failure to Establish Preventative Maintenance Schedules for Fuel Oil Tank Vents (Section 1R12) |

LIST OF DOCUMENTS REVIEWED

Section 1R01: Adverse Weather Protection

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| ABN-WIND | Tornado/High Winds | 27 |
| OSP-INST-H101 | Shift and Daily Instrument Checks (Modes 1, 2, 3) | 80-82 |
| SOP-TMU-LU | Tower Makeup Water Valve and Breaker Lineup | 2 |

Action Requests (ARs)

| | | |
|--------|--------|--------|
| 312706 | 312778 | 312780 |
|--------|--------|--------|

Section 1R04: Equipment Alignment

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|------------------|--|-----------------|
| 10.2.13 | Approved Lubricants | 63 |
| ABN-WIND | Tornado/High Winds | 27 |
| SOP-DG1-LU | Emergency Diesel Generator (DIV 1) Valve and Power Supply Lineup | 3 |
| SOP-SW-LU | Standby Service Water System Valve & Breaker Lineup | 6 |
| SOP-HVAC/CR-STBY | Control, Cable, and Critical Switchgear Rooms HVAC in Standby Status | 0 |
| SOP-HVAC/CR-LU | Control, Cable, and Critical Switchgear Rooms HVAC Lineup | 0 |

Action Requests (ARs)

| | | |
|--------|--------|--------|
| 281913 | 310515 | 312737 |
|--------|--------|--------|

Miscellaneous

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|------------------------------|-----------------|
| SW-LI-1A | Instrument Master Data Sheet | 5 |

Section 1R05: Fire Protection

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|-----------------------------------|-----------------|
| 1.3.10C | Control of Transient Combustibles | 17 |

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| FPP-2.2.12 | Annual Fire Door Operability Test | 4 |
| FPP-2.2.5 | Fire Extinguisher Monthly Inspection and Annual Maintenance | 2 |

Miscellaneous

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|--|--------------------|
| PRE-FIRE PLAN | Columbia Generating Station Pre-Fire Plan | 3 |
| | Columbia Fire Brigade Drill Record Sheet, Fire Brigade Drill 2014 Unannounced/Backshift Fire Drill | September 10, 2014 |

Section 1R06: Flood Protection Measures

Drawings

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| S517 | Structural Electrical Manholes Sheet 1 | 17 |
| E822 | Electrical Manholes Development and Details Sheet 1 | 4 |
| M742 | Composite Piping Plan and Details Yard | 16 |

Work Orders

02054046

Section 1R07: Heat Sink Performance

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| 8.4.42 | Thermal Performance Monitoring of RHR-HX-1A and RHR-HX-1B | 12 |

Action Requests (ARs)

292595

Work Orders

02053171

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

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| 1.3.1 | Operating Policies, Programs, and Practices | 118 |
| 13.1.1 | Classifying the Emergency | 45 |
| 5.1.2 | RPV Control – ATWS | 22 |
| 5.2.1 | Primary Containment Control | 22 |
| 5.3.1 | Secondary Containment Control | 19 |
| OI-09 | Operations Standards and Expectations | 60 |
| OI-69 | Time Critical Operator Actions | 4 |
| OSP-RPS-Q402 | MSIV Closure Scram Functional | 14 |
| OSP-MS-M701 | Bypass Valves Test | 10 |
| OSP-CRD-M701 | Control Rod Exercise | 20 |

Section 1R12: Maintenance Effectiveness

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|--|-----------------|
| ABN-WIND | Tornado/High Winds | 27 |
| 1.5.11 | Maintenance Rule Program | 12 |
| 1.5.13 | Preventative Maintenance Optimization Living Program | 31 |
| 10.25.62 | Transformer Inspection | 22 |
| 1.3.56 | Conduct of Maintenance | 10 |

Action Requests (ARs)

| | | | | |
|--------|--------|--------|--------|--------|
| 236401 | 285740 | 286950 | 287039 | 290787 |
| 291944 | 292304 | 302168 | 302283 | 302478 |
| 312802 | 312791 | 312797 | 312800 | 312883 |
| 312885 | 312915 | 312916 | 313046 | 313175 |
| 313189 | 313573 | 314357 | 314568 | |

Work Orders

02050136 02050136 01107423 02062960

Miscellaneous

| <u>Number</u> | <u>Title</u> | <u>Date/Revision</u> |
|---------------|--|----------------------|
| 02-48-00 71 2 | Instruction manual for Power Substation Transformers & Load Interrupter Switchgear | March 9, 1999 |
| C92-0595 | Component Classification Evaluation Record DO-FA-1A/1B/3A/3B | 0 |
| V-830/4 | End-of-Line Conservation Vent & Flame Arrester | 2012 |
| MOT-XFMR-1-3 | Dry Type Transformers | May 5, 2014 |
| MOT-XFMR-1-1 | Load Center Transformers | August 11, 2013 |

Drawings

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| M512-4 | Flow Diagram Diesel Oil & Miscellaneous Systems Diesel Generator Building | 11 |

Section 1R13: Maintenance Risk Assessments and Emergent Work Control

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|-----------------------------|--|-----------------|
| 1.5.14 | Risk Assessment and Management for Maintenance/Surveillance Activities | 33 |
| 10.2.32 | Soil Excavation, Backfill and Compaction | 26 |
| 1.3.83 | Protected Equipment Program | 18 |
| 1.3.47 | Fuse Replacement Control | 11 |
| 1.3.83 | Protected Equipment Program | 18 |
| ABN-ELEC-DG4-CROSSTIE/MC-8A | DG4 Crosstie to MC-8A | 4 |
| ISP-CRD-Q402 | RPS-SDV Level Transmitter-Channels B & D - CFT | 15 |

Miscellaneous

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|--|-----------------|
| EC13054 | Compensatory Measures for Tornado Missiles SW A Return Line – 18" SW(22)-1 | 0 |
| CRD-LIS-601B | Instrument Master Data Sheet | 11 |

Action Requests (ARs)

| | | | | |
|--------|--------|--------|--------|--------|
| 313675 | 314141 | 314095 | 314057 | 314183 |
|--------|--------|--------|--------|--------|

Work Orders

02054105

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| MES-3 | Piping Design Guide | 4 |
| SOP-FPC-SPC | FPC Suppression Pool Operations | 8 |
| SOP-RHR-SPC | Suppression Pool Cooling/Spray/Discharge/Mixing | 8 |

Action Requests (ARs)

| | | | | |
|--------|--------|--------|--------|--------|
| 310919 | 310046 | 311280 | 305822 | 311379 |
| 311452 | 310619 | | | |

Work Orders

02052289

Miscellaneous

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| DBD 310 | Design Basis Document: Standby Power Systems | 8 |
| EC13181 | Seismic Response of FPC during Suppression Pool Cleanup Mode | 0 |
| ME-02-97-10 | Calculation for Evaluation of Quantity of Water That Could Be Drained Through FPC-V-163 Following Receipt of an "F" or "A" Signal | 1 |
| ODMI 310046 | MS-V-160D Was Difficult To Close During OSP-MS-M701 | 0 |
| OpESS 2012/02 | Operating Experience Smart Sample 2012/02: Technical Specification Interpretation and Operability Determination | 1 |

Section 1R18: Plant Modifications

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|-------------------------|-----------------|
| DES-2-1 | Plant Design Changes | 49 |
| 1.3.9 | Temporary Modifications | 51 |

Action Requests (ARs)

| | | | | |
|--------|--------|--------|--------|--------|
| 314478 | 304363 | 304376 | 304517 | 305062 |
| 305381 | 308165 | 308229 | 308466 | 309178 |
| 310026 | 310513 | 311251 | 312221 | 313759 |
| 313975 | 304007 | 304020 | 304363 | 304389 |
| 304390 | 304762 | 305061 | 306595 | 306727 |
| 307001 | 308023 | 308229 | 308511 | 309038 |
| 309195 | 310023 | 311457 | 312551 | |

Engineering Change (EC)

| | | | |
|------|------|-------|-------|
| 4788 | 4789 | 11897 | 13123 |
|------|------|-------|-------|

Section 1R19: Post-Maintenance Testing

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|----------------------------|---|-----------------|
| OSP-SGT-M701 | Standby Gas Treatment System A Operability | 14 |
| OSP-WMA-M702 | Control Room Emergency Filtration System B Operability | 14 |
| ESP- RLY278345- X301 | 4.16 KV Emergency Bus Undervoltage Relays (E-RLY-27/8/3, E-RLY-27/8/4, and E-RLY-27/8/5) - CC | 10 |
| 15.1.5 | FP-P-2A Monthly Operability Test | 13 |
| SWP-TST-01 | Post Maintenance Testing Program | 15 |
| OSP-CCH/IST- M701 | Control Room Emergency Chiller System A Operability | 37 |
| 10.25.108 | Testing and Setting of ITE-27N Undervoltage Relays | 11 |
| 15.1.5 | FP-P-2A Monthly Operability Test | 13 |
| 1.4.3 | Instrument Setpoints | 24 |

Action Requests (ARs)

| | | | | |
|--------|--------|--------|--------|--------|
| 310231 | 310236 | 309949 | 309946 | 313098 |
| 310981 | 313883 | 257886 | | |

Work Orders

| | | | |
|----------|------------|------------|----------|
| 02017480 | 0203632306 | 0206263901 | 02048658 |
|----------|------------|------------|----------|

Drawings

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| EWD-46E-107A | Electrical Wiring Diagram AC Electrical Distribution Systems 4.16 KV SWGR SM-8 Critical Bus 8 Undervoltage | 22 |
| 46E107 | AC Electrical Distribution Systems 4.16KV SWGR E-SM-8 Crit Bus 8 Undervoltage | 23 |

Section 1R22: Surveillance Testing

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|-------------------|--|-----------------|
| ISP-APRM-S303 | APRM Channel C Modes 1 and 2 – CC | 20 |
| ISP-FDR-X301 | ECCS Pump Room Flood Level – Calibration | 3 |
| ISP-LPCS/RHR-X301 | ECCS-LPCI (A) and LPCS Pump Discharge Flow (Min. Flow) – CC | 3 |
| ISP-MS/IST-A101 | In Service Testing of Main Steam Relief Valve Actuation Switches | 3 |
| ISP-RCIC-Q902 | RCIC Suction Transfer on CST Low Level – CFT/CC | 9 |
| ISP-RCIC-X301 | Accident Monitoring Instrumentation RCIC Flow Indication – CC | 7 |
| 13.14.11 | EP Equipment | 8 |
| DES-2-19 | Instrument Master Data Sheets | 0 |

Action Requests (ARs)

| | | |
|--------|--------|--------|
| 310723 | 311328 | 314345 |
|--------|--------|--------|

Miscellaneous

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|----------------|---|-----------------|
| C92-0838 | Component Classification Evaluation Record: RHR-FIS-10A | 0 |
| E/I-02-91-1059 | Setting Range Determination For Instrument Loop RHR-FIS-10A | 2 |
| | Instrument Master Data Sheet: RHR-FIS-10A | 16 |

Section 2RS01: Radiological Hazard Assessment and Exposure Controls

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|--|-----------------|
| SWP-RPP-01 | Radiation Protection Program | 12 |
| HPI-0.19 | Radiation Protection Standards And Expectations | 14 |
| GEN-RPP-04 | Entry Into, Conduct In, And Exit From Radiologically Controlled Areas | 29 |
| 11.2.7.3 | High Radiation Area, Locked High Radiation Area, And Very High Radiation Area Controls | 40, 41 |
| 11.2.13.8 | Airborne Radioactivity Surveys | 13 |

Audits and Self-Assessments

| <u>Number</u> | <u>Title</u> | <u>Date</u> |
|-----------------|--|-------------------|
| AR-SA 265928-01 | Radiation Survey Documentation | February 27, 2014 |
| AR-SA 300257 | Occupational Exposure Control Effectiveness | June 1, 2014 |
| AR-SA 299232-06 | Radiological Hazard Assessment and Exposure Controls | May 19, 2014 |
| AU-RP/RW-13 | Radiation Protection and Process Control Program | November 25, 2014 |

Action Requests

| | | | | |
|--------|--------|--------|--------|--------|
| 286897 | 287648 | 292558 | 295994 | 297638 |
| 299629 | 299852 | 304277 | 305480 | 306110 |
| 310750 | 310937 | 311177 | 311955 | 312474 |

Radiation Work Permits

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|--|-----------------|
| 30003380 | 2014 Plant Operation / Investigation ***LHRA*** | 01 |
| 30003389 | 2014 RW 437 Waste Processing NUPAC Cage **LHRA** | 02 |
| 30003405 | 2014 RX 522 IR-PO04/PO26 Surveillances and PMs **HR** | 01 |
| 30003406 | 2014 RX 522 IR-PO04 SDV YK Area Surv and PMs ***LHRA*** | 01 |
| 30003425 | 2014 RW 467 RWCU H/U Pump Rms Minor Maint & PMs **LHR** | 01 |
| 30003461 | 2014 RW 507 Replace Cond Demin Septa | 02 |
| 30003461 | TEDE ALARA Evaluation | |

Radiation Work Permits

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|--|-----------------|
| 30003422 | 2014 RW 487 WEA Fan Rem/Replace Pre-Filter *HR* | 04 |
| 30003422 | TEDE ALARA Evaluation | |
| 30003154 | R21 RX 522 RWCU Pump Rooms & Mezzanine ***LHR*** | 00 |

Radiation Survey Records

| <u>Number</u> | <u>Title</u> | <u>Date</u> |
|---------------|--|-----------------|
| 2576314 | Radwaste 467' "A" Hold-Up Pump Room | August 8, 2014 |
| 2577914 | Radwaste 467' "B" Hold-Up Pump Room | August 10, 2014 |
| 2579014 | Radwaste 437' NUPAC Cage | August 11, 2014 |
| 2515314 | Reactor Building 522' PO26 | May 30, 2014 |
| 1671614 | Reactor Building 522' PO04 | June 24, 2014 |
| 2552814 | Reactor Building 522' North Pipe Space | July 16, 2014 |
| 2568314 | Reactor Building 441'/422' South Side | July 31, 2014 |
| 2564314 | Turbine Building 501' | July 28, 2014 |
| 2577414 | Radwaste 467' | August 10, 2014 |
| 2556814 | Radwaste 437' | July 19, 2014 |
| 2129013 | Reactor Building 522' RWCU Pump Rooms | June 5, 2013 |
| 2121313 | Reactor Building 522' RWCU Pump Rooms | June 5, 2013 |

Airborne Radioactivity Sample Records

| <u>Number</u> | <u>Title</u> | <u>Date</u> |
|---------------|---|------------------|
| 1916313 | Airborne Radioactivity Analysis – RX 548 RWCU HX | April 1, 2013 |
| 1916616 | Airborne Radioactivity Analysis – RX 548 RWCU HX | April 2, 2013 |
| 2173113 | Airborne Radioactivity Analysis – 606 Refuel Floor | June 15, 2013 |
| 2214513 | Airborne Radioactivity Analysis – RW 467 RWCU Hold Up Pump Room | July 18, 2013 |
| 2302113 | Airborne Radioactivity Analysis – 606 Refuel Floor | October 17, 2013 |
| 2553814 | Airborne Radioactivity Analysis – 487 Chem Lab | July 16, 2014 |

Radioactive Source Inventory Records

| <u>Number</u> | <u>Title</u> | <u>Date</u> |
|---------------|------------------------------|---------------|
| | Radioactive Source Inventory | July 16, 2014 |

Radioactive Source Inventory Records

| <u>Number</u> | <u>Title</u> | <u>Date</u> |
|---------------|------------------------------------|-------------------|
| 26985 | Spent Fuel Pool Material Inventory | November 21, 2013 |
| 02043177 | Sealed Source Leakage Verification | November 25, 2013 |
| 02051877 | Sealed Source Leakage Verification | May 20, 2014 |

Section 2RS03: In-plant Airborne Radioactivity Control and Mitigation

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|------------------|--|-----------------|
| GEN-RPP-05 | Respiratory Protection Program Description | 14 |
| GEN-RPP-10 | Use of Respiratory Protection Equipment | 10 |
| HPI 15.1 | Inspection and Storage of Respirators and Attachments | 9 |
| HPI 8.2 | Quantitative Respirator Fit testing using Port-A-Count Plus System | 24 |
| ISPM -17 | Respiratory Protection | 8 |
| PPM 1.3.63 | Vacuum Cleaner, Fan, and Blower Control | 5 |
| PPM 10.2.62 | Breathing Air Compressor Operation | 10 |
| PPM 11.2.11.3 | Issuance of Respiratory Protection Equipment | 16 |
| PPM 11.2.9.15 | Eberline Model AMS-3 CAM | 17 |
| PPM 12.5.36 | Service Air Sampling | 5 |
| PPM 16.11.3 | Primary Containment Purge Sampling and Analysis | 14 |
| SOP-CN-CONT-VENT | Containment Vent, De-inert, Purge, and Ventilating | 24 |
| SOP-HVAC-CR-OPS | Control, Cable, and Critical Switchgear Rooms HVAC Oper | 18 |
| SOP-HVAC-RB-OPS | Reactor Building Ventilation System Operation | 5 |
| SOP-HVAC-RW-OPS | Radwaste Building HVAC System Operation | 5 |
| SOP-HVAC-TB-OPS | Turbine Building HVAC System Operation | 4 |

Audits and Self-Assessments

| <u>Number</u> | <u>Title</u> | <u>Date</u> |
|---------------|--|--------------|
| | Energy Northwest Snapshot Self-Assessment Report | May 28, 2014 |

Audits and Self-Assessments

| <u>Number</u> | <u>Title</u> | <u>Date</u> |
|---------------|--|--------------------|
| AR 271379 | System Vulnerability Evaluation – HVAC | September 27, 2012 |
| AU-RP/RW-13 | Quality Services Audit Report | November 14, 2013 |

Action Requests

| | | | | |
|--------|--------|--------|--------|--------|
| 264075 | 264153 | 268753 | 268930 | 288014 |
| 290475 | 294071 | 296726 | 301705 | 303516 |
| 303777 | 305729 | 307454 | 307696 | 308324 |
| 308530 | 309138 | 309139 | 309157 | 310184 |
| 311125 | 311295 | 312424 | 312532 | |

Respirator Training and Inspection Records

| <u>Number</u> | <u>Title</u> | <u>Date</u> |
|---------------|---|---------------|
| | Respiratory Protection Qualifications | July 16, 2014 |
| | List of SCBA Qualified Individuals | July 17, 2014 |
| 02050888 | Fire Brigade Station Inventory | June 11, 2014 |
| WO02053081 | Monthly Inspection of Emergency Respirators | July 22, 2014 |
| WO02053178 | In-Plant Respirator Inspection | July 24, 2014 |

Section 40A1: Performance Indicator Verification

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|-----------------|--|-----------------|
| MSPI-01-BD-0001 | Mitigating System Performance Index (MSPI) | 16 |

Action Requests (ARs)

| | | | | |
|--------|--------|--------|--------|--------|
| 249959 | 275950 | 275204 | 268841 | 290648 |
| 303767 | 291753 | 288845 | 284711 | 277923 |
| 311698 | 307683 | 301259 | 303196 | 303254 |
| 301447 | 288031 | 301641 | 283255 | 285863 |
| 314436 | | | | |

Section 40A2: Problem Identification and Resolution

Procedures

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---------------------------|-----------------|
| SWP-CAP-01 | Corrective Action Program | 30 |

Drawings

| <u>Number</u> | <u>Title</u> | <u>Revision</u> |
|---------------|---|-----------------|
| EWD-7E-004A | Electrical Wiring Diagram High Pressure Core Spray System HPCS Diesel Engine DG-ENG-1C Controls | 1 |
| EWD-7E-004B | Electrical Wiring Diagram High Pressure Core Spray System HPCS Diesel Engine DG-ENG-1C Controls | 2 |
| EWD-7E-004C | Electrical Wiring Diagram High Pressure Core Spray System HPCS Diesel Engine DG-ENG-1C Controls | 4 |
| EWD-7E-004D | Electrical Wiring Diagram High Pressure Core Spray System HPCS Diesel Engine DG-ENG-1C Controls | 2 |
| M512-1 | Flow Diagram Diesel Oil and Miscellaneous Systems Diesel Generator Building | 44 |

Action Requests (ARs)

| | | | | |
|--------|--------|--------|--------|--------|
| 303254 | 305078 | 309843 | 309946 | 310007 |
| 310055 | 310610 | 311379 | 311443 | 311636 |
| 311700 | 311768 | 311785 | 312331 | 312630 |
| 312729 | 312753 | 312776 | 312778 | 312924 |
| 313482 | 313567 | 313617 | 313883 | 314141 |
| 314617 | 314627 | 314657 | | |

Work Orders (WOs)

02057257

**The following items are requested for the
Occupational Radiation Safety Inspection
at Columbia Generating Station
(August 11 – 15, 2014)
Integrated Report 2014004**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before **July 21, 2014**.

Please submit this information using the same lettering system as below. For example, all contacts and phone numbers for Inspection Procedure 71124.01 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 John O'Donnell at (817)200-1441 or john.odonnell@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.

1. Radiological Hazard Assessment and Exposure Controls (71124.01) and Performance Indicator Verification (71151)

Date of Last Inspection: **June 3, 2013**

- A. List of contacts and telephone numbers for the Radiation Protection Organization Staff and Technicians
- B. Applicable organization charts
- C. Audits, self assessments, and LERs written since date of last inspection, related to this inspection area
- D. Procedure indexes for the radiation protection procedures
- 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. Radiation Protection Program Description
 - 2. Radiation Protection Conduct of Operations
 - 3. Personnel Dosimetry Program
 - 4. Posting of Radiological Areas
 - 5. High Radiation Area Controls
 - 6. RCA Access Controls and Radworker Instructions
 - 7. Conduct of Radiological Surveys
 - 8. Radioactive Source Inventory and Control
 - 9. Declared Pregnant Worker Program
- F. List of corrective action documents (including corporate and subtiered systems) since date of last inspection
 - a. Initiated by the radiation protection organization
 - b. Assigned to the radiation protection organization

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.

If not covered above, a summary of corrective action documents since date of last inspection involving unmonitored releases, unplanned releases, or releases in which any dose limit or administrative dose limit was exceeded (for Public Radiation Safety Performance Indicator verification in accordance with IP 71151)

- G. List of radiologically significant work activities scheduled to be conducted during the inspection period (If the inspection is scheduled during an outage, please also include a list of work activities greater than 1 rem, scheduled during the outage with the dose estimate for the work activity.)
- H. List of active radiation work permits
- I. Radioactive source inventory list
 - a. All radioactive sources that are required to be leak tested
 - b. All radioactive sources that meet the 10 CFR Part 20, Appendix E, Category 2 and above threshold. Please indicate the radioisotope, initial and current activity (w/assay date), and storage location for each applicable source.

- J. Computer printout of radiological controlled area entries greater than 100 millirems since the previous inspection to the current inspection entrance date. The printout should include the date of entry, some form of worker identification, the radiation work permit used by the worker, dose accrued by the worker, and the electronic dosimeter dose alarm setpoint used during the entry (for Occupational Radiation Safety Performance Indicator verification in accordance with IP 71151).
- K. The last two leak test results for the radioactive sources inventoried and required to be leak tested. If applicable, specifically provide a list of all radioactive source(s) that have failed its leak test within the last two years
- L. A current listing of any non-fuel items stored within your pools, and if available, their appropriate dose rates (Contact / @ 30cm)

3. In-Plant Airborne Radioactivity Control and Mitigation (71124.03)

Date of Last Inspection: **May 21, 2012**

- A. List of contacts and telephone numbers for the following areas:
 - 1. Respiratory Protection Program
 - 2. Self contained breathing apparatus
 - B. Applicable organization charts
 - C. Copies of audits, self-assessments, vendor or NUPIC audits for contractor support (SCBA), and LERs, written since date of last inspection related to:
 - 1. Installed air filtration systems
 - 2. Self contained breathing apparatuses
 - D. Procedure index for:
 - 1. Use and operation of continuous air monitors
 - 2. Use and operation of temporary air filtration units
 - 3. Respiratory protection
 - 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. Respiratory protection program
 - 2. Use of self contained breathing apparatuses
 - 3. Air quality testing for SCBAs
 - 4. Use of installed plant systems, such as containment purge, spent fuel pool ventilation, and auxiliary building ventilation
 - F. A summary list of corrective action documents (including corporate and subtiered systems) written since date of last inspection, related to the Airborne Monitoring program including:
 - 1. Continuous air monitors
 - 2. Self contained breathing apparatuses
 - 3. Respiratory protection program
- 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 SCBA qualified personnel - reactor operators and emergency response personnel

- H. Inspection records for self contained breathing apparatuses (SCBAs) staged in the plant for use since date of last inspection.
- I. SCBA training and qualification records for control room operators, shift supervisors, STAs, and OSC personnel for the last year.

A selection of personnel may be asked to demonstrate proficiency in donning, doffing, and performance of functionality check for respiratory devices
- J. List of respirators (available for use) by type (APR, SCBA, PAPR, etc.), manufacturer, and model.