



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

April 28, 2016

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 05000397/2016001

Dear Mr. Reddemann:

On March 31, 2016, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at Columbia Generating Station. On March 31, 2016, the NRC inspectors discussed the results of this inspection with you and other members of your staff. Inspectors documented the results of this inspection in the enclosed inspection report.

No NRC-identified or self-revealing findings were identified during this inspection.

However, inspectors documented a licensee-identified violation which was determined to be of very low safety significance in this report. The NRC is treating this violation as a non-cited violation (NCV) consistent with Section 2.3.2.a of the NRC Enforcement Policy.

If you contest the violation or significance of the NCV, 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.

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

M. Reddemann

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Sincerely,

/RA/

Jeremy R. Groom, Chief
Project Branch A
Division of Reactor Projects

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

Enclosure:
Inspection Report 05000397/2016001
w/ Attachment:
Supplemental Information RFI for
Occupational Radiation Safety Inspection

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M. Reddemann

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Letter to M.E. Reddemann from J. Groom dated April 28, 2016

SUBJECT: COLUMBIA GENERATING STATION - NRC INTEGRATED INSPECTION
REPORT 05000397/2016001

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Electronic Distribution for Columbia Generating Station

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000397

License: NPF-21

Report: 05000397/2016001

Licensee: Energy Northwest

Facility: Columbia Generating Station

Location: North Power Plant Loop
Richland, WA 99354

Dates: January 1 through March 31, 2016

Inspectors: D. Bradley, Resident Inspector
N. Greene, PhD, Health Physicist
S. Hedger, Operations Engineer
G. Kolcum, Senior Resident Inspector
J. O'Donnell, CHP, Health Physicist
D. Stearns, Health Physicist
D. You, Resident Inspector

Approved By: Jeremy Groom, Chief
Projects Branch A
Division of Reactor Projects

SUMMARY

IR 05000397/2016001; 01/01/2016 – 03/31/2016; Columbia Generating Station; integrated inspection report.

The inspection activities described in this report were performed between January 1 and March 31, 2016, by the resident inspectors at Columbia Generating Station and inspectors from the NRC's Region IV office. NRC inspectors documented in this report one licensee-identified violation 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 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."

Licensee-Identified Violations

A violation of very low safety significance that was identified by the licensee has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation 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 January 16, 2016, the plant reduced power to approximately 92 percent to test main steam bypass valves. The plant returned to 100 percent power on January 17, 2016. On February 9, 2016, the plant reduced power to approximately 90 percent to support control rod maintenance. The plant returned to 100 percent power on February 10, 2016. On February 13, 2016, the plant reduced reactor power to 75 percent for rod sequence exchange. The plant returned to 100 percent reactor power on February 14, 2016. On March 18, 2016, the plant reduced reactor power to approximately 67 percent for power suppression testing. The plant returned to 100 percent reactor power on March 21, 2016. On March 28, 2016, the plant was manually scrammed due to a loss of reactor closed cooling water. The plant restarted on March 30, 2016 and returned to 70 percent power for the remainder of the inspection period.

REPORT DETAILS

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignment (71111.04)

.1 Partial Walk-down

a. Inspection Scope

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

- January 5, 2016, control rod drive and hydraulic control units
- January 6, 2016, standby gas treatment
- February 25, 2016, 125 VDC and 250 VDC battery
- March 25, 2016, emergency diesel generator 2 starting air

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 four partial system walk-down samples as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

.2 Complete Walk-down

a. Inspection Scope

On February 29, 2016, the inspectors performed a complete system walk-down inspection of the seismic monitoring system. The inspectors reviewed the licensee's procedures and system design information to determine the correct lineup for the existing plant configuration. The inspectors also reviewed outstanding work orders,

open condition reports, in-process design changes, temporary modifications, 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 walk-down sample, as defined in Inspection Procedure 71111.04.

b. Findings

No findings were identified.

1R05 Fire Protection (71111.05)

Quarterly Inspection

a. Inspection Scope

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

- February 11, 2016, Fire Areas RC-11/12/13, radioactive waste building 525 foot elevation
- February 23, 2016, Fire Areas SW-1/2, service water pump house A and B
- March 8, 2016, Fire Areas TG-1, turbine building 471 foot elevation
- March 27, 2016, Fire Area RC-10/U, main control room

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 February 3, 2016, 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:

- Electrical Manhole E-MH-E10, division 2 service water
- Electrical Manhole E-MH-E13, division 1 service water
- Electrical Manhole E-MH-E15, division 3 service water

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

These activities constituted completion of one bunker/manhole 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 February 3, 2016, 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 constituted 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

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 activities. The inspectors observed the operators' performance of the following activities:

- January 28, 2016, for post maintenance testing of emergency diesel generator 3
- February 1, 2016, for post maintenance testing of emergency diesel generator 1
- March 14, 2016, for reactor core isolation cooling surveillance testing
- March 18, 2016, for power suppression testing
- March 25, 2016, for post maintenance testing of emergency diesel generator 2

In addition, the inspectors assessed the operators' adherence to plant procedures, including the conduct of operations procedure 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.

.3 Annual Review

a. Inspection Scope

The inspector conducted an in-office review of the annual requalification training program to determine the results of this program.

On January 31, 2016, the licensee informed the inspector of the following Columbia Generating Station operating test results:

- 7 of 7 crews passed the simulator portion of the operating test
- 59 of 59 licensed operators passed the simulator portion of the operating test
- 59 of 59 licensed operators passed the job performance measure portion of the operating test

There was no remediation performed for the licensed operators that took the operating test.

The inspector completed one inspection sample of the annual licensed operator requalification program.

b. Findings

No findings were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- January 28, 2016, emergency diesel generator 3, two and four year preventive maintenance
- February 1, 2016, radioactive floor drains including maintenance history
- March 31, 2016, emergency diesel generator 2, frequency fluctuation and magnetic pickup maintenance
- March 31, 2016, emergency diesel generator 2, two and four year preventive maintenance

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

- January 22, 2016, green risk during work on circuit breaker E-CB-8/85/1
- February 22, 2016, yellow risk during work on alternate rod insertion system
- March 9, 2016, green risk for service water pipe flushing
- March 18, 2016, green risk during power reduction for power suppression testing
- March 24, 2016, yellow risk for work week activities with emergency diesel generator 2 inoperable for maintenance

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 constituted completion of five maintenance risk assessments and emergent work control samples, as defined in Inspection Procedure 71111.13.

b. Findings

No findings were identified.

1R15 Operability Determinations and Functionality Assessments (71111.15)

a. Inspection Scope

The inspectors reviewed six operability determinations and functionality assessments that the licensee performed for degraded or nonconforming SSCs:

- January 4, 2016, operability determination of a speed sensor failure on emergency diesel generator 1 under Action Request (AR) 341324
- January 4, 2016, operability determination of relay RPS-RLY-K3E failure on reactor protection system under AR 341869
- January 9, 2016, operability determination of valve leakage for a loose cap on RHR-V-162B under AR 343278
- January 21, 2016, operability determination of broken control power light socket on SM-8 under AR 343778
- February 11, 2016, operability determination of valve leakage past CRD-V-107 on the hydraulic control unit for control rod 18-43 under AR 342564
- March 2, 2016, operability determination of degraded motor operator torque on shutdown cooling isolation valves RHR-V-8 and RHR-V-9 under AR 341251

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

The inspectors reviewed operator actions taken or planned to compensate for degraded or nonconforming conditions. The inspectors verified that the licensee effectively managed these operator workarounds to prevent adverse effects on the function of mitigating systems and to minimize their impact on the operators' ability to implement abnormal and emergency operating procedures.

These activities constituted completion of six operability and functionality review samples, which included one operator work-around sample, as defined in Inspection Procedure 71111.15.

b. Findings

No findings were identified.

1R18 Plant Modifications (71111.18)

a. Inspection Scope

The inspectors reviewed two temporary plant modifications that affected risk-significant SSCs:

- February 10, 2016, modification to add drain hose to hydraulic control unit 1843 under Work Order 02082542 for valve CRD-V-107
- February 12, 2016, modification to emergency diesel generator 1 speed sensor circuit under engineering change 15085

The inspectors verified that the licensee had installed these temporary modifications in accordance with technically adequate design documents. The inspectors verified that these modifications did not adversely impact the operability or availability of affected SSCs. The inspectors reviewed design documentation and plant procedures affected by the modifications to verify the licensee maintained configuration control.

These activities constituted completion of two samples of temporary 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 five post-maintenance testing activities that affected risk-significant SSCs:

- January 15, 2016, emergency diesel generator 3 after two and four year preventive maintenance
- February 9, 2016, for reactor protection system motor generator A maintenance
- February 10, 2016, work on hydraulic control unit drain valve CRD-V-107/1843
- February 22, 2016, for alternate rod insertion relay replacement
- March 24, 2016, emergency diesel generator 2 after two and four year preventive maintenance

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 constituted completion of five post-maintenance testing inspection samples, as defined in Inspection Procedure 71111.19.

b. Findings

No findings were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

During the station's forced outage that occurred on March 28, 2016, the inspectors evaluated the licensee's outage activities. The inspectors verified that the licensee considered risk in developing and implementing the forced outage plan, appropriately

managed personnel fatigue, and developed mitigation strategies for losses of key safety functions. This verification included the following:

- Monitoring of shut-down activities
- Verification that the licensee maintained defense-in-depth during outage activities
- Monitoring of heat-up and startup activities

These activities constituted completion of one outage activities sample, as defined in Inspection Procedure 71111.20.

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 SSCs were capable of performing their safety functions:

In-service tests:

- January 22, 2016, division 2 control room emergency chiller monthly surveillance including valve stroke data for service water isolation valves

Other surveillance tests:

- January 21, 2016, emergency diesel generator 2 monthly surveillance test
- February 2, 2016, standby service water loop A surveillance test
- February 4, 2016, emergency diesel generator 1 monthly surveillance test
- February 25, 2016, emergency diesel generator 3 monthly surveillance test

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 constituted completion of five surveillance testing inspection samples, as defined in Inspection Procedure 71111.22.

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors observed an emergency preparedness drill on January 12, 2016, to verify the adequacy and capability of the licensee's assessment of drill performance. The inspectors reviewed the drill scenario, observed the drill from the simulator, emergency operations facility, and technical support center, and attended the post-drill critique. 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 licensee in the post-drill critique and entered into the corrective action program for resolution.

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

b. Findings

No findings were identified.

.2 Training Evolution Observation

a. Inspection Scope

On February 23, 2016, 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 constituted completion of one training observation sample, as defined in Inspection Procedure 71114.06.

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 review of plant isotopic mix and percent abundance, including hard-to-detect radionuclides and potential alpha hazards
- 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 monitoring, 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, implementation of effective dose equivalent external (EDEX), and the application of dosimetry to effectively monitor exposure for work in areas with significant dose rate gradients
- Controls for highly activated or contaminated materials (non-fuel) stored within spent fuel and other storage pools
- 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 constituted completion 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 as low as is reasonably achievable (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 installed ventilation systems as part of its engineering controls
- Utilization of temporary ventilation systems (e.g., high-efficiency particulate air units) to support work in contaminated areas and airborne monitoring protocols
- Evaluations for the use of respirators in lieu of engineering controls to maintain occupational doses ALARA
- The licensee's respiratory protection program for use, storage, maintenance, and quality assurance of National Institute for Occupational Safety and Health (NIOSH) certified equipment, qualification and training of personnel, and user performance
- Air quality and quantity for supplied air devices and self-contained breathing apparatus (SCBA) air bottles
- 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 constituted completion 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

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours (IE01)

a. Inspection Scope

The inspectors reviewed licensee event reports (LERs) for the period of January 1, 2015 through December 31, 2015 to determine the number of scrams that occurred. The inspectors compared the number of scrams reported in these LERs to the number reported for the performance indicator. Additionally, the inspectors sampled monthly operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

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

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed operating logs, corrective action program records, and monthly operating reports for the period of January 1, 2015 through December 31, 2015 to determine the number of unplanned power changes that occurred. The inspectors compared the number of unplanned power changes documented to the number reported for the performance indicator. Additionally, the inspectors sampled monthly operating logs to verify the number of critical hours during the period. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

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

b. Findings

No findings were identified.

.3 Unplanned Scrams with Complications (IE04)

a. Inspection Scope

The inspectors reviewed the licensee's basis for including or excluding in this performance indicator each scram that occurred between January 1, 2015 and December 31, 2015. The inspectors used definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 7, to determine the accuracy of the data reported.

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

b. Findings

No findings were identified.

.4 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors verified that there were no unplanned exposures or losses of radiological control over locked high radiation areas and very high radiation areas during the period of April 1, 2015, to December 31, 2015. 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.

.5 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, 2015, and December 31, 2015, 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.

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 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 three issues for an in-depth follow-up:

- On January 4, 2016, degraded voltage on 125 VDC circuit E-DP-S1/2D circuit 6 under Action Request (AR) 340134.

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.

- On January 28, 2016, policies and use of training, self-assignment, and action request type condition reports in the corrective action program.

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.

- On February 2, 2016, fuel defects and associated cause evaluation under AR 336352.

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.

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

b. Findings

No findings were identified.

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

(Closed) Licensee Event Report 05000397/2015-007-00: Reactor Building Pressure Greater Than Technical Specifications Requirement

a. Inspection Scope

On November 9, 2015, the licensee exceeded the Technical Specification 3.6.4.1, "Secondary Containment," differential pressure value of 0.25 inches of vacuum water gauge. Specifically, a loose electrical lug connection caused a loss of power to a safety-related division 2 power supply, E-E/S-299, which affected non-safety reactor building exhaust air flow. The licensee restored secondary containment differential pressure using the division 1 train of the safety-related standby gas treatment system within seven minutes. The licensee entered the issue into the corrective action program as AR 339549, repaired the loose lug connection, and performed an extent of condition review.

b. Findings

The inspectors identified a minor violation of 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," for the licensee's failure to promptly identify and correct a condition adverse to quality associated with a safety-related power supply. Specifically, the licensee experienced an intermittent failure of non-safety reactor building ventilation on June 11, 2015. Since the condition resolved without any corrective action, the licensee concluded the cause of the failure was a spurious voltage spike and recalled the technicians assigned to diagnose the problem. The latent condition, loose connections on the power supply, then caused a similar failure of non-safety reactor building ventilation on November 9, 2015. The inspectors assessed the finding in accordance with Inspection Manual Chapter 0612, Appendix B, "Issue Screening," issued September 7, 2012, and determined the issue was of minor safety significance since it did not adversely affect the mitigating systems cornerstone objective. Specifically, the loss of secondary containment differential pressure was of a short duration and readily restored using diverse, operable safety-related equipment. Further, any latent failure of E-E/S-299 may have caused a loss of non-safety reactor building ventilation and, by design, would have also caused the associated division 2 standby gas treatment fans to fail to maximum flow and provide sufficient differential pressure for the reactor building. This failure to comply with 10 CFR Part 50, Appendix B, Criterion XVI, constitutes a minor violation that is not subject to enforcement action in accordance with the NRC's Enforcement Policy. This licensee event report is closed.

These activities constituted completion of one event follow-up sample, as defined in Inspection Procedure 71153.

40A6 Meetings, Including Exit

Exit Meeting Summary

On February 23, 2016, the inspector communicated the results of the annual operating test results review to Mr. G. Wyatt, Supervisor, Simulator and Exam Group. The licensee representatives acknowledged the findings presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On March 3, 2016, the inspectors presented the radiation safety inspection results to Mr. R. E. Schuetz, Plant General Manager, 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 March 31, 2016, the resident inspectors presented the inspection results to 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.

40A7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which meets the criteria of the NRC Enforcement Policy for being dispositioned as a non-cited violations.

- Title 10 CFR Part 50, Appendix B, Criterion XVI, "Corrective Action," requires, in part, that measures shall be established to assure that conditions adverse to quality, such as failures, malfunctions, deficiencies, deviations, defective material and equipment, and nonconformances are promptly identified and corrected. Contrary to the above, prior to November 17, 2015, the licensee failed to establish measures to assure that conditions adverse to quality are promptly identified and corrected. Specifically, in October 2012, the licensee identified in AR 271801 that the maintenance procedure for Square D QMB electrical disconnects, specified in procedure PPM 10.25.53, "Inspection of Lighting Panels and Power Panels," Revision 10, did not include steps to clean and burnish contacts that are susceptible to corrosion that may yield a high-resistance connection. However, the licensee failed to identify that several installed QMB disconnects may be vulnerable to failure since the previous maintenance performed did not include the steps to clean and burnish the contacts. Consequently, on November 17, 2015, the 125 VDC circuit (E-DP-S1/2D circuit 6) associated with under voltage trips of the division 2 vital bus failed a monthly surveillance test due to degraded voltage from high-resistance connections on corroded contacts. The licensee implemented corrective action by declaring affected components inoperable per technical specifications, identified high-resistance contacts as the cause, burnished the contacts to restore the circuit, and re-performed the surveillance to establish operability. The licensee also performed relay testing to demonstrate 125 VDC circuit availability at the observed, degraded voltages. The inspectors assessed the finding in accordance with Inspection Manual Chapter (IMC) 0609, Appendix A, "The Significance Determination Process for Findings at Power," issued June 19, 2012. Using Exhibit 2 of IMC 0609, the inspectors determined the finding was of very low safety significance (Green) because the finding did not represent a loss of safety function, did not represent an actual loss of function of

a single train for greater than its technical specification allowed outage time, and did not represent an actual loss of function of one or more non-technical specification equipment for greater than 24 hours. This violation was entered into the licensee's corrective action program as AR 340134.

SUPPLEMENTAL INFORMATION

KEY POINTS OF CONTACT

Licensee Personnel

S. Abney, Assistant Manager, Operations
O. Brooks, Emergency Preparedness Coordinator
D. Brown, Manager, System Engineering
S. Cooper, Plant Fire Marshal
S. Clizbe, Manager, Emergency Preparedness
D. Gregoire, Manager, Regulatory Affairs
G. Hettel, Vice President, Operations
G. Higgs, Manager, Maintenance
M. Hummer, Licensing Engineer
A. Javorik, Vice President, Engineering
C. Moon, Manager, Quality
R. Prewett, Operations Manager
G. Pierce, Manager, Training
B. Schuetz, Plant General Manager
D. Stevens, Assistant Manager, Operations
D. Suarez, Regulatory Compliance Engineer
K. Van Speybroek, EFIN Supervisor
L. Williams, Licensing Supervisor
D. Wolfgramm, Compliance Supervisor, Regulatory Affairs
G. Wyatt, Supervisor, Simulator and Examination Group
J. Zielinski, Cable Condition Monitoring Program Manager

NRC Personnel

V. Gaddy, Branch Chief
H. Gepford, PhD., CHP, Branch Chief

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Closed

05000397/2015-007 LER Reactor Building Pressure Greater Than Technical Specifications Requirement (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1R04: Equipment Alignment

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
1.3.66	Operability and Functionality Evaluation	32
SOP-CRD-LU	Control Rod Drive System Lineup	0
SOP-SGT-LU	Standby Gas Treatment Lineup	0
ABN-Earthquake	Earthquake	13
ABN-HVAC	HVAC Trouble	12
ISP-SEIS-S402	Triaxial Seismic Switch Model SP-1/TS-3 - CFT	3
OI-69	Time Critical Operator Actions	7
TSP-DG2/LOCA-B501	Standby Diesel Generator DG2 LOCA Test	26
SOP-ELEC-4160-OPS	4160 Volt AC Electrical Power Distribution System Operation	12
SOP-ELEC-125V-OPS	125 VDC System Operation	3
SOP-ELEC-250-OPS	250 VDC System Operation	2
5.0.12	Station Blackout and Extended Loss of AC Power Basis	0

Work Order (WO)

02041219

Action Requests (ARs)

331082	342564	343187	343193	319451
341642	340061	337310	323601	337276
272501				

Section 1R05: Fire Protection

Fire Protection Pre-Plans

<u>Number</u>	<u>Title</u>	<u>Revision</u>
PFP-RC-11/12/13	Radwaste 525'	3

PFP-SW-1/2	Service Water Pump Houses	2
1.3.10A	Control of Ignition Sources	15
FPP-1.6	Combustible Loading Calculation Control	2
FPP-2.2.12	Annual Fire Door Operability test	4
FPP-2.2.7	Fire Protection Water System Inspections	5
PFP-TG-1	Turbine Building 471'	4

Work Orders (WOs)

01130428 02066675

Action Requests (ARs)

343349	343350	343441	343771	344538
344633	345104	346476		

Section 1R06: Flood Protection Measures

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
1.3.57	Barrier Impairment	34
27033	Confined Space	4
ISPM-3	Confined Space Entry	15

Work Order (WO)

02079333

Action Request (AR)

344460

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

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
TDI-08	Licensed Operator Requalification Program	11
TDI-06	Simulator Management	17

TDI-11	Shift Manager Program	3
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Action Requests (ARs)

343558	345076	345879	346647	343155
347010				

Section 1R12: Maintenance Effectiveness

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ABN-ASH	Ash Fall	23
ABN-ELEC- LOOP	Loss of All Off-Site Power	15
SOP-FDR-OPS	Floor Drain System Operation	2
PFP-DG-Building	Diesel Generator Building	4
4.15	Diesel Operator	0
10.20.10	Diesel Air Start Motor Maintenance	10
10.20.12	Division 1 and 2 Diesel Generator 2,4, & 6 Year Preventative Maintenance	20
10.20.18	Division 3 Diesel Generator Engine 2/4/6/12 Year Preventive Maintenance	5
1.3.1	Operating Policies, Programs, and Practices	120
1.5.11	Maintenance Rule Program	14
1.5.12	Diesel Generator Reliability Program	4

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
ME-02-87-95	Calculation for Filter Loading For DG HVAC and Combustion Air	3

Action Requests (ARs)

305488	305541	331645	339315	344397
344888	345377	336454	345316	344557

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	37
1.3.76	Integrated Risk Management	44
OI69	Time Critical Operator Actions	7
OI-14	Columbia Generating Station Operational Challenges and Risk Program	13
1.3.76	Integrated Risk Management	44
ISPM-7	Electrical Safety	14

Calculations

<u>Number</u>	<u>Title</u>	<u>Revision</u>
E/I-02-91-03	Calculation for Division 1 and 2 and 3 Diesel Generator Loading	18

Work Order (WO)

02087666

Action Requests (ARs)

343066 344034 344569 345076 345436
346340

Section 1R15: Operability Determinations and Functionality Assessments

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OSP-ELEC-M701	Diesel Generator 1 – Monthly Operability Test	54
1.3.66	Operability and Functionality Evaluation	32
OI-9	Operator Standards and Expectations	63
OSP-RPS-Q402	MSIV Closure Scram Functional	15

Action Requests (ARs)

341251	341324	345577	345580	341869
343651	333334	344872	342564	331082
343428	343193	344846	344858	

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision / Date</u>
EC 15090	Evaluate RHR-V-8 and RHR-V-9 for AR CR 341251	0
NO 1687	Night Order	February 3, 2016
NO 1682	Night Order	December 22, 2015

Section 1R18: Plant Modifications

Procedure

<u>Number</u>	<u>Title</u>	<u>Revision</u>
1.5.13	Preventative Maintenance Optimization Living Program	34

Work Order (WO)

02086068

Action Requests (ARs)

341324	344160	345861	343057
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Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
EC 15085	Bypass selector switch for MPU used on DG-ENG-1A2	0
EWD-47E-046	Electrical Wiring Diagram Standby AC Power System Diesel Generator 1 Governor Speed Control	Various
EWD-48E-048	DG1 Unit Protection Circuits	14

Section 1R19: Post-Maintenance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
SOP-CRD-HCU	Control Rod Drive System HCU Operations	26
SOP-TST-01	Post Maintenance Testing Program	16

Work Order (WO)

02082542

Action Requests (ARs)

331082	342564	343090	343187	343193
343428	344789	344846	344858	344872

Section 1R20: Refueling and Other Outage Activities

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
3.1.2	Reactor Plant Startup	81
ABN-RCC	Loss of RCC	6
OI-51	OPS Outage Preparation	12
OCC-01	Outage Control Center Norms	5

Action Requests (ARs)

347091	347150	346945	346948	346972
346984				

Section 1R22: Surveillance Testing

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
OSP-CCH/IST-M702	Control Room Emergency Chiller System B Operability	35
OSP-ELEC-M702	Diesel Generator 2 – Monthly Operability Test	59
OSP-ELEC-M703	HPCS Diesel Generator Monthly Operability Test	61
OSP-DO/IST-Q702	DO-P-1B Operability	15

Work Orders (WOs)

02078630	02071457	02078646	02078574	02080369
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Action Requests (ARs)

343061	343379	343685	343955	344093
344814	345164	345649	346309	

Section 1EP6: Drill Evaluation

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
5.1.1	RPV Control	21
5.1.2	RPV Control – ATWS	23
5.2.1	Primary Containment Control	23
5.3.1	Secondary Containment Control	20
13.1.1	Classifying the Emergency	47
13.1.1A	Classifying the Emergency – Technical Bases	31

Action Requests (ARs)

336847	343629	343371	346115	345601
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Section 2RS1: Radiological Hazard Assessment and Exposure Controls

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
11.2.7.1	Area Posting	40
11.2.7.3	High Radiation Area, Locked High Radiation Area, and Very High Radiation Area Controls	41
11.2.13.1	Radiation and Contamination Surveys	35
11.2.14.4	Procurement, Receipt, Control and Leak Testing of Radioactive Sealed Sources and Devices	23
GEN-RPP-04	Entry Into, Conduct In, and Exit From Radiologically Controlled Areas	30
HPI-0.19	Radiation Protection Standards and Expectations	15
HSP-SSC-O801	Sealed Source and Device Surveillance Testing	05
SWP-RPP-01	Radiation Protection Program	13

Action Requests and Condition Reports (ARs and CRs)

00328310	00328414	00328427	00328473	00328615
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00328852	00329134	00329222	00329270	00329368
00329739	00330084	00330425	00330523	00330639
00330781	00330783	00331029	00331474	00331575
00331653	00331966	00332022	00332362	00333931
00334748	00335054	00336646	00336899	00337461
00338391	00339332	00340145	00340546	00342204
00343395	00345238			

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
00337261-01	Snapshot Self-Assessment Report: Radiation Protection Readiness for NRC Inspection – Radiological Hazard Assessment and Exposure Controls	December 13, 2015
00337285	Snapshot Self-Assessment Report: Occupational Exposure Control Effectiveness	December 8, 2015
00337286	Snapshot Self-Assessment Report: Preparation for NRC Inspection Procedure - 71151	January 21, 2016
AU-CH-14	Quality Services Audit Report: Chemistry/REMP/ Non-Rad & Rad Effluents/ODCM Program	October 23, 2014
AU-RP-RW-15	Quality Services Audit Report: Radiation Protection and Process Controls Programs	November 5, 2015

Radiation Work Permits

<u>Number</u>	<u>Title</u>	<u>Revision</u>
30003277	R22 RX 548 North Pipe Space *** LHR ***	0
30003307	R22 RF RX Reassembly Cavity Work Post Decon ** LHR **	3
30003605	R22 Diving Support ** HRA **	0
30003664	R22 RF Transfer High D/R Items * High Risk/LHR * to RW 437	0
30003708	2016 RX 522 RWCU Rooms & MEZZ *** LHR ***	0
30003709	2016 Calibration & Maintenance of Radioactive M&TE Equipment	1
30003712	2016 Health Physics Routine Work ** HRA **	1
30003721	NRC Tours and Inspections ** Non-HRA **	1
30003791	2016 RX 606 SFPCU Underwater ** High Risk/HRA **	0

Radiation Survey Records

<u>Number</u>	<u>Title</u>	<u>Date</u>
3001	Reactor Building 548' North Pipe Space	May 30, 2014
3399	Reactor Building 548' North Pipe Space	June 6, 2015
5888	RX 548	December 16, 2015
5982	RX 422 RCIC Pump Room	December 27, 2015
6208	Turbine Building 441' Monthly Routine	February 7, 2016
6235	RX 548' Monthly Survey	February 12, 2016
6255	TG 471 Heater Bay	February 13, 2016
6285	RX 422	February 17, 2016
6318	Radwaste 467' Monthly Survey	February 20, 2016
6360	RX 606' Transfer Cutter / Shear to SFP	February 25, 2016
6360	RX Building 606' Monthly Routine Survey	February 26, 2016

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
	CGS 2014 10 CFR 61 Scaling Factors	2014
	Sources > 1 Ci in TES Source Tracking System	January 14, 2016
	Radioactive Source Inventory	January 28, 2016
	Shiftly Key Inventory Sheet for HRAs, LHRAs, and VHRAs	March 2, 2016
15-1636	Columbia Generating Station Gamma Isotopic Results	May 23, 2015
187582	LCS 1.7.8 Sealed Source Leak Reporting – Annual	December 31, 2015
2303GP	2016 Annual Inventory Reconciliation Form	January 27, 2016
26985	Spent Fuel Pool Material Inventory	November 11, 2013
WO 02070690	2016 SFPCU Spent Fuel Pool Clean-Up ALARA Plan	January 21, 2016

Section 2RS3: 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	12

HPI 15.1	Inspection and Storage of Respirators and Attachments	9
HPI 8.4	Respirator Face Piece Cleaning and Disinfection	4
HPI 8.8	Supplied Air Suit Donning and Removal	1
HPI-15.8	Controlled Vacuum Cleaner Minor Maintenance	1
MSP-WMA-B101	Control Room DIV A Emergency Filtration System HEPA Filter Test	8
MSP-WMA-B102	Control Room DIV-B Emergency Filtration System HEPA Filter Test	8
MSP-WMA-B103	Control Room DIV A Filtration System - Carbon Adsorber Test	13
MSP-WMA-B104	Control Room DIV B Filtration System - Carbon Adsorber Test	10
PPM 1.3.63	Vacuum Cleaner, Fan and Blower Control	5
PPM 10.2.62	Breathing Air Compressor Operation	10
PPM 10.2.82	HEPA Filter In-place Testing	7
PPM 10.2.83	Carbon Filter In-Place Testing	8
PPM 11.2.10.17	Operation of the NMC Continuous Air Monitor	8
PPM 11.2.11.3	Issuance of Respiratory Protection Equipment	17
PPM 11.2.15.11	Use and Certification of Portable Air Handling Units	14
PPM 11.2.9.15	Eberline Model AMS-3 CAM	17

Action Requests and Condition Reports (ARs and CRs)

00341141	00340135	00339276	00339273	00339275
00339241	00326498	00317861	00317860	00316031
00315844	00313320	00314959	00312532	00312424

Audits and Self-Assessments

<u>Number</u>	<u>Title</u>	<u>Date</u>
AR-SA 316792	Snapshot Self-Assessment Report	December 14, 2015
AU-RP-RW-15	Audit of Radiation Protection and Process Control Programs	November 5, 2015

Engineering System Filter Testing

<u>W/O Number</u>	<u>Title</u>	<u>Date</u>
02054086	WMA-FU-54B Carbon Filter Test	September 9, 2014

02058760	WMA-FU-54B HEPA Filter Test	September 9, 2014
02062204	WMA-FU-54A HEPA Filter Test	March 12, 2015
02062217	WMA-FU-54A Carbon Filter Test	March 12, 2015
02069957	AMA-CF-52 – Carbon Filter Replacement and HEPA Filter Test	September 3, 2015

Respirable Air Testing Records

<u>Title</u>	<u>Date</u>
Grade D Air Testing – SCBA Refill Compressor (Bldg 13)	October 26, 2015
Grade D Air Testing – Plant Service Air (SA-V-100/58)	December 8, 2015

Miscellaneous Documents

<u>Number</u>	<u>Title</u>	<u>Date</u>
C-019241-3	SCBA Maintenance Certificate	May 11, 2015
C-019357-3	SCBA Maintenance Certificate	July 15, 2014
W/O 02075230	Fire Brigade Station Inventory	December 25, 2015

Section 40A1: Performance Indicator Verification

Procedure

<u>Number</u>	<u>Title</u>	<u>Revision</u>
1.5.11	Maintenance Rule Program	14

Section 40A2: Problem Identification and Resolution

Procedures

<u>Number</u>	<u>Title</u>	<u>Revision</u>
9.3.32	Fuel Integrity Monitoring	12
SWP-CAP-01	Corrective Action Program	33
SWP-CAP-05	Corrective Action Review Board	19
SWP-CAP-06	Condition Report Review	22

Work Orders (WOs)

02083513	02083514	02050305	02079159	01172820
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Action Requests (ARs)

336352	332338	338723	331059	343349
343350	343493	343586	343629	339157
339782	340134	343212		

Miscellaneous

<u>Number</u>	<u>Title</u>	<u>Revision</u>
	2015 ERO Team C Drill Report	October 27, 2015
	2015 Fire Brigade 4 th Quarter Drill Report	November 19, 2015

Section 40A3: Follow-up of Events and Notices of Enforcement Discretion

Procedure

<u>Number</u>	<u>Title</u>	<u>Revision</u>
1.3.68	Work Management Process	33

Action Requests (ARs)

343501	344691	330913	330929	330930
341822	344175			

**The following items are requested for the
Occupational Radiation Safety Inspection
at Columbia Generating Station
(February 29 – March 4, 2016)
Integrated Report 2016-001**

Inspection areas are listed in the attachments below.

Please provide the requested information on or before February 8, 2016.

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: May 18, 2015

- 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. 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
- K. A current listing of any non-fuel items stored within your pools, and if available, their appropriate dose rates (Contact / @ 30cm)
- L. 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).

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

Date of Last Inspection: August 11, 2014

- 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.