



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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ARLINGTON, TEXAS 76011-4125

February 4, 2010

Mr. J. V. Parrish
Chief Executive Officer
Energy Northwest
P.O. Box 968, Mail Drop 1023
Richland, WA 99352-0968

Subject: COLUMBIA GENERATING STATION - NRC INTEGRATED INSPECTION
REPORT 05000397/2009005

Dear Mr. Parrish:

On December 31, 2009, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Columbia Generating Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on January 7, 2009, with Mr. S. Oxenford, Vice President, Nuclear Generation, and other members of your staff.

The inspections examined activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. The inspectors reviewed selected procedures and records, observed activities, and interviewed personnel.

This report documents two NRC-identified findings and three self-revealing findings of very low safety significance (Green). Four of these findings were determined to involve violations of NRC requirements. Additionally, two licensee-identified violations, which were determined to be of very low safety significance, are listed in this report. However, because of the very low safety significance and because they are entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the violations or the significance of the noncited violations, 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, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the Columbia Generating Station facility. In addition, if you disagree with the characterization of any finding 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 Columbia Generating Station. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

Energy Northwest

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

Sincerely,

/RA/

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

Docket: 50-397
License: NPF-21

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NRC Inspection Report 05000397/2009005
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000397
License: NPF-21
Report: 05000397/2009005
Licensee: Energy Northwest
Facility: Columbia Generating Station
Location: Richland, WA
Dates: September 27, 2009 through December 31, 2009
Inspectors: R. Cohen, Senior Resident Inspector, DRP
M. Hayes, Resident Inspector, DRP
P. Elkmann, Senior Emergency Preparedness Inspector
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Approved By: W. Walker, Chief, Project Branch A
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000397/2009005; 09/27/2009 – 12/31/2009; Columbia Generating Station, Integrated Resident and Regional Report; Fire Protection; Event Follow-up; Biennial Emergency Preparedness Program Evaluation

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by regional based inspectors. Four Green noncited violations and one Green finding of significance were identified. Additionally, two licensee-identified violations which were determined to be of very low safety significance are listed in this report. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." Findings for which the significance determination process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 4, dated December 2006.

A. NRC-Identified Findings and Self-Revealing Findings

Cornerstone: Initiating Events

- Green. The inspectors reviewed a self-revealing finding for the failure of the licensee to provide an adequate procedure for the installation of an o-ring in the digital electro-hydraulic system. Specifically, failure to provide the methods and details for the preparation, review, approval, and implementation of procedures contributed to the improper installation of an o-ring in the digital electro-hydraulic system. This improper installation resulted in a failure of the o-ring seal, a leak in the digital electro-hydraulic system, and a subsequent manual reactor scram. The licensee entered the issue into the corrective action program and conducted a root cause evaluation.

This finding was more than minor because it is an equipment performance issue that affected the Initiating Events Cornerstone objectives to limit the likelihood of those events that upset plant stability. Specifically, use of a less than adequate procedure during the installation of an o-ring in an accumulator lower block in the digital electro-hydraulic system resulted in a failure of the o-ring seal, a subsequent leak in the digital electro-hydraulic system, and a manual reactor scram due to a decreasing digital electro-hydraulic fluid inventory as indicated by a low low-level alarm for the digital electro-hydraulic tank (initiating event). The finding was of very low risk significance because the finding did not result in the loss of a safety function of a single train for greater than its technical specification allowed outage time. The cause of the finding is related to the crosscutting aspect of human performance with a resources component, because the licensee failed to provide adequate procedural requirements for o-ring installation work [H.2(c)](Section 4OA3.1).

Cornerstone: Occupational Radiation Safety

- Green. The inspectors reviewed a self-revealing, noncited violation of Technical Specification 5.4.1.a resulting from a worker's failure to follow radiation protection requirements. The worker failed to ensure he was on the correct radiation work permit, failed to use an electronic dosimeter designed for use in a high noise area, failed to follow instructions related to the travel path to the work area, failed to exit the radiologically controlled area when he received an unanticipated dose rate alarm, and failed to contact radiation protection personnel about the alarm. The licensee documented this occurrence in their corrective action program as Action Request 203711 and coached the worker.

The failure to follow radiation protection requirements is a performance deficiency. This finding is greater than minor because it involved the program attribute of exposure control and affected the cornerstone objective in that the failure of the worker to follow procedural requirements resulted in the worker being unknowledgeable of the dose rates in areas entered. The inspectors used the Occupational Radiation Safety Significance Determination Process and determined the finding had very low safety significance because it was not: (1) an ALARA finding, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an inability to assess dose. The finding had a crosscutting aspect in the area of human performance, work practices component, because the worker failed to use human error prevention techniques such as self and peer-checking [H.4(a)]. (Section 2OS1)

- Green. The inspectors reviewed a self-revealing, noncited violation of Technical Specification 5.4.1.a resulting from a work group's deviation from an established work plan. The original dose estimate for the refurbishment of the containment recirculation air system and fan motor replacement was 4912 mrem. The actual dose accrued for the work was 7648 mrem. In response, the licensee documented this occurrence in the corrective action program as Action Request 197892 and the radiation protection manager conducted a briefing of the assembled project managers that reinforced the project managers' responsibilities associated with keeping doses ALARA.

This finding is greater than minor because it resulted in the actual collective dose of the work activity exceeding 5 person-rem (5000 person-mrem) and exceeding the planned, intended dose by more than 50 percent (similar to Manual Chapter 0612, Appendix E, Example 6.i). The inspectors used the Occupational Radiation Safety Significance Determination Process and determined the finding had very low safety significance because it was as low as reasonably achievable finding, but the licensee's three-year rolling average collective dose (139 person-rem) was less than 240 person-rem/units. The finding had a crosscutting aspect in the area of human performance, work coordination component, because the licensee did not incorporate actions to address the impact of changes to the work scope and work groups did not cooperate with each other

during activities in which interdepartmental coordination was necessary to assure plant and human performance [H.3(b)]. (Section 2OS2)

- Green. The inspectors identified a noncited violation of Technical Specification 5.4.1.a because the licensee failed to submit an outage job to the Senior Site ALARA Committee for review. The original dose estimate for turbine building general access was 1300 mrem. The actual dose accrued for the work was 5228 mrem. The licensee documented this occurrence in their corrective action program as Action Request 209314, performed an apparent cause evaluation, and plans to clarify its implementing procedure.

This finding is greater than minor because it resulted in the actual collective dose of the work activity exceeding 5 person-rem (5000 person-mrem) and exceeding the planned, intended dose by more than 50 percent (similar to Manual Chapter 0612, Appendix E, Example 6.i). The inspectors used the Occupational Radiation Safety Significance Determination Process and determined the finding had very low safety significance because it was as low as reasonably achievable finding, but the licensee's three-year rolling average collective dose (139 person-rem) was less than 240 person-rem/unit. The finding had a crosscutting aspect in the area of human performance, resources component, because the licensee did not implement complete, accurate, and up-to-date procedures [H.2(c)]. (Section 2OS2)

Cornerstone: Emergency Preparedness

- Green. The inspectors identified a noncited violation of 10 CFR 50.47(b)(4) for the failure to classify an emergency condition during a toxic gas event. The licensee's failure to classify a Notification of Unusual Event on May 20, 2009, after being informed of toxic gas levels in the 422 foot elevation reactor core isolation cooling system room was identified as a performance deficiency.

This finding is more than minor because the failure to declare an emergency classification when conditions meet an emergency action level threshold may prevent adequate measures from being taken to protect the health and safety of licensee employees and the public. The finding is of very low safety significance because it was a performance deficiency occurring during an event which would have properly been classified as a Notification of Unusual Event. The licensee has entered this issue into their corrective action system as Action Request/Condition Report 00203804. This finding has been evaluated as having a crosscutting aspect of human performance, decision making, because the licensee did not make a safety-significant decision using a systematic process when faced with uncertain or unexpected plant conditions [H.1(a)] (Section 1EP5).

B. Licensee-Identified Violations

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

REPORT DETAILS

Summary of Plant Status

The station began the inspection period in Maintenance Outage 09-05 at a power level of 15 percent and not synchronized to the electrical grid due to a problem with work associated on a nonsegmented electrical bus repair. On September 28, 2009, the station initiated a planned shutdown to perform troubleshooting on a main steam isolation valve not indicating full open. After completing repair work on the nonsegmented electrical bus and main steam isolation valve indication, the station returned to 100 percent power on October 5, 2009. On October 6, 2009, the station reduced power to 60 percent to repair steam leaks. On October 7, 2009, the station returned to 100 percent power. On November 1, 2009, the station reduced power to 65 percent to support planned maintenance associated with steam leak repair; the station returned to 100 percent on November 1, 2009. On November 9, 2009, the station reduced power to 52 percent to support planned maintenance associated with steam leak repair, while at 52 percent power operators initiated a manual scram due to a leak in the digital electro-hydraulic control system. The station returned to 100 percent power on November 14, 2009, and remained at 100 percent power for the remainder of the inspection period.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity, and Emergency Preparedness

1R04 Equipment Alignments (71111.04)

Partial Walkdown

a. Inspection Scope

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

- September 28, 2009, reactor core isolation cooling system following maintenance outage
- October 15, 2009, control room emergency chilled water system
- October 28, 2009, service water system B during service water system A maintenance
- December 8, 2009, residual heat removal train A and low pressure core spray while keep fill pump was out-of-service for planned maintenance

The inspectors selected these systems based on their risk significance relative to the reactor safety cornerstones at the time they were inspected. The inspectors attempted to identify any discrepancies that could affect the function of the system, and, therefore, potentially increase risk. The inspectors reviewed applicable operating procedures,

system diagrams, Final Safety Analysis Report (FSAR), technical specification requirements, administrative technical specifications, outstanding work orders, condition reports, and the impact of ongoing work activities on redundant trains of equipment in order to identify conditions that could have rendered the systems incapable of performing their intended functions. The inspectors also inspected accessible portions of the systems to verify system components and support equipment were aligned correctly and operable. The inspectors examined the material condition of the components and observed operating parameters of equipment to verify that there were no obvious deficiencies. The inspectors also verified that the licensee had properly identified and resolved equipment alignment problems that could cause initiating events or impact the capability of mitigating systems or barriers and entered them into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four samples of the partial system walkdown as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Quarterly Fire Inspection Tours

a. Inspection Scope

The inspectors conducted fire protection walkdowns that were focused on availability, accessibility, and the condition of firefighting equipment in the following risk-significant plant areas:

- October 15, 2009, fire area R-4, residual heat removal pump 2B room
- October 30, 2009, fire area RC-2, cable spreading room
- December 22, 2009, fire area AS-D, adjustable speed drive building

The inspectors reviewed areas to assess if licensee personnel had implemented a fire protection program that adequately controlled combustibles and ignition sources within the plant; effectively maintained fire detection and suppression capability; maintained passive fire protection features in good material condition; and had implemented adequate compensatory measures for out of service, degraded or inoperable fire protection equipment, systems, or features, in accordance with the licensee's fire plan. The inspectors selected fire areas based on their overall contribution to internal fire risk as documented in the plant's Individual Plant Examination of External Events with later additional insights, their potential to affect equipment that could initiate or mitigate a plant transient, or their impact on the plant's ability to respond to a security event. Using the documents listed in the attachment, the inspectors verified that fire hoses and extinguishers were in their designated locations and available for immediate use; that fire detectors and sprinklers were unobstructed; that transient material loading was

within the analyzed limits; and fire doors, dampers, and penetration seals appeared to be in satisfactory condition. The inspectors also verified that minor issues identified during the inspection were entered into the licensee's corrective action program. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three samples for the quarterly fire-protection inspection as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors reviewed the FSAR, the flooding analysis, and plant procedures to assess susceptibilities involving internal flooding; reviewed the corrective action program to determine if licensee personnel identified and corrected flooding problems; inspected underground bunkers/manholes to verify the adequacy of sump pumps, level alarm circuits, cable splices subject to submergence, and drainage for bunkers/manholes; and verified that operator actions for coping with flooding can reasonably achieve the desired outcomes. The inspectors also inspected the areas listed below to verify the adequacy of equipment seals located below the flood line, floor and wall penetration seals, watertight door seals, common drain lines and sumps, sump pumps, level alarms, and control circuits, and temporary or removable flood barriers. Specific documents reviewed during this inspection are listed in the attachment.

- December 7, 2009, reactor building 422 foot level which consists of all emergency core cooling systems pump rooms

These activities constitute completion of one sample of the flood protection measures inspection as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Quarterly Review

a. Inspection Scope

On October 19, 2009, the inspectors observed a crew of licensed operators in the plant's simulator to verify that operator performance was adequate, evaluators were identifying and documenting crew performance problems and training was being conducted in accordance with licensee procedures. The inspectors evaluated the following areas:

- Licensed operator performance
- Crew's clarity and formality of communications
- Crew's ability to take timely actions in the conservative direction
- Crew's prioritization, interpretation, and verification of annunciator alarms
- Crew's correct use and implementation of abnormal and emergency procedures
- Control board manipulations
- Oversight and direction from supervisors
- Crew's ability to identify and implement appropriate technical specification actions and emergency plan actions and notifications

The inspectors compared the crew's performance in these areas to pre-established operator action expectations and successful critical task completion requirements. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors evaluated degraded performance issues involving the following risk significant systems:

- September 28, 2009, reactor core isolation cooling system following maintenance outage
- October 6, 2009, Action Request/Condition Report 205460, "Adverse Trend in Control Rod Drive Hydraulic Control Unit Directional Control Valve Failures"
- December 7, 2009, Work Order 011182046, "DMA-M-AD 22/2, and 21/2 Adjust Proportional Band For Controller"

The inspectors reviewed events such as, where ineffective equipment maintenance had resulted in valid or invalid automatic actuations of engineered safeguards systems and

independently verified the licensee's actions to address system performance or condition problems in terms of the following:

- Implementing appropriate work practices
- Identifying and addressing common cause failures
- Scoping of systems in accordance with 10 CFR 50.65(b)
- Characterizing system reliability issues for performance
- Charging unavailability for performance
- Trending key parameters for condition monitoring
- Ensuring proper classification in accordance with 10 CFR 50.65(a)(1) or (a)(2)
- Verifying appropriate performance criteria for structures, systems, and components classified as having an adequate demonstration of performance through preventive maintenance, as described in 10 CFR 50.65(a)(2), or as requiring the establishment of appropriate and adequate goals and corrective actions for systems classified as not having adequate performance, as described in 10 CFR 50.65(a)(1)

The inspectors assessed performance issues with respect to the reliability, availability, and condition monitoring of the system. In addition, the inspectors verified maintenance effectiveness issues were entered into the corrective action program with the appropriate significance characterization. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed licensee personnel's evaluation and management of plant risk for the maintenance and emergent work activities affecting risk-significant and safety-related equipment listed below to verify that the appropriate risk assessments were performed prior to removing equipment for work:

- October 19 through October 21, 2009, increased risk due to standby gas treatment outage
- October 28, 2009, orange risk due to standby service water system A being out of service for maintenance

The inspectors selected these activities based on potential risk significance relative to the reactor safety cornerstones. As applicable for each activity, the inspectors verified that licensee personnel performed risk assessments as required by 10 CFR 50.65(a)(4) and that the assessments were accurate and complete. When licensee personnel performed emergent work, the inspectors verified that the licensee personnel promptly assessed and managed plant risk. The inspectors reviewed the scope of maintenance work, discussed the results of the assessment with the licensee's probabilistic risk analyst or shift technical advisor, and verified plant conditions were consistent with the risk assessment. The inspectors also reviewed the technical specification requirements and inspected portions of redundant safety systems, when applicable, to verify risk analysis assumptions were valid and applicable requirements were met. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two samples of the maintenance risk assessments and emergent work control inspection as defined in Inspection Procedure 71111.13-05.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following issues:

- November 16, 2009, Action Request/Condition Report 207691, "Diesel Engine 2 Intake Air Damper Stuck Open"
- November 16, 2009, Work Order 01181024, "DMA-AD-22/2 Motor Failure"
- November 18, 2009, Action Request/Condition Report 207900, "SLC-TK-1 Sparger Holes Plugged"
- December 18, 2009, Action Request/Condition Report 209755, "Plug has blown off of DSA-C-1C"

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no

unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and FSAR to the licensee personnel's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of four operability evaluations inspection samples as defined in Inspection Procedure 71111.15-04

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed the following postmaintenance activities to verify that procedures and test activities were adequate to ensure system operability and functional capability:

- October 21, 2009, reactor core isolation cooling valve operability test
- October 28, 2009, standby service water valve 170A leak check
- November, 4, 2009, work order 01169050, "On-Line Motor Testing of DEA-FAN-31"

The inspectors selected these activities based upon the structure, system, or component's ability to affect risk. The inspectors evaluated these activities for the following:

- The effect of testing the plant had been adequately addressed; testing was adequate for the maintenance performed
- Acceptance criteria were clear and demonstrated operational readiness; test instrumentation was appropriate

The inspectors evaluated the activities against the technical specifications, the Final Safety Analysis Report, 10 CFR Part 50 requirements, licensee procedures, and various NRC generic communications to ensure that the test results adequately ensured that the equipment met the licensing basis and design requirements. In addition, the inspectors reviewed corrective action documents associated with postmaintenance tests to

determine whether the licensee was identifying problems and entering them in the corrective action program and that the problems were being corrected commensurate with their importance to safety. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three samples of the postmaintenance testing inspection as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outage Activities (71111.20)

a. Inspection Scope

The inspectors reviewed the outage safety plan and contingency plans for the maintenance outage 09-05, conducted September 28, 2009, through October 4, 2009, and the forced outage 09-06, conducted November 7, 2009, through November 13, 2009, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured maintenance of defense in depth. During the outages, the inspectors observed portions of the shutdown and cooldown processes and monitored licensee controls over the outage activities listed below:

- Configuration management, including maintenance of defense in depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service.
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing.
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error.
- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities.
- Monitoring of decay heat removal processes, systems, and components.
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system.
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.

- Controls over activities that could affect reactivity.
- Maintenance of secondary containment as required by the technical specifications.
- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing.
- Licensee identification and resolution of problems related to outage activities.

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two samples of the outage inspection as defined in Inspection Procedure 71111.20-05.

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors reviewed the FSAR, procedure requirements, and technical specifications to ensure that the surveillance activities listed below demonstrated that the systems, structures, and/or components tested were capable of performing their intended safety functions. The inspectors either witnessed or reviewed test data to verify that the significant surveillance test attributes were adequate to address the following:

- Preconditioning
- Evaluation of testing impact on the plant
- Acceptance criteria
- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability

- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

The inspectors also verified that licensee personnel identified and implemented any needed corrective actions associated with the surveillance testing.

- November 11, 2009, Work Order 1178678, "OSP-MS/IST Main Steam Valve Operation – Cold Shut Down"
- November 23, 2009, Work Order 01172505, "Standby Liquid Control Boron Concentration"

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of two samples of the surveillance testing inspection as defined in Inspection Procedure 71111.22-05.

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert Notification System Testing (71114.02)

a. Inspection Scope

The inspectors discussed with licensee staff the operability of offsite siren emergency warning systems, the distribution and testing of tone alert radio systems, and backup alerting methods, to determine the adequacy of licensee methods for testing the alert and notification system in accordance with 10 CFR Part 50, Appendix E. The licensee's alert and notification system testing program was compared with criteria in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1;

FEMA Report REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants"; and the licensee's current FEMA-approved alert and notification system design reports, "Description of the Early Warning System for the Washington Public Power Supply System Nuclear Plants 1, 2, and 4," December 1981, "WNP-2 Site-Specific Offsite Radiological Emergency Preparedness Alert and Notification System Quality Assurance Verification Report," May 1994, and GI-2-95-056, "FEMA Design Report," March 3, 1995. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.02-05.

b. Findings

No findings of significance were identified.

1EP3 Emergency Response Organization Augmentation Testing (71114.03)

a. Inspection Scope

The inspectors discussed with licensee staff the operability of primary and backup systems for augmenting the on-shift emergency response staff to determine the adequacy of licensee methods for staffing emergency response facilities in accordance with their emergency plan and the requirements of 10 CFR Part 50, Appendix E. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.03-05.

b. Findings

No findings of significance were identified.

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

.1 Emergency Plan Reviews

a. Inspection Scope

The inspector performed an in-office and on-site review of Revision 50 to the Columbia Generating Station Emergency Plan. This revision:

- Replaced portable high noise area evacuation sirens with permanent devices
- Removed supporting the evacuation of public along the Columbia and Yakima rivers as a responsibility of licensee environmental monitoring teams

- Clarified the role and responsibilities of the United States Coast Guard under the plan
- Replaced the backup radiological laboratory at the Emergency Operations Facility with the Applied Process Engineering Laboratory
- Described the circumstances under which an actual event can replace a drill required by the plan
- Updated the testing frequency for Emergency Alert System radios
- Removed plan references to whole body radiation counters (detectors)
- Updated references to the National Response Framework
- Updated site organization titles and tables
- Updated the titles of participating offsite organizations; and,
- Made minor editorial corrections to the emergency plan.

This revision was compared to its previous revision, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b) to determine if the revision adequately implemented the requirements of 10 CFR 50.54(q). This review was not documented in a safety evaluation report and did not constitute an approval of licensee-generated changes; therefore, this revision is subject to future inspection. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings of significance were identified.

.2 Procedure Reviews

a. Inspection Scope

The inspectors performed an in-office review of licensee procedure 13.1.1, "Classifying the Emergency," Revision 36-02, and 13.1.1A, "Classifying the Emergency, Technical Basis," Revision 21, both implemented August 13, 2009. These revisions:

- Corrected the time required to notify the NRC of a plant shutdown required by Technical Specifications in Emergency Action Level 7.1.U.1, "Plant not brought to

required operating mode within Technical Specifications Limiting Condition of Operation action statement time.”

- Added the condition, ‘above 1.68 psig,’ to Emergency Action Level 3.1.U.1
- Removed, ‘GT 30 minutes away,’ from Emergency Action Level 9.1.U.1
- Added to the bases for Emergency Action Levels 9.3.U.3, “Report or detection of toxic or flammable gases that could enter or have entered within the Protected Area Boundary in amounts that could affect the health of plant personnel or safe plant operation,” and 9.3.A.3, “Report or detection of toxic or flammable gases within a Safe Shutdown Building, Table 5, in concentrations that will be life threatening to plant personnel or impede access to equipment needed for safe plant operation” a statement that an atmospheric oxygen concentration below 19.5 percent or above 23.5 percent is considered a hazardous atmosphere.
- Updated the descriptions of the four emergency classifications to include hostile actions
- Defined the term, “hostile force;”
- Made minor editorial corrections.

These revisions were compared to their previous revisions, to the criteria of NUREG-0654, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” Revision 1, to Nuclear Energy Institute Report 99-01, “Emergency Action Level Methodology,” Revision 2, and to the standards in 10 CFR 50.47(b) to determine if the revision adequately implemented the requirements of 10 CFR 50.54(q). These reviews were not documented in a safety evaluation report and did not constitute approval of licensee-generated changes; therefore, these revisions are subject to future inspection.

These activities constitute completion of two samples as defined in Inspection Procedure 71114.04-05.

b. Findings

No findings of significance were identified.

1EP5 Correction of Emergency Preparedness Weaknesses and Deficiencies (71114.05)

a. Inspection Scope

The inspectors reviewed the licensee’s corrective action program requirements in site wide procedure SWP-CAP-01, “Corrective Action Program,” Revision 17, and Emergency Preparedness Instruction 30, “Emergency Preparedness Condition Report Processing,” Revision 0. The inspectors reviewed summaries of 198 corrective action

program requests assigned to the licensee's emergency preparedness department and emergency response organization between November 2007, and July 2009, and selected nineteen for detailed review against program requirements. The inspectors evaluated the response to the corrective action requests to determine the licensee's ability to identify, evaluate, and correct problems in accordance with the licensee program requirements, planning standard 10 CFR 50.47(b)(14), and 10 CFR Part 50, Appendix E. The specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.05-05.

b. Findings

- .1 Introduction. A Green noncited violation was identified for the failure to classify an emergency condition during a toxic gas event on May 20, 2009, as required by 10 CFR 50.54(q) and 10 CFR 50.47(b)(4).

Description. On May 20, 2009, the licensee was performing valve maintenance in the 422 foot elevation reactor core isolation cooling system room, which required using liquid nitrogen to freeze water in a pipe. As a safety precaution, two oxygen-level monitors were used in the room, with an alarm setpoint of less than or equal to 19.5 percent oxygen. When a leak developed in the nitrogen supply line, the oxygen-level monitors in the room alarmed at 1:40 a.m. Oxygen levels measured by both oxygen monitors were 19.3 percent oxygen. In response to the alarms, maintenance workers in the area immediately closed the nitrogen supply valves, exited the area, and remained outside the affected area to control access to the room. The event was reported to the licensee's outage control center at 1:40 a.m. A technician subsequently entered the 422 foot elevation RCIC Room at 2:15 a.m. and measured oxygen levels of 20.8 percent. The Outage Control Center initiated Condition Report 00197542 at 5:01 a.m. on May 20, 2009, to document the low-oxygen event.

Emergency action level 9.3.U.3, "Report or detection of toxic or flammable gases that could enter or have entered within the protected area boundary in amounts that could affect the health of plant personnel or safe plant operation..." requires classification as a Notification of Unusual Event. The inspectors determined the oxygen monitor alarm setpoint of less than or equal to 19.5 percent oxygen represented conditions the licensee had predetermined could affect the health of plant personnel. The simultaneous alarming of two oxygen monitors at 19.3 percent oxygen provided valid indication that conditions existed that could affect the health of plant personnel. The inspectors determined that sufficient information about the event was available to the licensee after the outage control center was contacted at 1:40 a.m. to allow an emergency classification to be made.

Analysis. The inspectors determined the failure to declare an emergency classification when conditions meet an emergency action level threshold is a performance deficiency that was within the licensee's ability to foresee and correct. This finding is more than

minor because it had a potential to impact the health and safety of the public. The failure to declare an emergency classification when conditions meet an emergency action level threshold may prevent adequate measures from being taken to protect the health and safety of licensee employees and the public. The finding had an impact on the Emergency Preparedness Cornerstone objective because it involved the licensee's ability to recognize conditions requiring entry into their emergency plan, and it affected the Emergency Response Organization performance attribute (actual event response). The finding was associated with a violation of NRC requirements. This finding was evaluated using the Emergency Preparedness Significance Determination Process Sheet 2, "Actual Event Implementation Problem," and was determined to be of very low safety significance (Green) because it was a performance deficiency occurring during an event which would have properly been classified as a Notification of Unusual Event. This finding has been evaluated as having a crosscutting aspect of human performance decision making, because the licensee did not make a safety-significant decision using a systematic process when faced with uncertain or unexpected plant conditions [H.1(a)].

Enforcement. Title 10 CFR 50.54(q), requires in part that a power reactor licensee follow an emergency plan that meets the requirements of section 50.47(b) and Appendix E to Part 50. Planning standard 50.47(b)(4) requires a licensee to have a scheme of emergency action levels for classifying an emergency. Contrary to the above, on May 20, 2009, the licensee failed to follow their scheme of emergency action levels for classifying an emergency. Specifically, the licensee failed to declare a Notification of Unusual Event after toxic gas conditions met Emergency Action Level 9.3.U.3, "Report or detection of toxic or flammable gases that could enter or have entered within the Protected Area Boundary in amounts that could affect the health of plant personnel or safe plant operation..." between 1:40 a.m. and 2:15 a.m. in the 422 foot elevation RCIC Room. Because this failure is of very low safety significance and has been entered into the licensee's corrective action system as Action Request/Condition Report 00203804, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 050000397/2009005-01, "Failure to Classify a Notification of Unusual Event during a Toxic Gas Event."

1EP6 Drill Evaluation (71114.06)

Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on October 27, 2009, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71114.06-05.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational and Public Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

This area was inspected to assess licensee personnel's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, high radiation areas, and worker adherence to these controls. The inspectors used the requirements in 10 CFR Part 20, the technical specifications, and the licensee's procedures required by technical specifications as criteria for determining compliance. During the inspection, the inspectors interviewed the radiation protection manager, radiation protection supervisors, and radiation workers. The inspectors performed independent radiation dose rate measurements and reviewed the following items:

- Performance indicator events and associated documentation packages reported by the licensee in the Occupational Radiation Safety Cornerstone
- Controls (surveys, posting, and barricades) of radiation, high radiation, or airborne radioactivity areas
- Conformity of electronic personal dosimeter alarm set points with survey indications and plant policy; workers' knowledge of required actions when their electronic personnel dosimeter noticeably malfunctions or alarms
- Corrective action documents related to access controls
- Radiation work permit briefings and worker instructions
- Radiation worker and radiation protection technician performance with respect to radiation protection work requirements

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of 6 of the required 21 samples as defined in Inspection Procedure 71121.01-05.

b. Findings

Introduction. The inspectors reviewed a Green self-revealing, noncited violation of Technical Specification 5.4.1.a resulting from a worker's failure to follow radiation protection requirements.

Description. On September 2, 2009, a worker received a high radiation area briefing (in accordance with Radiation Work Permit 30002457). Prior to entering the radiologically controlled area, the worker input a radiation work permit number into the access control computer and received a red warning screen which informed him the radiation worker permit in his work package was no longer active. Instead of contacting radiation protection personnel for guidance, the worker used another radiation work permit (general use Radiation Work Permit 30002459). The second radiation work permit did not allow entry into a high radiation area. The worker then entered the turbine building heater bay (471-foot elevation), an area controlled as a high radiation area because it had dose rates greater than 100 millirems per hour. The worker did not use the required travel path to his work area, which was discussed during the prejob briefing, nor did he use an electronic dosimeter designed for use in a high noise area, which was required by the original radiation work permit. Because the worker did not follow the travel path discussed, he traveled through a high radiation area for which he was not briefed, and he received a dose rate alarm. Because of the high noise level and the incorrect type of electronic dosimeter for the high noise level, the worker did not hear the alarm, leave the area, and report the alarm to radiation protection personnel. Instead the worker completed his work, and the licensee learned of the dose rate alarm when the individual attempted to log off the access control computer and received another warning screen. When interviewed later by the licensee, the worker stated he forgot to follow the travel path and automatically went the same way he had for a previous work activity. The licensee documented this occurrence in the corrective action program and coached the worker. The licensee's review concluded this was a human performance error and could have been prevented through the use of error prevention tools.

Analysis. The failure to follow radiation protection requirements is a performance deficiency. This finding is greater than minor because it involved the program attribute of exposure control and affected the cornerstone objective in that the failure of the worker to follow procedural requirements resulted in the worker being unknowledgeable of the dose rates in areas entered. The inspectors used the Occupational Radiation Safety Significance Determination Process and determined the finding had very low safety significance because it was not: (1) an as low as reasonably achievable (ALARA) finding, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an inability to assess dose. The finding had a crosscutting aspect in the area of human performance, work practices component, because the worker failed to use human error prevention techniques such as self and peer checking [H.4(a)].

Enforcement. Technical Specification 5.4.1.a requires written procedures be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, Section 7.e.(1) lists radiation protection procedures for access control to radiation areas, including a radiation work permit system.

Procedure GEN-RPP-04, "Entry Into, Conduct In, and Exit From Radiologically Controlled Areas," Revision 21, Section 2.5, implements this requirement and requires individuals entering a radiologically controlled area to ensure they are on the correct ALARA task and radiation work permit for their assignment. Section 3.4 requires individuals entering a radiologically controlled area to adhere to all requirements specified by radiation protection personnel (i.e., radiation work permit requirements, posted instructions, verbal instruction, etc.). Section 4.1.1.b requires workers read applicable radiation work permits and be knowledgeable of the requirements of the radiation work permit. Section 4.2.1.a.3(d) requires workers exit the radiologically controlled area and contact radiation protection personnel if they receive an unanticipated dose rate alarm from their electronic dosimeters. These requirements were violated when the worker failed to ensure he was on the correct radiation work permit, failed to use an electronic dosimeter designed for use in a high noise area, failed to follow instructions related to the travel path to the work area, failed to exit the radiologically controlled area when he received an unanticipated dose rate alarm, and failed to contact radiation protection personnel. Because this failure to follow radiation protection procedural requirements was of very low safety significance and has been entered into the licensee's corrective action program in Action Request 203711, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000397/2009005-02; Failure to Follow Radiation Protection Requirements.

2OS2 ALARA Planning and Controls (71121.02)

a. Inspection Scope

The inspectors assessed licensee personnel's performance with respect to maintaining individual and collective radiation exposures as low as is reasonably achievable. The inspectors used the requirements in 10 CFR Part 20 and the licensee's procedures required by technical specifications as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed the following:

- Current 3-year rolling average collective exposure
- Site-specific ALARA procedures
- Five work activities of highest exposure significance completed during the last outage
- ALARA work activity evaluations, exposure estimates, and exposure mitigation requirements
- Intended versus actual work activity doses and the reasons for any inconsistencies
- Integration of ALARA requirements into work procedure and radiation work permit (or radiation exposure permit) documents

- Person-hour estimates provided by maintenance planning and other groups to the radiation protection group with the actual work activity time requirements
- Dose rate reduction activities in work planning
- Postjob (work activity) reviews
- Assumptions and basis for the current annual collective exposure estimate, the methodology for estimating work activity exposures, the intended dose outcome, and the accuracy of dose rate and man-hour estimates
- Method for adjusting exposure estimates, or re-planning work, when unexpected changes in scope or emergent work were encountered
- Exposures of individuals from selected work groups
- Declared pregnant workers during the current assessment period, monitoring controls, and the exposure results
- Self-assessments, audits, and special reports related to the ALARA program since the last inspection
- Corrective action documents related to the ALARA program and follow-up activities, such as initial problem identification, characterization, and tracking

Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of 9 of the required 15 samples and 6 of the optional samples as defined in Inspection Procedure 71121.02-05.

b. Findings

- .1 Introduction. The inspectors reviewed a Green self-revealing, noncited violation of Technical Specification 5.4.1.a resulting from a work group's deviation from an established work plan and radiation work permit.

Description. According to the May 24, 2009, Senior Site ALARA Committee meeting minutes, the original dose estimate for the refurbishment of the containment recirculation air system and fan motor replacement was 4912 mrem. The actual dose accrued for the work was 7648 mrem. In reviewing the dose overage, the licensee found additional ductwork was removed that was not in the original work plan. Much of this additional work was in an area with dose rates up to 800 millirem per hour, in accordance with Radiation Work Permit 30002444, "R19 DW CRA-M-FN Maintenance and Repairs *LHR*." This radiation work permit was originally estimated to accrue 500 mrem, but actually accrued 2400 mrem in two days. The work group, support site services, decided to change how the work would be accomplished, even though it was in a higher

dose rate area. The licensee concluded the project manager did not understand his responsibility for making this communication before work was done to allow for ALARA planning to change the estimate for the job or and evaluate and implement methods to reduce dose. In response, the radiation protection manager conducted a briefing of the assembled project managers on November 30, 2009. The briefing reinforced the project managers responsibilities associated with keeping doses ALARA.

Analysis. The failure to work in accordance to the established work plan is a performance deficiency. This finding is greater than minor because it resulted in the actual collective dose of the work activity exceeding 5 person-rem (5000 person-mrem) and exceeding the planned, intended dose by more than 50 percent (similar to Manual Chapter 0612, Appendix E, Example 6.i). The inspectors used the Occupational Radiation Safety Significance Determination Process and determined the finding had very low safety significance because it was an ALARA finding, but the licensee's three-year rolling average collective dose (139 person-rem) was less than 240 person-rem/units. The finding had a crosscutting aspect in the area of human performance, work coordination component, because the licensee did not incorporate actions to address the impact of changes to the work scope and did not cooperate with each other during activities in which interdepartmental coordination was necessary to assure plant and human performance [H.3(b)].

Enforcement. Technical Specification 5.4.1.a requires written procedures be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, Section 7.e.(1) list radiation protection procedures for access control to radiation areas, including a radiation work permit system. Procedure GEN-RPP-04, "Entry Into, Conduct In, and Exit from Radiologically Controlled Areas," Revision 21, Section 3.16, requires workers contact radiological planning personnel when changes in planned work scope could impact the total dose planned for the job (e.g., increased person-hours, changes to the work plan, unplanned work, etc.). This requirement was violated when the work group removing air ducts deviated from the established work plan, removed additional air ducts in dose rates as high as 800 mrem/hr, and failed to notify radiological planning personnel of changes in planned work scope. Because this failure to follow radiation protection procedural requirements was of very low safety significance and has been entered into the licensee's corrective action program in Action Request 197892, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000397/2009005-03; Failure to Notify Radiological Planning Personnel of a Work Plan Deviation.

- .2 Introduction. The inspectors identified a Green noncited violation of a Technical Specification 5.4.1.a because the licensee failed to submit an outage job that exceed 3000 millirem to the senior site ALARA committee for review.

Description. Radiation Work Permit 30002388, "Turbine Generator Building 471 - General Access less than 20 mrem/Task," started with an original estimate of 1300 mrem. On May 29, 2009, the estimate was raised from 2780 mrem to 3575 mrem. The inspectors noted the new estimate was not presented to the Senior Site ALARA Committee for a challenge meeting. According to Procedure GEN-RPP-01, "ALARA

Program Description,” Revision 7, the purpose of ALARA challenge meetings is to ensure an optimized ALARA plan and work logistics to keep personnel exposures ALARA. The estimate was raised again on June 8, 2009, from 3575 mrem to 4200 mrem, and again the revised estimate was not presented to the Senior Site ALARA Committee. Radiation Work Permit 30002388 eventually accrued 5228 mrem without a challenge meeting being conducted by the Senior Site ALARA Committee. The licensee placed this finding into the corrective action program. Following the inspection, the licensee performed an apparent cause evaluation and determined the cause to be “unclear procedural requirements.” The licensee planned to revise Procedure GEN-RPP-01.

Analysis. The failure to submit an outage job to the senior site ALARA committee for review with an estimated collective dose greater than 3000 mrem is a performance deficiency. This finding is greater than minor because it resulted in the actual collective dose of the work activity exceeding 5 person-rem (5000 person-mrem) and exceeding the planned, intended dose by more than 50 percent (similar to Manual Chapter 0612, Appendix E, Example 6.i). The inspectors used the Occupational Radiation Safety Significance Determination Process and determined the finding had very low safety significance because it was an as low as reasonably achievable finding, but the licensee’s three-year rolling average collective dose (139 person-rem) was less than 240 person-rem/unit. The finding had a crosscutting aspect in the area of human performance, resources component, because the licensee did not implement complete, accurate, and up-to-date procedures [H.2(c)]

Enforcement. Technical Specification 5.4.1.a requires written procedures be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Regulatory Guide 1.33, Appendix A, Section 7.e(9) lists procedures for the implementation of the ALARA program. Procedure GEN-RPP-13, “The ALARA Committee,” Revision 8, Section 2.3.8, states, “Conduct ALARA challenge meetings for outage jobs with an estimated collective dose of greater than 3000 mrem. This requirement was violated on May 29, 2009, when the dose estimate for Radiation Work Permit 30002388 was revised from 2780 mrem to 3575 mrem and no challenge meeting was conducted. The requirement was violated again on June 8, 2009, when the estimate for the same radiation work permit was revised again to 4200 mrem and no challenge meeting was conducted. Because the failure to submit an outage job to the senior site ALARA committee for review was of very low safety significance and has been entered into the licensee’s corrective action program in Action Request 209314, this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000397/2009005-04; Failure To Submit An Outage Job To The Senior Site ALARA Committee For Review.

4. OTHER ACTIVITIES

40A1 Performance Indicator Verification (71151)

.1 Mitigating Systems Performance Index - Heat Removal System (MS08)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index, heat removal system performance indicator for the period from the third quarter 2008 through the third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports for the period of July 2008 through September 2009, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one mitigating systems performance index heat removal system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.2 Mitigating Systems Performance Index - Residual Heat Removal System (MS09)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index-residual heat removal system performance indicator for the period from the third quarter 2008 through the third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 2008 through September 2009, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI

guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one mitigating systems performance index residual heat removal system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.3 Mitigating Systems Performance Index - Cooling Water Systems (MS10)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - cooling water systems performance for the period from the third quarter 2008 through the third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, the inspectors used definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5. The inspectors reviewed the licensee's operator narrative logs, issue reports, mitigating systems performance index derivation reports, event reports, and NRC integrated inspection reports for the period of July 2008 through September 2009, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator, and none were identified. Specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one mitigating systems performance index cooling water system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.4 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill and Exercise Performance, performance indicator for the period July 2008 through June 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used.

The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator, assessments of performance indicator opportunities during predesignated control room simulator training sessions, performance during the 2008 biennial exercise, and performance during a sample of ten other drills. The specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the drill/exercise performance sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.5 Emergency Response Organization Drill Participation (EP02)

a. Inspection Scope

The inspectors sampled licensee submittals for the Emergency Response Organization Drill Participation performance indicator for the period July 2008 through June 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed licensee records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator, rosters of personnel assigned to key emergency response organization positions, a sample of ten emergency response organization training records, and a sample of eleven exercise participation records. The specific documents reviewed are described in the attachment to this report.

These activities constitute completion of one sample of the emergency response organization drill participation as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.6 Alert and Notification System (EP03)

a. Inspection Scope

The inspectors sampled licensee submittals for the Alert and Notification System performance indicator for the period July 2008 through June 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator and the results of periodic alert notification system operability tests. The specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the one sample for the alert and notification system as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.7 Occupational Exposure Control Effectiveness (OR01)

a. Inspection Scope

The inspectors sampled licensee submittals for the Occupational Radiological Occurrences performance indicator for the period from the second quarter 2009 through the third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's assessment of the performance indicator for occupational radiation safety to determine if indicator related data was adequately assessed and reported. To assess the adequacy of the licensee's performance indicator data collection and analyses, the inspectors discussed with radiation protection staff, the scope and breadth of its data review, and the results of those reviews. The inspectors independently reviewed electronic dosimetry dose rate and accumulated dose alarm and dose reports and the dose assignments for any intakes that occurred during the time period reviewed to determine if there were potentially unrecognized occurrences. The inspectors also conducted walkdowns of numerous locked high and very high radiation area entrances to determine the adequacy of the controls in place for these areas.

These activities constitute completion of the occupational radiological occurrences sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.8 Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual
Radiological Effluent Occurrences (PR01)

a. Inspection Scope

The inspectors sampled licensee submittals for the Radiological Effluent Technical Specifications/Offsite Dose Calculation Manual Radiological Effluent Occurrences performance indicator for the period from the second quarter 2009 through the third quarter 2009. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in NEI Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 5, was used. The inspectors reviewed the licensee's issue report database and selected individual reports generated since this indicator was last reviewed to identify any potential occurrences such as unmonitored, uncontrolled, or improperly calculated effluent releases that may have impacted offsite dose.

These activities constitute completion of the radiological effluent technical specifications/offsite dose calculation manual radiological effluent occurrences sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

40A2 Identification and Resolution of Problems (71152)

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

.1 Routine Review of Identification and Resolution of Problems

a. Inspection Scope

As part of the various baseline inspection procedures discussed in previous sections of this report, the inspectors routinely reviewed issues during baseline inspection activities and plant status reviews to verify that they were being entered into the licensee's corrective action program at an appropriate threshold, that adequate attention was being given to timely corrective actions, and that adverse trends were identified and addressed. The inspectors reviewed attributes that included the complete and accurate identification of the problem; the timely correction, commensurate with the safety significance; the evaluation and disposition of performance issues, generic implications, common causes, contributing factors, root causes, extent of condition reviews, and

previous occurrences reviews; and the classification, prioritization, focus, and timeliness of corrective actions. Minor issues entered into the licensee's corrective action program because of the inspectors' observations are included in the attached list of documents reviewed.

These routine reviews for the identification and resolution of problems did not constitute any additional inspection samples. Instead, by procedure, they were considered an integral part of the inspections performed during the quarter and documented in Section 1 of this report.

b. Findings

No findings of significance were identified.

.2 Daily Corrective Action Program Reviews

a. Inspection Scope

In order to assist with the identification of repetitive equipment failures and specific human performance issues for follow-up, the inspectors performed a daily screening of items entered into the licensee's corrective action program. The inspectors accomplished this through review of the station's daily corrective action documents.

The inspectors performed these daily reviews as part of their daily plant status monitoring activities and, as such, did not constitute any separate inspection samples.

b. Findings

No findings of significance were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of July 2009 through December 2009 although some examples expanded beyond those dates where the scope of the trend warranted.

The inspectors also included issues documented outside the normal corrective action program in major equipment problem lists, repetitive and/or rework maintenance lists, departmental problem/challenges lists, system health reports, quality assurance audit/surveillance reports, self-assessment reports, and maintenance rule assessments. The inspectors compared and contrasted their results with the results contained in the

licensee's corrective action program trending reports. Corrective actions associated with a sample of the issues identified in the licensee's trending reports were reviewed for adequacy.

These activities constitute completion of one single semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings of significance were identified.

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized a corrective action item documenting control of the number of hours key personnel were working during the recent refueling outage and a trend in the lifting of relief valves during plant scrams. The inspectors reviewed all work hour deviations issued from November 2008 to November 2009 to determine if Columbia Generating Station was appropriately granting and justifying overtime requests for key personnel. The inspectors reviewed the licensee's root cause evaluation for the trend in condensate relief valves lifting during plant scrams. The inspectors also reviewed the root cause report associated with the plant scram that occurred on February 8, 2009.

These activities constitute completion of three in-depth problem identification and resolution samples as defined in Inspection Procedure 71152-05.

b. Findings

No findings of significance were identified.

4OA3 Event Follow-up (71153)

.1 November 7, 2009, Manual Reactor Scram

a. Inspection Scope

On November 7, 2009, the inspectors observed and evaluated the licensee's response to a manual scram while the reactor was operating at 52 percent power. Failure of a digital electro-hydraulic accumulator tank o-ring seal occurred resulting in a leak in the digital electro-hydraulic system and a subsequent manual reactor scram due to decreasing digital electro-hydraulic fluid inventory. The inspectors responded to the control room and verified the status of plant conditions by observing key plant parameters, annunciator status, and observing the current status of safety related mitigating equipment to ensure that the reactor plant was stable. The inspectors also observed reactor operator actions in response to the manual reactor scram and senior reactor operator's evaluation of plant conditions and oversight of the reactor operators to

ensure that operators were adhering to plant procedures. The inspectors also reviewed the licensee's evaluation of the apparent cause of the scram.

b. Findings

Introduction. A self-revealing Green finding was reviewed for the failure of the licensee to provide an adequate procedure for the installation of an o-ring in the digital electro-hydraulic system. Specifically, failure to provide the methods and details for the preparation, review, approval, and implementation of procedure, contributed to the improper installation of an o-ring in the digital electro-hydraulic system. This improper installation resulted in a failure of the o-ring seal, a leak in the digital electro-hydraulic system and a subsequent manual reactor scram due to decreasing digital electro-hydraulic fluid inventory.

Description. On November 7, 2009, with the facility operating at 52 percent power, operators initiated a manual reactor scram due to decreasing digital electro-hydraulic fluid inventory. This was indicated in the main control room by a low-low level alarm for the digital electro-hydraulic fluid accumulator tank and was the result of a failed o-ring seal in the accumulator lower mounting flange DEH-TK-1D in the digital electro-hydraulic system. The condition was documented in Action Request/Condition Report 00207245.

The licensee routinely performed maintenance on digital electro-hydraulic accumulators during refueling outages. Accumulator tanks DEH-TK-1A through DEH-TK-1D were refurbished during Refueling Outage R-19 under Work Orders 01141709 through 01141712. The associated work instructions showed general instructions for accumulator removal, disassembly, and reassembly. No specific torque specifications were provided for reassembling the accumulator flanges.

Work Request 29077261 was initiated on September 26, 2009, to document a hydraulic leak at accumulator DEH-TK-1D. The licensee characterized the leak rate as too slow to quantify. In addition, there was a puddle of hydraulic fluid approximately 3 square feet under accumulator DEH-TK-1D. The hydraulic fluid was wiped up. This deficiency was not entered into the corrective actions program. A subsequent walk down was performed on September 30, 2009, by maintenance personnel who observed two drops of oil forming on the bottom side bolts of accumulator DEH-TK-1D with no oil on the floor below the accumulator. The work request was subsequently closed with no further actions.

The licensee conducted a root cause evaluation as documented in Action Request/Condition Report 00207245. This evaluation concluded that the accumulator block flange assembly guidance was not in the work instructions. The evaluation also concluded that the work instructions did not verify critical parameters to ensure system integrity during normal operating pressure. A contributing cause was identified in that Work Request 29077261 was closed based on a decision to accept this condition without a further evaluation to address the deficiency. The option to perform further physical inspections or to isolate the leak was not explored. Additionally, no closure information was provided to the Shift Manager to confirm acceptability from an operational standpoint.

The inspectors reviewed Operating Instruction OI-09, "Operations Standards and Expectations," Revision 31, and noted the following relevant standards:

- Section 4.2.2 provided not proceeding with a task unless he/she understands the task and is aware of the expected results and the individual should make a conservative decision when faced with a condition that is either unexpected or unsafe
- Section 4.2.3 provided examples of situations that require conservative decision making including unexpected troubleshooting results

The inspectors concluded that contrary to the provisions in Operating Instruction OI-09: (1) the Outage Control Center (engaged by the Shift Manager) initiated field inspection, but failed to technically evaluate the potential risk and consequence of a transitory leak in the digital electro-hydraulic system; and (2) The option to perform further physical inspections or to isolate the leak were not explored.

Analysis. The licensee's failure to follow the standards of Operating Instruction OI-09, "Operations Standards and Expectations" is a performance deficiency. Specifically, failure to technically evaluate the potential risk and consequence of a transitory leak in the digital electro-hydraulic system was a performance deficiency. The cause of the finding is related to the crosscutting aspect of human performance with a resources component [H.2(c)], because the licensee failed to provide adequate procedural requirements for o-ring installation work.

The inspectors utilized NRC Inspection Manual Chapter 0612, "Power Reactor Inspection Reports," Appendix B, "Issue Screening," to determine that the finding was more than minor because it was an equipment performance issue that affected the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Specifically, failure to provide the methods and details for the preparation, review, approval, and implementation of work, contributed to the improper installation of an o-ring in the digital electro-hydraulic system, a failed o-ring seal, a leak in the digital electro-hydraulic system, loss of digital electro-hydraulic hydraulic pressure and a subsequent manual reactor scram (initiating event). The inspectors evaluated the finding in accordance with Manual Chapter 0609, Appendix A, "Significance Determination Process," Phase 1 Worksheet. The finding was determined to be of very low safety significance (Green) because the finding did not result in the loss of a safety function of a single train for greater than its technical specification allowed outage time.

Enforcement. No violations of NRC requirements were identified since the affected component, digital electro-hydraulic system, is non-safety related:
FIN 05000397/2009005-05, "Digital Electro-hydraulic Leak Results in Reactor Scram."

40A5 Other Activities

.1 Quarterly Resident Inspector Observations of Security Personnel and Activities

a. Inspection Scope

During the inspection period, the inspectors performed observations of security force personnel and activities to ensure that the activities were consistent with the licensee's security procedures and regulatory requirements relating to nuclear plant security. These observations took place during both normal and off-normal plant working hours.

These quarterly resident inspector observations of security force personnel and activities did not constitute any additional inspection samples. Rather, they were considered an integral part of the inspectors' normal plant status review and inspection activities.

b. Findings

No findings of significance were identified.

.2 (Closed) Licensee Event Report 05000397/2009-004-00: 6.9 kV Non-Segregated Electrical Bus Failure

This Licensee Event Report documents an electrical fault on a 6.9 kilovolt nonsegregated bus on August 5, 2009, resulting in a main turbine trip and automatic reactor scram. During the scram recovery, the main turbine bypass valves remained in the full open position and did not automatically modulate to maintain reactor pressure as expected. The licensee determined the most probable cause of the electrical fault was a relaxation of bolted connections on the center phase flexible link caused by repeated thermal cycles over time due to the non-performance of preventative maintenance tasks for torque checks of non-segregated bus links. The damaged bus has been repaired, and changes to the controls for planned maintenance will be made to ensure proper performance to prevent this type of failure from recurring. The licensee determined the failure of the bypass valves to control pressure was due to an error introduced during a design change of the digital electric hydraulic system that was implemented in 2007. The digital electric hydraulic system has been modified to correct the error in the design. See NRC Inspection Report 05000397/2009010 for a discussion of two self-revealing findings associated with this issue. The inspectors completed a review of the licensee event report and did not identify any other violations of regulatory requirements or findings. This Licensee Event Report is closed.

40A6 Meetings

Exit Meeting Summary

On August 21, 2009, the inspectors presented the results of the onsite inspection of the licensee's emergency preparedness program to Mr. D. Atkinson, Acting Chief Nuclear Officer, and Vice President, Operations Support, and other members of the licensee's staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any

materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On October 1, 2009, the inspectors conducted a telephonic exit with Mr. M. Humphries, Supervisor, Licensing, and other members of the licensee's staff, to discuss changes in the NRC's characterization of issues discussed during the August 21, 2009, onsite meeting.

On October 29, 2009, the inspector conducted a telephonic exit meeting to present the results of the in-office inspection of changes to the licensee's emergency action levels to Mr. D. Merhar, Manager, Emergency Preparedness, and other members of the licensee's staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On December 10, 2009, the inspectors presented the inspection results to Mr. S. Oxenford, Vice President Nuclear Generation/Chief Nuclear Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On January 6, 2010, the inspectors presented the inspection results to Mr. S. Oxenford, Vice President, Nuclear Generation, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

40A7 Licensee-Identified Violations

The following violations of very low safety significance (Green) were identified by the licensee and are violations of NRC requirements which meet the criteria of Section VI of the NRC Enforcement Policy, NUREG-1600, for being dispositioned as NCVs:

- .1 Title 10 CFR 50.54(q), requires in part that a power reactor licensee follow an emergency plan that meets the requirements of 50.47(b) and Appendix E to Part 50. Section 50.47(b)(9) requires a licensee have adequate methods, systems and equipment for assessing and monitoring actual or potential offsite consequences of a radiological emergency. Contrary to the above, between October 30, 2008, and August 20, 2009, the licensee failed to have adequate methods, systems and equipment for assessing actual or potential offsite consequences of a radiological emergency. Specifically, on October 30, 2008, the licensee failed to provide compensatory actions following identification that, (1) the choice between the A or B meteorological data channel affected the accuracy of emergency action level determinations and dose assessments used in protective-action decision making, and (2) that errors could be made in determining the atmospheric Stability Class because the allowable tolerance band for temperature sensors encompassed four Stability Classes. These issues were identified in licensee Self-Assessment 2008-043, and entered into the licensee's correction action system as Action Requests 00185009 and 00203405. This finding is of

very low safety significance because it is a failure to comply with NRC requirement 50.54(q), is associated with risk significant planning standard 50.47(b)(9) as defined by Manual Chapter 0609, Appendix B, Section 2, and the finding is not either a planning standard functional failure or degraded function because the license continued to have the capability to perform accurate dose assessments under most circumstances.

- .2 Title 10 CFR 20.1003 defines “radiation area” as an area, accessible to individuals, in which radiation levels could result in an individual receiving a dose equivalent in excess of 5 mrem in 1 hour at 30 centimeters from the radiation source or from any surface that the radiation penetrates. Title 10 CFR 20.1902 requires each radiation area be posted with a conspicuous sign or signs bearing the radiation symbol and the words “caution, radiation area.” On October 19, 2009, the licensee identified a radiation area in the Kootenai Building with a dose rate of 20 mrem/hr at 30 centimeters that was not posted. The dose rate existed because a radioactive source used to verify the response of ventilation equipment became separated from its source tool. The source was uncontrolled for approximately 65 minutes. No unintended personnel dose occurred. The violation was of very low safety significance because it was not: (1) an ALARA finding, (2) an overexposure, (3) a substantial potential for overexposure, or (4) an inability to assess dose. The violation was documented in the corrective action program as Action Request 206164.

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

D. Atkinson, Acting Chief Nuclear Officer, Vice President, Operations Support
R. Garcia, Licensing Engineer
S. Gambhir, Vice President, Technical Services
W. Green, Assistant Manager, Operations
D. Gregoire, Acting Supervisor, Licensing
M. Humphries, Supervisor, Licensing
C. King, Assistant Plant General Manager
D. Merhar, Manager, Emergency Preparedness
W. Sawyer, Emergency Preparedness Coordinator
D. Swank, Manager, Major Projects
R. Torres, Manager, Quality

NRC Personnel

P. Frechette, Physical Security Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened and Closed

05000397/2009005-01	NCV	Failure to Classify a Notification of Unusual Event During a Toxic Gas Event (Section 1EP5)
05000397/2009005-02	NCV	Failure to Follow Radiation Protection Requirements (Section 2OS1)
05000397/2009005-03	NCV	Failure to Notify Radiological Planning Personnel of a Work Plan Deviation (Section 2OS2)
05000397/2009005-04	NCV	Failure To Submit An Outage Job To The Senior Site ALARA Committee For Review (Section 2OS2)
05000397/2009005-05	FIN	Digital Electro-Hydraulic Leak Results in Reactor Scram (Section 4OA3)

Closed

05000397/2009004-00	LER	6.9 kV Non-Segregated Electrical Bus Failure
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LIST OF DOCUMENTS REVIEWED

Section 1RO4: Equipment Alignment

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M524-2	Flow Diagram Standby Service Water System Reactor, Radwaste Diesel Generator Buildings and Yard	103
M775	Flow Diagram Emergency Chilled Water Piping System Control Room	26

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SOP-SW-STBY	Placing Service Water in Standby Status	3

Work Orders

01173815

Section 1RO5: Fire Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
	Columbia Generating Station Pre-Fire Plans	7
FSAR	Columbia Generating Station Final Safety Analysis Report, Appendix F	57
NFPA-10	National Fire Protection Association	1984

Section 1RO6: Flood Protection Measures

MISCELLENEOUS DOCUMENTS

	<u>REVISION</u>
Final Safety Analysis Report Sections 2.4.2 and 3.4.1.5.2	Amendment 57

Section 1R11: Licensed Operator Requalification Program

MISCELLEANEOUS DOCUMENTS

DATE

Operations Requalification Training, Scenario LR001940	October 19, 2009
Crew Evaluation Summary, Scenario LR001940	October 19, 2009

Section 1R12: Maintenance Effectiveness

ACTION REQUEST/CONDITION REPORTS

205460	208773	208952	208885
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PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SOP-RCIC-STBY	Placing RCIC in Standby Status	4

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M519	Flow Diagram Reactor Core Isolation Cooling System	90

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
PPM 1.3.76	Integrated Risk Management	16

Section 1R15: Operability Evaluations

MISCELLEANEOUS DOCUMENTS

REVISION / DATE

Engineering Change EC 8716, DMA-AD-22/2 Motor Failure	November 16, 2009
Manual Calculation ME 02-92-43	8
Work Order 01181024, DMA-AD-22/2 Motor Failure	November 16, 2009
Technical Memorandum, TM-2076	January 20, 1995

ACTION REQUEST/CONDITION REPORTS

207691	207900	209755
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Section 1R19: Postmaintenance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
PPM 8.7.3.A	ASME Code Required VT-2 Visual Examinations	5
PPM OI-41	Operations Work Control Expectations	22
CER C92-0388	Component Classification Record DEA Fan 31	1
OSP-RCIC/IST-Q702	RCIC Valve Operability Test	27

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ME-02-03-17	Manual Calculation	0
ME-02-92-43	Manual Calculation	8

Work Orders

01179683	01169050	01169857	01130602	01115422
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Section 1R20: Refueling and Other Outage Activities

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION/DATE</u>
PPM 1.20.3	Outage Risk Management	3
PPM 3.1.1	Master Startup Check List	40
Shutdown Safety Plan	Columbia Generating Station Maintenance Outage MO-09-05 Shutdown Safety plan	September 29, 2009

Section 1R22: Surveillance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
OSP-MS/IST Q701	MSIV Closure Test – Shutdown	November 11, 2009

MISCELLANEOUS DOCUMENTS

REVISION / DATE

Standby Liquid Control System Valve and Breaker Lineup	0
Standby Liquid Control Chemistry and Level Control	2
Work Order 01172505, Standby Liquid Boron Concentration	November 23, 2009

ACTION REQUEST/CONDITION REPORTS

1178678

Section 1EP2: Alert Notification System Testing

DOCUMENT TYPE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
TSI 6.2.22	Annual Emergency Response Siren System Activation Test	10
TSI 6.7.3.2	Weekly Emergency Response River Siren Polling Test	10
EPI-8	Emergency Preparedness Sign Maintenance	4
EPI-19	Communications Tests	5
EPI-26	Tone Alert Radio Test and Survey	0

Section 1EP3: Emergency Response Organization Augmentation Testing

DOCUMENT TYPE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EPI-11	ERO Administration Program	7
EPI-13	Automated Notification System	3
EPI-14	Actions in the event of an Automated Notification System Failure	3

MISCELLANEOUS DOCUMENTS

- Columbia Generating Station Plant Logging System, Maintenance/Surveillance Log
- Limiting Condition For Operation, Technical Specification Inoperable Equipment/LCO/RFO Status Sheet
- EPI-15, ERDS Quarterly Test
- Columbia Generating Station Emergency Plan
- NEI 99-02, Regulatory Assessment Performance Indicator Guideline
- MSPI-01-BD-0001, Columbia Generating Station MSPI Basis Document
- 2009 ERO Teams A/B Training Drill

Section 20S1 Access Control to Radiologically Significant

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
Self-Assessment 63733	2008 Annual Review of Radiation Protection Program per 10CFR20.1101.c	January 6, 2009 through April 24, 2009

ACTION REQUESTS

203711 206164

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
GEN-RPP-04	Entry Into, Conduct in, and Exit from Radiologically Controlled Areas	21
11.2.14.4	Procurement, Receipt, Control, and Leak Testing of Radioactive Sealed Sources and Devices	18

RADIATION WORK PERMITS

30002457 30002459

Section 20S2: ALARA Planning and Controls

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
Self-Assessment 63729	Routine Evaluation Of Portions Of The RP Program Relating To The Minimization Of Radiation Dose	August 17-20, 2009

ACTION REQUESTS

197576 198067 198632 198632 199820
197891 199114 200041 207951

WORK ACTIVITIES

Containment Recirculation Air Refurbishment and Fan Motor Replacement
Local Leak Rate Testing/System Lineup
Residual Heat Removal Valve-50A Repair
Main Steam Relief Valve Removal and Replacement
Turbine Generator Building 471' General Access

RADIATION WORK PERMITS

30002154	30002443	30002388	30002153	30002160
30002376	30002155	30002444	30002162	30002158
30002199				

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
GEN-RPP-01	ALARA Program Description	7
GEN-RPP-02	ALARA Planning and Radiation Work Permits	21
GEN-RPP-13	ALARA Committee	8

MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Senior Site ALARA Committee Meeting Minutes R-19	May 24, 2009

Section 40A1: Performance Indicator Verification

DOCUMENT TYPE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISIONS</u>
EPIP 13.1.1	Classifying the Emergency	19, 20
EPIP 13.1.1A	Classifying the Emergency - Basis Document	19, 20
EPIP 13.2.2	Determining Protective Action Recommendations	15, 16, 17
EPIP 13.4.1	Emergency Notifications	34, 35, 36
EPI-18	Emergency Preparedness Performance Indicators	12, 13

Section 40A2: Identification and Resolution of Problems

ACTION REQUEST / CONDITION REPORTS

00205529	00205540	00205545	00205547	00205573
00205425	00205512	00205514	00205518	00205519
00205520	00205522	00205307	00205310	00205329
00205344	00205389	00205398	00206550	00205998
00205997	00205983	00205975	00205965	00205954
00205943	00205941	00205939	00205932	00205931
00205923	00205921	00205912	00205873	00205870
00205800	00206011	00205999	00206004	00205647
00205644	00205641	00205618	00205615	00205625
00205594	00205583	00205681	00205702	00205715
00205719	00205720	00205729	00205736	00207379
00207447	00207452	00207455	00207463	00207473

Section 4OA2: Identification and Resolution of Problems

ACTION REQUEST / CONDITION REPORTS

00207476	00207295	00207294	00207290	00207288
00207287	00207277	00207264	00207260	00207254
00207253	00207252	00207251	00207250	00207249
00207247	00207246	00207245	00207241	00207236
00207226	00207225	00207219	00207333	00207367
00207371	00207372	00207373	00207374	00207377
00207162	00207166	00207186	00207193	00207194
00207197	00207198	00207219	00207223	00207234
00207110	00207124	00207125	00207126	00207131
00207135	00207153	00207164	00207168	00206989
00207035	00207048	00207051	00207054	00207066
00207070	00207076	00206870	00206940	00206950
00206955	00206961	00206974	00206977	00206991
00206796	00206680	00206684	00206698	00206699
00206705	00206710	00206711	00208448	00208461
00208472	00208296	00208353	00208389	00208394
00208395	00208448	00208461	00208336	00207781
00207783	00207786	00207787	00207850	00207870
00207899	00207951	00207898	00207902	00208036
00208047	00208071	00207963	00207750	00207749
00207730	00207730	00207756	00206785	00209151
00209152	00209154	00209158	00209173	00209178
00209178	00209189	00209217	00209218	00209227
00209098	00209134	00209136	00208836	00208983
00208993	00209020	00209032	00208849	00208863
00208869	00208885	00208899	00208906	00208907
00209143	00209601	00209638	00209640	00209642
00209657	00209459	00209463	00209474	00209503
00209510	00209515	00209548	00209320	00209338
00209350	00209351	00209367	00209669	00209684
00209741	00210215	00210268	00209660	00210274
00210308	00208099	00208101	00208099	00208138
00208141	00208199	00208200	00210560	00210578
00210420	00210430	00210449	00210457	00210471
00210472				

Section 4OA3: Event Follow-Up

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
PPM 3.3.1	Reactor Scram	53

Section 40A5: Other Activities

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
SPIP-SEC-02	Central and Secondary Alarm Stations	13
10 CFR 73.55(g)	Requirements for Physical Protection	January 1, 2009
NRC SIR05000397/2009010	Columbia Generating Station-NRC Special Inspection Report 05000397/2009010	