



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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November 3, 2009

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 05000397/2009004

Dear Mr. Parrish:

On September 26, 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 October 1, 2009, with Mr. S. Oxenford, Vice President, Nuclear Generation, and other members of your staff.

The inspection 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 one NRC-identified finding and one self-revealing finding of very low safety significance (Green). One of these findings was determined to involve violations of NRC requirements. However, because of the very low safety significance and because it is entered into your corrective action program, the NRC is treating this finding as a noncited violation, consistent with Section VI.A.1 of the NRC Enforcement Policy. If you contest the violation 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 the Columbia Generating Station. The information you provide will be considered in accordance with Inspection Manual Chapter 0305.

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).

Energy Northwest

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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  
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Docket: 50-397  
License: NPF-21

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Energy Northwest

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Publicly Avail	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Sensitive	<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Sens. Type Initials	WW
RI:DRP/A	SRI:DRP/A	SPE:DRP/A	C:DRS/EB1	C:DRS/EB2	
MOHayes	RBCohen	RCHagar	TRFarnholtz	NFO'Keefe	
<b>/T/ECohen for</b>	<b>/E/Walker</b>	<b>/RA/</b>	<b>/RKeller/for</b>	<b>/RA/</b>	
11/2/2009	10/30/2009	10/23/2009	10/26/2009	10/26/2009	
C:DRS/OB	C:DRS/PSB1	C:DRS/PSB2	C:DRP/A		
RELantz	MPShannon	GEWerner	WWalker		
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10/27/2009	10/28/2009	10/28/2009	11/2/2009		

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

Docket: 50-397  
License: NPF-21  
Report: 05000397/2009004  
Licensee: Energy Northwest  
Facility: Columbia Generating Station  
Location: Richland, Washington  
Dates: June 28, 2009 through September 26, 2009  
Inspectors: R. Cohen, Senior Resident Inspector, Project Branch A, DRP  
M. Hayes, Resident Inspector, Project Branch A, DRP  
J. Bashore, Resident Inspector  
E. Uribe, Reactor Inspector, DRS  
Approved By: W. Walker, Chief, Project Branch A  
Division of Reactor Projects

## SUMMARY OF FINDINGS

IR 05000397/2009004; 06/28/2009 – 09/26/2009; Columbia Generating Station, Integrated Resident and Regional Report; Refueling and Other Outages; Event Followup

The report covered a 3-month period of inspection by resident inspectors and an announced baseline inspections by regional based inspectors. One Green noncited violation and one Green finding of significance were identified. 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 Energy Northwest to implement the standards and guidance provided in Operations Instruction OI-09, "Operations Standards and Expectations," Revision 24. As a result, an operator failed to ensure that the turbine lube oil exhaustor system was adjusted to within its normal operating band after valve manipulations to clear an alarm in the control room. This resulted in a loss of an air-to-oil seal within the main turbine, which ultimately led to a manual plant scram.

This finding is more than minor because it affected the human performance attribute of the initiating events cornerstone's objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. This finding was determined to be of very low safety significance (Green) due to not contributing to both the likelihood of a reactor trip and the likelihood of mitigation equipment or functions not being available. A cross cutting aspect in human performance was identified with a work control component because Energy Northwest failed to incorporate actions to address plant conditions that may affect work activities [H.3(b)](Section 40A3).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for Energy Northwest's failure to effectively implement procedure SOP-ENTRY-DW, "Personnel Entry into Drywell." Energy Northwest's corrective actions for this issue included removing the NRC identified debris from the drywell, informing personnel of the ineffective drywell cleaning, and conducting an assessment to determine more effective methods for cleaning the drywell during future outages.

The finding was greater than minor because, if left uncorrected, it could result in the continued accumulation of foreign material in the drywell. The accumulation

of foreign material could result in blocking the emergency core cooling system suction strainers during normal operation or accident conditions. The finding was determined to be of very low risk significance (Green) since the debris did not result in an actual loss of safety function for any system and because the debris was removed by the licensee. A crosscutting aspect in problem identification and resolution, with a corrective action program component was identified in that the licensee failed to ensure that corrective actions were taken to address a previously identified adverse trend [P.1(d)](Section 1R20).

**B. Licensee-Identified Violations**

None.

## REPORT DETAILS

### Summary of Plant Status

The inspection period began with Columbia Generating Station in forced outage 09-03 following a manual plant scram due to a fire near the main turbine. The station completed work associated with forced outage 09-03 and subsequently returned to 100 percent power on July 2, 2009. The plant remained at full power except as noted below:

- On July 9, 2009, the station reduced power to 55 percent due to a leak in the main condenser. Columbia Generating Station repaired the main condenser leak and raised power to 99.5 percent power on July 15, 2009. Reactor power was limited to 99.5 percent power due to drifting issues with feedwater flow transmitters. The station returned to 100 percent power on July 27, 2009 after repair of the drifting feedwater flow transmitters.
- On August 5, 2009, with the plant operating at 100 percent power, Columbia Generating Station experienced an automatic plant scram due to a fire in a non-segmented electrical bus and entered forced outage 09-04 to make repairs. The station completed work associated with forced outage 09-04 on September 1, 2009 and returned to 100 percent power on September 5, 2009.
- On September 7, 2009, the station reduced power to 85 percent due to increasing vibrations on a condensate booster pump motor. After performing repair work on the condensate booster pump motor, the station returned to 100 percent power on September 13, 2009.
- On September 25, 2009, the station reduced power to 15 percent due to a problem with work associated on a non-segmented electrical bus repair and entered maintenance outage 09-05. The station remained at approximately 15 percent power in maintenance outage 09-05 for the remainder of the inspection period.

### 1. REACTOR SAFETY

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

#### 1R01 Adverse Weather Protection (71111.01)

##### .1 Readiness for Seasonal Extreme Weather Conditions

##### a. Inspection Scope

The inspectors performed a review of the licensee's adverse weather procedures for seasonal extremes (e.g., extreme high temperatures, extreme low temperatures, or hurricane season preparations). The inspectors verified that weather-related equipment deficiencies identified during the previous year were corrected prior to the onset of seasonal extremes, and evaluated the implementation of the adverse weather preparation procedures and compensatory measures for the affected conditions before the onset of, and during, the adverse weather conditions.

During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to mitigate or respond to adverse weather conditions. Additionally, the inspectors reviewed the Final Safety Analysis Report and performance requirements for systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. Specific documents reviewed during this inspection are listed in the attachment. The inspectors also reviewed corrective action program items to verify that the licensee was identifying adverse weather issues at an appropriate threshold and entering them into their corrective action program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant systems:

- July 2009 – August 29, 2009, diesel generator rooms and circulating water pump house for warm weather/hot weather preparations

These activities constitute completion of one readiness for seasonal adverse weather sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings of significance were identified.

.2 Readiness for Impending Adverse Weather Conditions

a. Inspection Scope

The inspectors performed a detailed review of the licensee's procedures and preparations for operating the facility during an extended period when ambient outside temperature was high and the ultimate heat sink was experiencing elevated temperatures. The inspectors focused on plant-specific design features and implementation of the procedures for responding to or mitigating the effects of these conditions on the operation of the facility's diesel generator 1. Inspection activities included a review of the licensee's adverse weather procedures, daily monitoring of the off-normal environmental conditions, and that operator actions specified by plant-specific procedures were appropriate to ensure operability of the facility's normal and emergency cooling systems. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one readiness for impending adverse weather condition sample as defined in Inspection Procedure 71111.01-05.

b. Findings

No findings of significance were identified.

## 1R04 Equipment Alignments (71111.04)

### .1 Partial Walkdown

#### a. Inspection Scope

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

- August 21, 2009, fire protection system
- August 24, 2009, technical support center

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, 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 walked down 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 two partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

#### b. Findings

No findings of significance were identified.

### .2 Complete Walkdown

#### a. Inspection Scope

On August 7, 2009, the inspectors performed a complete system alignment inspection of the 4160 V Essential AC Distribution System to verify the functional capability of the system. The inspectors selected this system because it was considered both safety significant and risk-significant in the licensee's probabilistic risk assessment. The inspectors walked down the system to review mechanical and electrical equipment line ups, electrical power availability, system pressure and temperature indications, as appropriate, component labeling, component lubrication, component and equipment cooling, hangers and supports, operability of support systems, and to ensure that

ancillary equipment or debris did not interfere with equipment operation. The inspectors reviewed a sample of past and outstanding work orders to determine whether any deficiencies significantly affected the system function. In addition, the inspectors reviewed the corrective action program database to ensure that system equipment-alignment problems were being identified and appropriately resolved. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one complete system walkdown sample 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:

- June 29, 2009, fire area TG-1/2, main generator 500 ft. elevation
- July 2, 2009, fire area SW-2, standby service water pump house 1B
- August 5, 2009, fire area TG-1, turbine generator 471 ft. elevation

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 quarterly fire-protection inspection samples 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 Final Safety Analysis Report, 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 walked down the area 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.

- September 10, 2009, electrical manholes number seven and eight

These activities constitute completion of one flood protection measures inspection sample 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 August 17, 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 quarterly licensed-operator requalification program sample 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:

- July 14, 2009, Work Order 01173410, "Failed Channel Check MS-LIS-24B, -38A, -36B"
- July 29 through August 29, 2009, diesel generator rooms and circulating water pump house for warm weather/hot weather preps
- August 26, 2009, Action Request/Condition Report 203346, "Main Steam Relief Valve Tail Piece Coating Degradation in Drywell"
- August 31, 2009, Work Order 01072759, CRDM 14-31, Post Maintenance Testing
- September 23, 2009, RCIC following maintenance outage

The inspectors reviewed events such as where ineffective equipment maintenance has 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 five 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:

- July 9, 2009, 55 percent downpower and cross divisional work
- July 15, 2009, increased risk due to high pressure core spray surveillance
- July 30, 2009, Work Order 01166987, "ISP-MS-Q909 ATWS-RPT Reactor High Pressure, During Hot Weather"
- August 3, 2009, Work Order 01171718, "Clean and Inspect 125V DC Battery Charger Supply Feeder Disconnect"

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 four maintenance risk assessments and emergent work control inspection samples 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:

- July 6, 2009, Action Request/Condition Report 200593, "SLC-P-1B Potentially INOP"
- July 14, 2009, Action Request/Condition Report 200676, "MS-PS-39A Leak Affecting Instrumentation"
- August 3, 2009, Action Request/Condition Report 200276, "RCIC-V-46 Failed to Open on Initiation"
- August 26, 2009, Action Request/Condition Report 203346, "Main Steam Relief Valve Tail Piece Coating Degradation in Drywell"

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 Final Safety Analysis Report to the licensee'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.

**1R18 Plant Modifications (71111.18)**

a. Inspection Scope

On September 23, 2009, the inspectors reviewed key affected parameters associated with energy needs, materials/replacement components, timing, heat removal, control signals, equipment protection from hazards, operations, flow paths, pressure boundary, ventilation boundary, structural, process medium properties, licensing basis, and failure modes for permanent modification TMR 09-017, "Configuration Management for Troubleshooting Actions to Reduce Vibrations for Cond-M-P/2B".

The inspectors verified that modification preparation, staging, and implementation did not impair emergency/abnormal operating procedure actions, key safety functions, or operator response to loss of key safety functions; postmodification testing will maintain the plant in a safe configuration during testing by verifying that unintended system interactions will not occur, systems, structures and components' performance characteristics still meet the design basis, the appropriateness of modification design assumptions, and the modification test acceptance criteria will be met; and licensee personnel identified and implemented appropriate corrective actions associated with permanent plant modifications. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one sample for temporary plant modifications as defined in Inspection Procedure 71111.18-05.

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:

- July 14, 2009, Work Order 01173410, "MS-PS-39A Leak Test"
- July 20, 2009, Work Order 01166799, "SCW-P-2 Replace Mechanical Seal"
- July 20, 2009, Work Order 01172000, "SW-M-P/1B Replace Top Hat Gasket"
- July 28, 2009, Work Order 01167230, "Standby Gas Treatment Filter Unit Differential Pressure Indication Switch Calibrations"
- August 26, 2009, Work Order 0117542914, "PMT RRC-V-23B, Engineering Change 8488"
- August 31, 2009, Work Request 29076683, "CRDM 14-31, Post Maintenance Testing"
- September 2, 2009, Work Order 01175612, "Thermal Scan E-Bus-Nonseg/N2/X"

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 on 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 seven postmaintenance testing inspection samples 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 Columbia Generating Station's two forced outages and one maintenance outage that were conducted on June 26, 2009; August 5, 2009; and September 25, 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. 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.

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

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

b. Findings

Introduction: The inspectors identified a green noncited violation of 10 CFR Part 50, Appendix B, Criterion V, "Instructions, Procedures, and Drawings," for Energy Northwest's failure to effectively implement the drywell closeout procedure to ensure that the drywell was free of foreign material at the conclusion of a forced outage. A crosscutting aspect in problem identification and resolution, with a corrective action program component, was also identified.

Description: On August 25, 2009, the inspectors performed an inspection of the drywell prior to closure during forced outage FO-09-04. The inspector's tour was conducted after the licensee had performed a cleanliness inspection to remove foreign material from the drywell. The inspectors identified a variety of foreign objects which included multiple pieces of paper, peeling paint, a roll of electrical tape, plastic tie wraps, metal washers, pieces of anti-c glove, a metal tag, numerous pieces of duct tape, a screwdriver, numerous pieces of wire, a paper label, numerous nuts and fibrous debris. Energy Northwest performed an extent of condition walkdown of the dry well and identified additional foreign material, as documented in action request AR/CR 203348. Energy Northwest took immediate action to remove the foreign material from the drywell. At the request of the resident inspectors, Energy Northwest performed a calculation to determine the total area of foreign material collected from the walkdowns. This area was determined to be approximately 15.9 square feet. In addition, a previous walk down of the drywell performed on August 8, 2009 by the resident inspectors identified 126 square inches of duct tape that was not qualified to be used on the surface of the main steam relief valves.

The inspectors reviewed engineering calculation ME-02-97-03. This calculation stated in part that the presence of tape in the suppression pool can be a challenge to the suction strainers, and that the foreign material control program will focus on limiting the tape that is present in containment during plant operation to 6.4 square feet. The amount of tape found during the final closeout walkdowns in forced outage FO-09-04 was calculated to be 8.2 square feet. This was documented in action request AR/CR 203495.

Based on a licensee-identified condition adverse to quality and adverse trend associated with insufficient implementation of foreign material exclusion controls, as documented in problem evaluation request PER 207-0216, Energy Northwest developed written guidance to ensure that the drywell was free of foreign material prior to a final closeout tour. The corrective actions included the following:

- Develop a foreign material checklist to improve guidance for dry well closeout inspections

- Include foreign material exclusion guidance and checklists in work instructions.
- Improve training to foreign material exclusion workers.
- Clean the drywell as specific work activities were completed.
- Drywell coordinators were to reinforce the above behavior through the performance of periodic drywell tours.
- The operations department was to ensure that a final closeout inspection was completed and all foreign material was removed.

The inspector's concluded that Energy Northwest's implementation of corrective actions identified in PER 207-0216 associated with drywell closeout were ineffective.

In addition, the inspectors reviewed procedure SOP-ENTRY-DW, "Personnel Entry into Drywell," and concluded that Energy Northwest had not effectively implemented the procedure to ensure that the drywell was free of foreign material at the conclusion of forced outage FO-09-04. The inspectors were concerned that foreign material left in the drywell could potentially impact the operation of safety-related equipment following an accident.

Analysis: The inspectors determined that the failure of Energy Northwest to adequately implement the requirements of procedure SOP-ENTRY-DW was a performance deficiency. Procedure SOP-ENTRY-DW, "Personnel Entry into Drywell, step 6.4.5 states to, "VERIFY all foreign material has been removed from the Drywell." Contrary to this procedure, the inspectors found foreign material during their final drywell closeout.

The inspectors used 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 which affected the Mitigating Systems Cornerstone objective to ensure availability and reliability of systems that respond to initiating events to prevent undesirable consequences. Specifically, exceeding specified margins of tape and the continued accumulation of other types of foreign material in the drywell could lead to a condition in which the material could challenge the emergency core cooling suction strainer function. Using Inspection Manual Chapter 0609, "Phase 1 – Initial Screening and Characterization of Findings," this finding was determined to be of very low safety significance (Green) because the debris did not result in an actual loss of safety function for any system when the debris was present in the drywell and because the debris was removed when it was found. The finding had a cross-cutting aspect in the area of problem identification and resolution associated with the corrective action program, because Energy Northwest failed to ensure that appropriate corrective actions were taken to address an adverse trend associated with foreign material control [P.1(d)].

Enforcement: Title 10 CFR Part 50, Appendix B, Criterion V, requires, in part, that activities affecting quality be prescribed by documented instructions, procedures, and drawings appropriate to the circumstance. In addition, the activities affecting quality shall be accomplished in accordance with these instructions, procedures, and drawings.

Procedure SOP-ENTRY-DW, "Personnel Entry Into Drywell," was the procedure used by the Energy Northwest to perform drywell closeout inspections, an activity affecting quality. Step 6.4.5 of procedure SOP-ENTRY-DW required that debris which could block emergency core cooling system suction strainers during normal operation or accident conditions be removed. Contrary to the above, in August 2009, the licensee failed to adequately implement procedure SOP-ENTRY-DW such that debris which could potentially impact the emergency core cooling system suction strainer function during normal operation or accident conditions was removed. Because this violation was of very low safety significance and because the debris was removed was documented into the licensee's corrective action program as action request AR/CR 203348, the issue is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 5000397/2009004-01, "Failure to Adequately Implement the Requirements of Procedure SOP-ENTRY-DW." Corrective actions for this issue included removing the NRC-identified debris from the drywell, informing personnel of the ineffective drywell cleaning and inspections, and further assessment to determine effective methods to remove debris from the drywell during future outages.

## **1R22 Surveillance Testing (71111.22)**

### **a. Inspection Scope**

The inspectors reviewed the Final Safety Analysis Report, 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.

- June 29, 2009, OSP-MS/IST-Q701, "MSIV Fast Closure Test Shutdown"
- July 15, 2009, OSP-ELEC-S703, "HPCS Diesel Generator Semi-Annual Operability Test"
- July, 15, 2009, OSP-RPS-W401, "Manual Scram Functional Test"
- July 15, 2009, OSP-CONT/IST-Q702, "Reactor Building Ventilation Isolation Valve Operability"
- August 27, 2009, OSP-RHR/IST-Q707, "RHR Loop C Valve Operability Test"

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

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

b. Findings

No findings of significance were identified.

**4. OTHER ACTIVITIES**

**4OA1 Performance Indicator Verification (71151)**

.1 Mitigating Systems Performance Index - Emergency ac Power System (MS06)

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - Emergency ac Power 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, mitigating systems performance index derivation reports, issue 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 emergency ac power system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the Mitigating Systems Performance Index - High Pressure Injection Systems 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 high pressure injection system 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.

## 4OA3 Event Follow-up (71153)

### .1 June 26, 2009 Manual Reactor Scram

#### a. Inspection Scope

On June 26, 2009, the inspectors observed and evaluated Energy Northwest's response to a scram while the reactor was operating at 65 percent power. The inspectors responded to the site and verified plant conditions by observing key plant parameters, annunciator status, and observing the current status of safety related mitigating equipment to ensure that the plant was stable. The inspectors also observed reactor operator actions in response to the 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.

#### b. Findings

Introduction: A self-revealing green finding was reviewed by the inspectors for the failure of Energy Northwest to adhere to operations expectations and standards established in Operations Instruction OI-09, "Operations Standards and Expectations," Revision 24. An operator failed to ensure that the turbine lube oil exhauster system was adjusted to within its normal operating band after valve manipulations to clear an alarm in the control room. This resulted in a loss of an air-to-oil seal within the main turbine, which ultimately led to a manual plant scram.

Description: On June 26, 2009, with Columbia Generating Station starting up from its most recent refueling outage, a fire occurred near the main turbine due to oil leaking onto a hot pipe from main turbine bearing number 2. The cause of the oil leak was attributed to the main turbine oil exhauster system being adjusted outside of its normal operating band. The adjustment on the main turbine oil exhauster system was made during operator response to a control room annunciator that had been in alarm. The fire near the main turbine resulted in Columbia Generating Station making an emergency action level declaration and a reactor scram.

Energy Northwest conducted a root cause evaluation, as documented in action request AR/CR 200350, and identified the following causes:

- Failure of the turbine oil pressure switch (TO-PS-9) to alarm with a low pressure condition existing. The turbine oil pressure switch alarm serves to warn operators that a low pressure condition exists within the turbine exhauster system. During the investigation of the event the pressure switch was found to be outside of its calibration setting in the low direction. Meaning the alarm would come in at a lower than designed pressure in the system. The lower than designed pressure setting of the pressure switch delays operator notification of problems within the turbine exhauster system. This alarm was added to the system based on industry operating experience.
- Failure of an equipment operator to perform follow-up monitoring of turbine demister differential pressure indicating switch. The demister differential pressure switch was

in alarm during plant startup. An equipment operator was sent down to adjust the turbine exhaust valves to clear the alarm in the control room as directed in the alarm response procedure. The alarm response procedure tells the operator to first check the turbine demister differential pressure indicating switch and then to consider either a valve adjustment or cleaning of the demister in order to clear the alarm. The alarm response procedure does not direct the equipment operator to recheck the demister differential pressure switch after adjustment.

The inspectors reviewed Operating Instruction OI-9, "Operations Standards and Expectations," Revision 24, and noted the following:

- Section 11.2.2 states that when manipulating equipment, operators should consider how to ensure the component is returned to normal.
- Section 14.2.1.d states that when performing a task, operators should use self-checking and review the results of the task to ensure that they are consistent with expected results.

The inspectors concluded that after manipulating the turbine exhaust valves to clear the turbine demister alarm and contrary to the expectations provided in OI-9, the equipment operator failed to ensure that the turbine exhaust system was returned to within its normal operating band. The inspectors determined that the apparent cause of this failure was that the equipment operator received the assignment to clear that alarm from a reactor operator who did not recognize that the shift's primary focus on plant startup had the potential to introduce errors into the equipment operator's actions, and consequently did not ensure the use of appropriate human performance error-prevention techniques to prevent or mitigate the effects of those errors. In particular, the reactor operator deviated from the normal practice of requiring two operators to clear the turbine demister alarm, so that one could peer-check the other. Thus, the reactor operator failed to incorporate error-prevention actions to address the plant conditions that could affect the equipment operator's performance.

Analysis: The inspectors determine that the equipment operator's failure to adhere to the expectations provided in OI-9 is a performance deficiency. As a result of not complying with expectations, the operator failed to verify a system had been returned to within its normal operating band, which led to a fire under the main turbine and ultimately a plant scram. This finding is more than minor because it affected the human performance attribute of the initiating events cornerstone's objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection Manual Chapter 0609 Attachment 4, "Phase 1 - Initial Screening and Characterization of Findings," this finding was determined to be of very low safety significance (Green) due to not contributing to both the likelihood of a reactor trip and the likelihood of mitigation equipment or functions not being available. A crosscutting aspect in human performance was identified with a work control component because Energy Northwest failed to incorporate actions to address plant conditions that may affect work activities [H.3(b)].

Enforcement: Enforcement action does not apply because the performance deficiency did not involve a violation of a regulatory requirement. Because this finding does not

involve a violation of regulatory requirements and has very low safety significance, it is identified as FIN 05000397/2009004-02, "Failure to Perform Back-up Monitoring."

.2 Reactor Scram Due To Fire in Non-Segregated Bus

a. Inspection Scope

On August 5, 2009, the inspector's observed and evaluated Energy Northwest's response to a reactor scram while the reactor was operating at 100 percent power. The reactor scram was due to a main turbine trip. The main turbine trip was caused by an electrical fault in the 6.9 kilovolt electrical distribution system. The inspectors responded to the site and verified 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 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. (That fire and scram are addressed in NRC Inspection Report 05000397/2009010.)

b. Findings

No findings of significance were identified.

**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 Columbia Generating Station'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) Unresolved Item 05000397/2007005-02: "Failure to Perform Adequate Structural Monitoring of Submerged Structures"

During a triennial maintenance effectiveness inspection, the inspector noted that the licensee had failed to perform complete monitoring of the condition of three structures within the scope of the maintenance rule. The licensee had not performed condition

monitoring of the submerged portions of the suppression chamber, the standby service water spray ponds, and condensate storage tank. Subsequently, the licensee examined the structures during the refueling outage between May 5 and June 25, 2009. The inspector performed an in-office review of documentation of the test results and discussed them with onsite system engineer and licensing personnel.

The results indicated that the submerged portions of the three structures were satisfactory. This was a minor violation of NRC requirements because of the failure to perform adequate monitoring of the condition of the structures in accordance with regulatory commitments; however, this deficiency did not adversely affect the structures from performing its safety function.

.3 (Closed) Licensee Event Report (LER) 05000397/2009-002-00: "Reactor Scram due to Turbine Control System Trip Header Depressurization"

This Licensee Event Report documents a manual scram initiated on May 8, 2009, due to the loss of air side seal oil pressure and consequential loss of hydrogen pressure in the main generator during testing of the seal oil system. Energy Northwest determined the cause of the event to be a single in-line filter, which represents a single point vulnerability as a reactor trip sensitive component, was previously approved for upgrade to a high efficiency duplex filter assembly, but was not implemented prior to the event. In addition, no interim actions were established due to multiple process weaknesses. See inspection report 05000397/2009003 for a discussion of a self-revealing finding 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.

.4 (Closed) Licensee Event Report (LER) 05000397/2009-003-00: "Manual Reactor Scram due to Fire Stemming from a Turbine Lube Oil Leak"

This Licensee Event Report documents a manual scram initiated on June 29, 2009, due to a fire being reported near the main turbine. Energy Northwest determined the cause of the event to be an out of calibration pressure switch which prevented operations from identifying a low pressure condition in the turbine lube oil vapor exhaust system. Energy Northwest has replaced the pressure switch. See section 4OA3 for a discussion of a self-revealing finding 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.

## **4OA6 Meetings**

### Exit Meeting Summaries

On August 31, 2009, the result of the review of Unresolved Item 2007005-02 was discussed with Mr. Fred Schill, Licensing. The licensee acknowledged the unresolved item closure as a minor performance deficiency. The inspector confirmed that no proprietary information was reviewed.

On October 1, 2009, 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.

## **SUPPLEMENTAL INFORMATION**

### **KEY POINTS OF CONTACT**

#### Licensee Personnel

D. Atkinson, Vice President, Nuclear Generation  
G. Cullen, Manager, Regulatory Programs  
J. Frisco, General Manager, Engineering  
S. Gambhir, Vice President, Technical Services  
M. Holle, Service Water System Engineer  
S. Oxenford, Plant General Manager  
F. Schill, Licensing

#### NRC Personnel

Ronald Cohen, Senior Resident Inspector  
Mahdi Hayes, Resident Inspector  
Joe Bashore, Resident Inspector

### **LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED**

#### Opened

None

#### Opened and Closed

05000397/2009004-01	NCV	Failure to Adequately Implement the Requirements of Procedure SOP-ENTRY-DW
05000397/2009004-02	FIN	Failure to Perform Back-up Monitoring

#### Closed

05000397/2007005-02	URI	Failure to Perform Adequate Structural Monitoring of Submerged Structures
05000397/2009002-00	LER	Reactor Scram due to Turbine Control System Trip Header Depressurization
0500397/2009003-00	LER	Manual Reactor Scram due to Fire Stemming from a Turbine Lube Oil Leak

#### Discussed

None

## LIST OF DOCUMENTS REVIEWED

### Section 1RO1: Adverse Weather Protection

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
PPM 1.5.14	Risk Assessment and Management for Maintenance/Surveillance Activities	17
SOP-HOTWEATHER-OPS	Hot Weather Operation	3

### Section 1RO4: Equipment Alignment

#### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
SOP-ELECT-4160V-OPS	4160 Volt AC Electrical Power Distribution System Operation	1
SOP-ELEC-6900V-OPS	6900 Volt AC Electrical Power Distribution System Operation	3
ABN-RPS	Loss of RPS	4
ABN-ELEC-SH5	SH-5 Distribution System Failures	0
ABN-ELEC-SH6	SH-6 Distribution System Failures	0
ABN-ELEC-SM1/SM7	SM-1, SM-7, SM-75, MS-72, SL-71, SL-73, and SL-11 Distribution System Failures	9
ABN-ELEC-SM2/SM4	SM-2, SM-4, and SL-21 Distribution System Failures	5
ABN-ELEC-SM3/SM8	SM-3, SM-8, SM-85, SM-82, SL-81, SL-83, and SL-31 Distribution System Failures	10

#### DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
E502, sheet 1	Main One Line Diagram	44
E502, sheet 2	Main One Line Diagram	54
E502, sheet 3	Main One Line Diagram	22
E502, sheet 4	Main One Line Diagram	9
E504, sheet 1	Vital One Line Diagram	58
M515	Fire Protection System	99

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M515	Fire Protection System	103
M785	Flow diagram HVAC System for Technical Support Center	21

**Section 1RO5: Fire Protection**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	CGS 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**

ACTION REQUEST/CONDITION REPORT

204095

WORK ORDER

01169258

**Section 1R11: Licensed Operator Requalification Program**

MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>REVISION</u>
Operations Requalification Training, Scenario LR001907	July 9, 2009
Crew Evaluation Summary, Scenario LR001907	August 17, 2009

**Section 1R12: Maintenance Effectiveness**

WORK ORDER

01072759

ACTION REQUEST/CONDITION REPORTS

200676      203346

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
CER C92-0833	MS-PS-39A	2
SOP-HOTWEATHER-OPS	Hot Weather Operations	3
SOP-RCIC-STBY	Placing RCIC in Standby Status	4
PPM 4.603A7	Annunciator Panel Alarms	November 4, 2008

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
M529	Flow Diagram Nuclear Boiler-Main Steam System Reactor Building	96
M519	Flow Diagram Reactor Core Isolation Cooling System	90

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ME-02-92-43	Calculation for Room Temperature for DG Building Under Design Basis Accident Conditions	3

**Section 1R13: Maintenance Risk Assessment and Emergent Work Controls**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
ATWS-RPT	ARI Actuation on Reactor Vessel Pressure High (B & D) CFT/CC	3
SOP-ELEC-125V-SHUTDOWN	125V DC System Shutdown	0
SOP-ELEC-125V-START	125V DC System Start	0
ABN-ELEC-125V DC	Plant BOP, Division 1, 2 and 3, 125V DC Distribution System Failures	4
PPM 1.3.76	Integrated Risk Management	16

WORK ORDER

001171718

**Section 1R15: Operability Evaluations**

ACTION REQUEST/CONDITION REPORTS

200593            200676            203346            200350

**Section 1R18: Plant Modifications**

PROCEDURES

TITLE

REVISION /  
DATE

NUMBER

TMR-09-017      Configuration Management for Troubleshooting Actions to  
Reduce

ACTION REQUEST/CONDITION REPORT

203953

WORK REQUEST

29077001

**Section 1R19: Postmaintenance Testing**

PROCEDURES

NUMBER

TITLE

REVISION

ISP-SGT-B102    Standby Gas Treatment – System B – Flow and Filter  
Pressure Drop Test

4

WORK ORDERS

01167230    01166799    01172000    0117542914    01175612

WORK REQUEST

29076683

ACTION REQUEST/CONDITION REPORTS

201847      201819      203731

## Section 1R20: Refueling and Other Outage Activities

### PROCEDURES

<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
OSP-RCS-C101	RPV Heat-up Surveillance	7
Shutdown Safety Plan	Columbia Generating Station Forced Outage FO-09-04, Shutdown Safety Plan	August 5, 2009
Shutdown Safety Plan	Columbia Generating Station Maintenance Outage MO-09-05, Shutdown Safety Plan	September 28, 2009
PPM 1.20.3	Outage Risk Management	3
PPM 3.1.1	Master Startup Check List	40
OSP-RCS-C101	RPV Heatup Surveillance	7

### ACTION REQUEST/CONDITION REPORT

00192594

## Section 1R22: Surveillance Testing

### PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
OSP-ELEC-S703	HPCS Diesel Generator Semi-Annual Operability Test	38
OSP-MS/IST-Q701	MSIV Closure Test - Shutdown	11
OSP-CONT/IST-Q702	Reactor Building Ventilation Isolation Valve Operability	7
OSP-RPS-W401	Manual Scram Functional Test	5
OSP-RHR/IST-Q707	RHR Loop C Valve Operability Test	

### WORK ORDER

011426301 0113762701

**Section 40A1: Performance Indicator Verification**

MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>REVISION</u>
NEI 99-02 Regulatory Assessment Performance Indicator Guideline	Revision 4
Energy Northwest and NRC Performance Indicator Data for July 2008 through September 2009	
Energy Northwest Operator Logs for July 2008 through September 2009	

**Section 40A2: Identification and Resolution of Problems**

ACTION REQUEST/CONDITION REPORTS

00202546	00202432	00201182	00203473
00202576	00202443	00201198	00203441
00202589	00202445	00201204	00203454
00202600	00202449	00201063	00203470
00202601	00202453	00201064	00203427
00202605	00202440	00201095	00203373
00202607	00202312	00203708	00203375
00202618	00202313	00203711	00203357
00202625	00202299	00203717	00203335
00202630	00202097	00203724	00203327
00202519	00202111	00203731	00203317
00202521	00202125	00203731	00203257
00202528	00202126	00203732	00203258
00202538	00202129	00203758	00203261
00202531	00202169	00203762	00203275
00202500	00202173	00203787	00203297
00202506	00202176	00203799	00203299
00202508	00202000	00203804	00203307
00202510	00202009	00203805	00203131
00202472	00202025	00203807	00203132
00202477	00201867	00203808	00203138
00202478	00201852	00203814	00203148
00202481	00201568	00203539	00203173
00202483	00201760	00203544	00203179
00202484	00201776	00203554	00203180
00202488	00201219	00203488	00203182
00202496	00201300	00203495	00203183
00202404	00201310	00203502	00203184
00202410	00201132	00203503	00203186
00202412	00201135	00203506	00203189
00202429	00201176	00203475	00203190

00203191	00203129	00202937	00204766
00203197	00203131	00202947	00204768
00203201	00203132	00202948	00204769
00203198	00202774	00202950	00204770
00203207	00202813	00202951	00204779
00203218	00202806	00202955	00204781
00203228	00202795	00202956	00204789
00203243	00202775	00202737	00204791
00203243	00202857	00202768	00204793
00203257	00202873	00202695	00204794
00203076	00202889	00202635	00204802
00203079	00202895	00202683	00204696
00203080	00202908	00202680	00204733
00203085	00202909	00202671	00204814
00203093	00202910	00202692	00204822
00203098	00202912	00202694	00204829
00203118	00202917	00202634	00204836
00203122	00202920	00204740	00204838
00203123	00202925	00204742	00204839
00203128	00202926	00204755	00204868

**Section 40A3: Event Follow-Up**

MISCELLANEOUS DOCUMENTS

<u>TITLE</u>	<u>DATE</u>
Control Room Operator Logs	August 5, 2009
Preliminary Notification of Event or Unusual Occurrence	August 5, 2009

**Section 40A5: Other Activities**

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
SPIP-SEC-06	Vehicle Escort Officer, Vehicle Search Officer, and Protected Area Perimeter Gates	15

WORK ORDERS

01124698      01136323

ACTION REQUEST/CONDITION REPORTS

00176331      00180301      00198706

