UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
612 EAST LAMAR BLVD, SUITE 400
ARLINGTON, TEXAS 76011-4125

May 10, 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 05000397/2010002

Dear Mr. Parrish:

On March 27, 2010, 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 April 6, 2010, 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 one NRC-identified finding and one self-revealing finding of very low safety significance (Green). Both of these findings were determined to involve violations of NRC requirements. 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.

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

Enclosure:
NRC Inspection Report 05000397/2010002
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	05000397
License:	NPF-21
Report:	05000397/2010002
Licensee:	Energy Northwest
Facility:	Columbia Generating Station
Location:	Richland, WA
Dates:	January 1, 2010 through March 27, 2010
Inspectors:	R. Cohen, Senior Resident Inspector, DRP M. Hayes, Resident Inspector, DRP P. Goldberg, Reactor Inspector, P.E. E. Ruesch, Reactor Inspector, DRS
Approved By:	W. Walker, Chief, Project Branch A Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000397/2010002; 01/01/2010 – 03/27/2010; Columbia Generating Station, Integrated Resident and Regional Report; Maintenance Effectiveness

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by regional based inspectors. Two Green noncited violations 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: Mitigating Systems

- Green. The inspectors identified a noncited violation of Technical Specification 5.4.1.a for a failure to maintain reactor core isolation cooling turbine bearing oil level in the proper band in accordance with procedural requirements. Not documenting oil additions to the reactor core isolation cooling turbine per paragraph 8.0 of PPM 10.2.13, Approved Lubricants, caused a high oil level on the inboard and outboard bearing housings resulting in the reactor core isolation cooling system becoming inoperable on December 20, 2009. Corrective actions for this issue included restoring oil level in the green band and initiating interim actions at the prompting of the resident inspectors to maintain proper oil level.

  This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and because it affects the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609, Phase 1 Initial Screening and Characterization of Findings," the inspectors determined that the finding was of very low risk significance (Green) because failure to maintain the reactor core isolation cooling system oil level in the proper band did not result in the loss of a safety function of a single train for greater than its technical specification allowed outage time. In addition, the finding would not have likely affected other mitigating systems resulting in a total loss of their safety function. This finding has a cross-cutting aspect in the area of human performance with a work practices component [H.4.b] (Section 1R12).

Cornerstone: Barrier Integrity

- Green. The inspectors reviewed a self revealing non-cited violation of Technical Specification 5.4.1a for a failure to provide procedures appropriate to the circumstance for rebuilding hydraulic control unit directional control valves. The failure to provide adequate instructions resulted in multiple control rod mis-positions at Columbia Generating Station.

  This finding is greater than minor because it is associated with the configuration control attribute of the Barrier Integrity cornerstone because it affects the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, failing to establish appropriate acceptance criteria for systems that control rod movement could lead to exceeding thermal safety limits. 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 it only affected the fuel barrier. The inspectors determined that since the inadequate procedure for evaluating the directional control valves had been in place more than 2 years in the past, the finding did not represent current plant performance. Therefore no cross cutting aspect was identified (Section 1R12).

B. Licensee-Identified Violations

None.

REPORT DETAILS

Summary of Plant Status

The station began the inspection period at a power level of 100 percent. On January 6, 2010, the station reduced power to 66 percent to perform troubleshooting on MS-V-22D intermediate position. On January 10, 2010, the station returned to 100 percent power. The facility operated at 100 percent power, with the exception of scheduled reductions in power to support minor maintenance and testing, 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 Impending Adverse Weather Conditions

a. Inspection Scope

Since high winds were forecast in the vicinity of the facility for March 8, 2010, the inspectors reviewed the plant personnel's overall preparations/protection for the expected weather conditions. On March 8, 2010, the inspectors walked down the secondary containment system because its safety-related functions could be affected, or required, as a result of high winds or tornado-generated missiles or the loss of offsite power. The inspectors evaluated the plant staff's preparations against the site's procedures and determined that the staff's actions were adequate. During the inspection, the inspectors focused on plant-specific design features and the licensee's procedures used to respond to specified adverse weather conditions. The inspectors also toured the plant grounds to look for any loose debris that could become missiles during a tornado. The inspectors evaluated operator staffing and accessibility of controls and indications for those systems required to control the plant. Additionally, the inspectors reviewed the FSAR and performance requirements for the systems selected for inspection, and verified that operator actions were appropriate as specified by plant-specific procedures. The inspectors also reviewed a sample of corrective action program items to verify that the licensee-identified adverse weather issues at an appropriate threshold and dispositioned them through the corrective action program in accordance with station corrective action procedures. Specific documents reviewed during this inspection are listed in the attachment.

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:

- January 26, 2010, reactor protection system motor generator RPS-MG-1
- March, 23, 2010, diesel generator 1 following post maintenance testing

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, 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 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 March 8, 2010, the inspectors performed a complete system alignment inspection of diesel generator 3 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 inspected 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:

- January 5, 2010, fire area R-8/1, low pressure core spray pump room
- January 5, 2010, fire area R-3, high pressure core spray pump room
- February 2, 2010, fire area RC-4, division 1 switch gear room
- March 17, 2010, fire area TG-1, main transformer yard
- March 17, 2010. missed fire tour, standby service water pump house B
- March 23, 2010, fire area DG-1, high pressure core spray diesel generator room

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 six quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings of significance were identified.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On February 2, 2010, the inspectors observed a fire brigade activation due to smoke observation on the radwaste building elevation 471 foot level. The observation evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies; openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of preplanned strategies; (9) adherence to the preplanned drill scenario; and (10) drill objectives.

These activities constitute completion of one annual fire-protection inspection sample 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.

- March 17, 2010, Electrical Manhole 4
- March 23, 2010, Standby Service Water Pump House A

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

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

.1 Annual Review

a. Inspection Scope

The inspectors reviewed licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the diesel cooling jacket water heat exchanger. The inspectors verified that performance tests were satisfactorily conducted for heat exchangers/heat sinks and reviewed for problems or errors; the licensee utilized the periodic maintenance method outlined in EPRI Report NP 7552, “Heat Exchanger Performance Monitoring Guidelines,” the licensee properly utilized biofouling controls; the licensee’s heat exchanger inspections adequately assessed the state of cleanliness of their tubes; and the heat exchanger was correctly categorized under 10 CFR 50.65, “Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants.” Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of one heat sink inspection sample as defined in Inspection Procedure 71111.07-05.

b. Findings

No findings of significance were identified.

.2 Triennial Review

a. Inspection Scope

The inspectors reviewed licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the Residual Heat Removal System heat exchangers, Emergency Diesel Generator jacket water heat exchanger, and the Ultimate Heat Sink. The inspectors verified that performance tests were satisfactorily conducted for heat exchangers/heat sinks and reviewed for problems or errors; the licensee utilized the periodic maintenance method outlined in EPRI Report NP 7552, "Heat Exchanger Performance Monitoring Guidelines," the licensee properly utilized biofouling controls; the licensee's heat exchanger inspections adequately assessed the state of cleanliness of their tubes; and the heat exchanger was correctly categorized under 10 CFR 50.65, "Requirements for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants." Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of three heat sink inspection samples as defined in Inspection Procedure 71111.07-05.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

.1 Quarterly Review

a. Inspection Scope

On February 10, 2010, 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 preestablished 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:

- January 26, 2010, Action Request/Condition Report 211561, “SGT-DISC-7B1BL: B Phase Fuse Incorrectly Installed”
- February 8, 2010, Action Request/Condition Report 209852, “Unplanned technical specifications entry due to high oil levels in the RCIC Turbine Inboard and Outboard Bearings”
- March 1, 2010, Action Request/Condition Report 213502, “Diesel Generator 3 Governor Hunting While Fully Loaded After an Hour Run”
- March 4, 2010, Action Request/Condition Report 205460, “Adverse Trend – Control Rod Drive, Hydraulic Control Unit Directional Control Valve Failures

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 four quarterly maintenance effectiveness samples as defined in Inspection Procedure 71111.12-05.

b. Findings

.1 Introduction. An NRC identified noncited violation of Technical specification 5.4.1.a was identified for failure to document oil additions to the reactor core isolation cooling turbine per paragraph 8.0 of PPM 10.2.13, Approved Lubricants, Revision 52. As a result, the reactor core isolation cooling system was inoperable for fourteen hours following a high oil level on the bearing housings.

Description. On November 25, 2009, Energy Northwest operators found reactor core isolation cooling turbine oil level high in the yellow band. Oil level high in the yellow band requires appropriate corrective actions per PPM RCIC TURBINE OIL FILL AND PRIME, Revision 4, paragraph 4.4. Corrective actions consisted of lowering the oil level into the green band. This was documented in Action Request/Condition Report 208472. Energy Northwest took the corrective actions of providing a history of level prior to the high oil level event on November 25, 2009 and took additional actions to evaluate revising the reactor core isolation cooling operating procedures to ensure reactor core isolation cooling oil level was properly maintained.

On December 21, 2009, Energy Northwest operators discovered reactor core isolation cooling oil level high in the red band on the inboard and outboard bearing housings as documented in Action Request/Condition Report 209852. Control room operators declared the reactor core isolation cooling system inoperable and entered technical specification 3.5.3.a due to a high reactor core isolation cooling turbine oil level.

The inspectors reviewed the Terry Turbine Maintenance Guide, applicable to the Reactor Core Isolation Cooling Turbine, Final Report, dated November 2002, Report Number 1007460 to determine oil level requirements for the reactor core isolation cooling turbine oil system. Section 20.2.5 of this maintenance guide provided that turbine bearing sump oil level is critical to minimize the potential for oil aeration problems. In addition, high oil level could result in air entrainment and decrease oil drain flow to the sump, affecting bearing and turbine governor performance. NRC Information Notices 81-24, “Auxiliary Feed Pump Turbine Bearing Failures,” and 94-84, “Air Entrainment in Terry Turbine

Lubricating Oil System," described similar industry terry turbine problems that result from improper oil levels.

On January 29, 2010, Energy Northwest more specifically identified that operating procedure changes were needed to ensure reactor core isolation cooling turbine bearing oil level is maintained in the proper band, as documented in AR/CR 208472 assignment 5. The procedure changes were to develop a consistency between log takers to keep reactor core isolation cooling oil level in the green band per procedure PPM RCIC TURBINE OIL FILL AND PRIME. These changes included:

- documentation of oil additions and removals with the mechanical maintenance department and equipment operators
- placing a numeric scale on outboard bearing housing reservoir on the standstill oil level indicator for monitoring and trending, this would develop consistency between log takers, require that logs would be taken only on the outboard sight glass
- review changes and notes with equipment operators
- generate an engineering evaluation to determine the correct oil level
- add a sight glass accumulator to dampen level changes

On February 8, 2010, the resident inspectors questioned Energy Northwest operations personnel on what interim actions were in place to prevent re-occurrence of reactor core isolation cooling turbine high oil levels. The inspectors were concerned that if interim actions were not in place prior to the implementation of procedure changes due March 31, 2010, equipment operators and maintenance personnel may not maintain reactor core isolation cooling turbine oil levels in the proper band. Energy Northwest took immediate corrective action and initiated night order 1122, dated February 8, 2010 which states to, "Use the outboard housing reservoir oil level indicator. When oil level is in the yellow band, contact a fix it now mechanic to correct the yellow band oil level back to the green band. This contact should be done on the same shift or the next shift that a fix it now mechanic is onsite. Write a condition report and work request to document the issue. This night order will remain in place until a numeric scale (-20 mm to +20mm) is in place on the outboard bearing housing reservoir on the standstill oil level indicator for monitoring and trending."

Energy Northwest performed an apparent cause analysis for this issue under Action Request/Condition Report 209852. This apparent cause determined that with small additions of oil to the reactor core isolation cooling turbine, a significant change in sight glass levels occur due to the narrow oil level bands. Contributing causes to this issue were oil addition to the reactor core isolation cooling turbine were not documented and log taking techniques by different equipment operators were not consistent.

Analysis. The failure to document oil addition to the RCIC turbine per PPM 10.2.13, paragraph 8.0, revision 52 was a performance deficiency. This finding was more than minor because it was associated with the equipment performance attribute of the Mitigating Systems cornerstone and because it affects the associated cornerstone objective of ensuring the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Manual Chapter 0609, Phase 1 Initial Screening and Characterization of Findings," the inspectors determined that the finding was of very low risk significance (Green) because failure to maintain the reactor core isolation cooling system oil level in the proper band did not result in the loss of a safety function of a single train for greater than its technical specification allowed outage time. This finding has a cross-cutting aspect in the area of human performance with a work practices component [H.4.b]. Specifically, not defining and effectively communicating procedural compliance involving documenting oil addition to the RCIC turbine caused system inoperability due to a high oil level.

Enforcement. Technical Specification 5.4.1a requires that procedures be established, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 4.g of Regulatory Guide 1.33, Appendix A, recommends procedures for operation and maintenance of the reactor core isolation cooling system. Procedure PPM 10.2.13, "Approved Lubricants," Revision 52, partially implemented this requirement. Paragraph 8 of procedure PPM 10.2.13, requires documenting oil additions to the reactor core isolation cooling turbine. Contrary to this, Energy Northwest failed to document oil additions to the reactor core isolation cooling turbine. As a result, oil level was found in the red band resulting in the inoperability of the reactor core isolation cooling system for fourteen hours. Because this finding is of very low safety significance and has been entered into the corrective action program as action request/condition report 209852, the issue is being treated as a noncited violation consistent with Section VI.A.1 of the NRC Enforcement Policy: NCV 5000397/2010002-01, "Failure to maintain reactor core isolation cooling turbine bearing oil level in accordance with the applicable operating procedure requirements."

.2 Introduction. The inspectors reviewed a self revealing noncited violation of Technical Specification 5.4.1.a for failure to provide procedures appropriate to the circumstance for rebuilding hydraulic control unit directional control valves. The failure to provide adequate instructions resulted in multiple control rod mis-positions at Columbia Generating Station.

Description. Between June 2009 and October 2009 Columbia Generating Station experienced six separate occasions of control rods not responding as intended. Two occasions were due to a rod drifting out from its full in position, on one occasion a rod would not move from its full in position, on three occasion rods did not move to their intended locations. Each occurrence is summarized below:

- June 12, 2009 - Following scram time testing during refuel outage R19, control rod 4647 began to drift out. Control rod 4647 was then inserted by operators and began to drift out again after reaching its full in position. Operators then entered ABN-ROD and inserted control rod 4647 and closed the insert isolation valve for control rod 4647. Control rod 4647 began to drift out again and operators had to reopen the insert isolation valve and insert control rod 4647. Control rod 4647 was again inserted to its full in position, and both the insert and withdrawal isolation valves were closed and control rod 4647 remained in the full in position.

- June 17, 2009 - Following testing of the alternate rod insertion system, control rod 4647 began to drift out after being scrammed. Control rod 4647 was inserted manually to its full in position but continued to drift back out. Control rod 4647 was then continuously inserted and isolated by closing the insert and withdrawal valves.

- August 27, 2009 - During pre-startup control rod venting, control rod 4203 would not withdraw from the full in position. Many attempts were made to move the control rod using procedure ABN-ROD. This included applying continuous insert and withdraw signals for periods of time up to 15 minutes, attempting to move the rod with elevated drive header pressure, and by attempting to move the control rod by "double clutching" the rod at elevated drive header pressure. Through out the attempts, the control rod did not move.

- August 31, 2009 - During plant startup, control rod 2203 withdrew to the 06 position when given a signal to withdraw to the 02 position. The rod was subsequently inserted to the full in position and another attempt to withdraw the rod to the 02 position was made. This attempt was unsuccessful due to control rod 2203 withdrawing to the 06 position again. Control rod 2203 was then inserted to the 04 position and plant start up continued.

- October 2, 2009 - During plant startup, control rod 3459 withdrew from 02 to 10 when a single notch rod withdrawal signal was given. Control rod 3459 was inserted to 00 per ABN-ROD, and was declared inoperable. An engineering evaluation was performed and plant startup was allowed to continue.

- October 3, 2009 - During plant startup, while moving control rod 5043 from position 08 to12 by single notch rod withdrawal there was no position indication at position 10. Operators entered procedure ABN-RPIS which allowed operators to enter a substituted position in the rod worth minimizer. While moving control rod 5043 from the now substituted position 10 to position 12, there was no position indication at position 12. Referring back to ABN-RPIS for further actions, the rod was fully inserted to the 00 position. While inserting the rod to the full in position, rod position indication did not return until the full in position was reached. An engineering evaluation was performed and plant startup was allowed to continue.

After each of the above occurrences the directional control valves were disassembled and evaluated. All of the valves had some sort of irregularity associated with them. Two valves had large deposits of corrosion products, one valve had a white ring which indicated the valve had not been properly cleaned. Another valve was worn to a point that it should have been rejected by the rebuild process. The last valve had a 360 degree groove in the valve. Three additional valves were inspected that were ready to be installed in the plant to see if any abnormalities existed. One of the three valves had obvious scratching on the inner bore. The scratching appears to have been introduced during the bore cleaning process. The scratches should have caused rejection of the valve body and the valve should not have been rebuilt.

Due to the number of failures and the relatively short time period with which they occurred Columbia Generating Station performed a common cause analysis for all these occurences. It was determined that the work instructions were not specific in their bore cleaning and acceptance criteria for the directional control valves. An inspection of the bore was made, but details on rejectable conditions did not exist.

Analysis. The inspectors determined that the failure to provide adequate details on what constitutes a rejectable condition for directional control valves is a performance deficiency. This finding is greater than minor because it is associated with the configuration control attribute of the Barrier Integrity cornerstone because it affects the cornerstone objective of providing reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. Specifically, failing to establish appropriate acceptance criteria for systems that control rod movement could lead to exceeding thermal safety limits. 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 it only affected the fuel barrier. The inspectors determined that since the inadequate procedure for evaluating the directional control valves had been in place more than 2 years in the past, the finding did not represent current plant performance. Therefore no cross cutting aspect was identified (Section 1R12).

Enforcement. Technical Specification 5.4.1a requires that procedures be established, implemented, and maintained covering the applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978. Section 4.b of Regulatory Guide 1.33, Appendix A, recommends procedures for operation of the control rod drive system. Procedure PPM 10.5.9, "CRD/Hydraulic Control Unit Refurbishment," Revision 14, partially implemented this requirement. Contrary to this, the licensee failed to maintain Procedure PPM 10.5.9 by not including adequate acceptance criteria in Procedure PPM 10.5.9 to prevent directional control valves that should have been rejected by the rebuilding process from being returned to service. Because this finding is of very low safety significance and has been entered into the corrective action program as action request/condition report 205460, this violation is being treated as a noncited violation consistent with Section VI.A of the NRC Enforcement Policy: NCV 05000397/2010002-02, "Failure to Provide Adequate Acceptance Criteria."

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:

- January 4, 2010, orange risk condition due to service water system B being out of service for planned maintenance

- February 8, 2010, yellow risk due to standby gas treatment train A being out of service and Bonneville Power Administration breaker maintenance

- February 22, 2010, yellow risk due to diesel generator 3 turbocharger replacement and high pressure core spray planned maintenance

- March 22, 2010, yellow risk due to diesel generator 1 planned outage

- March 23, 2010, yellow risk due to high pressure core spray planned maintenance and reactor recirculation pump RRC-P-1 planned work

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 five maintenance risk assessments and emergent work control inspection samples as defined in Inspection Procedure 71111.13-05.

b. <u>Findings</u>

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. <u>Inspection Scope</u>

The inspectors reviewed the following issues:

- January 3, 2010, Action Request/Condition Report 210420, “MS-V22D-Steam Line D Indicated Flow Change”

- January 22, 2010, Action Request/Condition Report 211422, “Small amount of water found in DG-1 cylinder 1 petcock”

- February 28, 2010, Action Request/Condition Report 213502, “Diesel Generator 3 Governor Hunting While Fully Loaded After an Hour Run”

- March 22, 2010, Action Request/Condition Report 214706, “Evidence of Plugging in Service Water Supply/Return for LPCS-M-P/1”

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 sample(s) as defined in Inspection Procedure 71111.15-04.

b. Findings

No findings of significance were identified.

1R18 Plant Modifications (71111.18)

.1 Temporary Modifications

a. Inspection Scope

To verify that the safety functions of important safety systems were not degraded, the inspectors reviewed the temporary modification identified as temporary modification request TMR 09-007: installation of a non-conforming fuel pool cooling motor- pump FPC-M-P/1A.

The inspectors reviewed the temporary modification and the associated safety-evaluation screening against the system design bases documentation, including the FSAR and the technical specifications, and verified that the modification did not adversely affect the system operability/availability. The inspectors also verified that the installation and restoration were consistent with the modification documents and that configuration control was adequate. Additionally, the inspectors verified that the temporary modification was identified on control room drawings, appropriate tags were placed on the affected equipment, and licensee personnel evaluated the combined effects on mitigating systems and the integrity of radiological barriers.

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:

- February 9, 2010, Work Order 1177427, OSP-SLC-/IST-Q701, “Post Maintenance Testing Standby Liquid Control System After SLC-P-1B Motor Testing”

- February 27, 2010, OSP-ELEC-M703, “HPCS Diesel Generator Monthly Operability Test”

- March 5, 2010, Work Order 01186149, “Diesel Generator 3 Post Maintenance Testing Following Governor Replacement”

- March 24, 2010, Work Order 11491131, “Over Speed Test DG-ENG-1A1 and DG-ENG-1A2

- March 24, 2010, Work Order 1173527, “DG-ENG-1A1 and DG-ENG-1A2 Engine Analysis Following Maintenance”

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 (as applicable):

- 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 Updated 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 five postmaintenance testing inspection samples as defined in Inspection Procedure 71111.19-05.

b. Findings

No findings of significance were identified.

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.

- January 13, 2010, ISP-RPS-Q903, “RPS (Channel B1) and ECO Recirculation Pump Trip – TGV Fast Closure RPS-PS-5B-CFT/CC”

- January 28, 2010, Work Order 0117662601, “SM-4 Voltage Relay Loss”

- February 1, 2010, high pressure core spray service water operability test

- February 25, 2010, OSP-HPCS/IST-Q701, “HPCS System Operability Test”

- March 22, 2010, Work Order 1179662, “OSP-ELEC-M701 Monthly Operability Test”

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

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

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

1EP6 Drill Evaluation (71114.06)

.1 Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on January 12, 2010, 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 postevolution 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.

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Unplanned Scrams per 7000 Critical Hours (IE01)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned scrams per 7000 critical hours performance indicator for the period from the first quarter 2009 through the fourth 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, and NRC integrated inspection reports for the period of January 2009 through December 2009, to validate the accuracy of the submittals. 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 unplanned scrams per 7000 critical hours sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

.2 Unplanned Scrams with Complications (IE02)

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned scrams with complications performance indicator for the period from the first quarter 2009 through the fourth 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, and NRC integrated inspection reports for the period of January 2009 through December 2009, to validate the accuracy of the submittals. 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 unplanned scrams with complications sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the unplanned power changes per 7000 critical hours performance indicator for the period from the first quarter 2009 through the fourth 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, maintenance rule records, event reports, and NRC integrated inspection reports for the period of January 2009 through December 2009, to validate the accuracy of the submittals. 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 unplanned transients per 7000 critical hours sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings of significance were identified.

4OA2 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 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 a negative trend for troubleshooting, AR/CR 212671, dated March 16, 2010. 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' review was focused on repetitive equipment and corrective maintenance issues but also considered the results of daily inspector corrective action program item screening discussed in Section 4OA2.1. The review also included issues documented outside the normal corrective action program in system health reports, corrective maintenance work orders, component status reports, and maintenance rule assessments. The inspectors' review nominally considered the six-month period of October 2008 through March 2009, although some examples expanded beyond those dates when the scope of the trend warranted. Corrective actions associated with identified trends were reviewed for adequacy.

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

b. Findings

No findings of significance were identified.

.4 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 issues related to temporary modifications, 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 January through June 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.

4OA3 Event Follow-up (71153)

.1 Action Request/Condition Report 210420, MS-V-22D-STEAM LINE D INDICATED FLOW CHANGE, JANUARY 3, 2010

MS-V-22D did not indicate full open after performing surveillance testing on December 19, 2009. Main steam line D flow data showed that flow did not return to normal after MS-V-22D indicated intermediate. This indication called into question the ability of the valve to meet its design function of closing when called upon. Energy Northwest's subsequent troubleshooting performed on the valve resulted in an initial declaration of inoperable which required the main steam line be isolated and the plant to be at a lower power level. Further testing by Energy Northwest demonstrated that MS-V-22D would close as required per technical specifications. Energy Northwest's root cause analysis was not able to determine a root cause for the failure of MS-V-22D. This issue will be addressed in the Component Design Basis Inspection as documented in report number 2010-006.

.2 (Closed) Licensee Event Report 05000397/2009-005-00: Manual Reactor Scram due to Main Turbine DEH Control System Fluid Leak

This Licensee Event Report documents the loss of system pressure in the main turbine digital electro-hydraulic control (DEH) system on November 7, 2009, as the result of the catastrophic failure of an o-ring on accumulator DEH-TK-1D. After receiving a DEH reservoir low-low level alarm in the control room, operators inserted a manual scram of the reactor. The licensee determined that the cause of the o-ring failure was improper reassembly of the flanged joint containing the failed o-ring following maintenance during the previous refueling outage. A self-revealing finding for the failure of the licensee to provide an adequate maintenance procedure was previously documented as FIN 05000397/2009005-05. The inspectors reviewed this Licensee Event Report and did not identify any violations of regulatory requirements or any additional findings. This Licensee Event Report is closed.

4OA5 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.

4OA6 Meetings

Exit Meeting Summary

On March 4, 2010, the inspectors presented the inspection results of the heat sink performance inspection 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 inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On April 6, 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 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 Operations Support
J. Bekhazi, Plant General Manager
S. Christianson, Principal Engineer, System Engineering
D. Clymer, Quality Supervisor, Quality Assurance
D. Coleman, Manager, Regulatory Programs
G. Cullen, Recovery Manager
S. Gambhir, Vice President, Technical Services
M. Humphreys, Licensing Supervisor, Regulatory Programs
C. King, Assistant Plant General Manager
R. Nielson, Acting Manager, Regulatory Programs
S. Oxenford, Vice President Nuclear Generation, Chief Nuclear Officer
F. Schill, Licensing Engineer
D. Swank, Engineering General Manager

NRC Personnel

R. Cohen, Senior Resident Inspector
T. Farnholtz, Chief, Engineering Branch 1

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None

Opened and Closed

05000397/2010002-01	NCV	Failure to maintain reactor core isolation cooling turbine bearing oil level in accordance with the applicable operating procedure requirements (Section 1R12)
05000397/2010002-02	NCV	Failure to Provide Adequate Acceptance Criteria (Section 1R12)

Closed

05000397/2009005-00	LER	Manual Reactor Scram due to Main Turbine DEH Control System Fluid Leak (Section 4OA3)

LIST OF DOCUMENTS REVIEWED

Section 1RO1: Adverse Weather Protection

MISCELLANEAOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
E/I-02-93-08	Engineering Calculation E/I-02-93-08	December 15, 1993
Drawing E504	RPS-MG Vital One Line Diagram	58
PPM ABN-WIND	Tornado/High Winds	16

ACTION REQUEST/CONDITION REPORTS

200676

Section 1RO4: Equipment Alignment

PROCEDURES

NUMBER	TITLE	REVISION / DATE
OSP-HPCS-M102	HPCS Valve Lineup	2
SOP-SW-STBY	Placing Service Water in Standby Status	1

DRAWINGS

NUMBER	TITLE	REVISION / DATE
M520	Flow Diagram-HPCS and LPCS Systems Reactor Building	96
M521-1	Flow Diagram Standby Service Water System Reactor, Radwaste Diesel Generator Buildings and Yard	114

DRAWINGS

NUMBER	TITLE	REVISION / DATE
M524-2	Flow Diagram Standby Service Water System Reactor, Radwaste Diesel Generator Buildings and Yard	105
M524-3	Flow Diagram Standby Service Water System Reactor, Radwaste Diesel Generator Buildings and Yard	16

ACTION REQUEST/CONDITION REPORTS

188527　　213488　　213502

Section 1RO5: Fire Protection

MISCELLEANOUS DOCUMENTS	TITLE	REVISION / DATE
Fire Plans	Columbia Generating Station Pre-Fire Plans	3,7
FSAR	Columbia Generating Station Final Safety Analysis Report, Appendix F	57
NFPA-10	National Fire Protection Association	1984
	Unannounced Fire Drill 471’ Hallway Crew F	February 2, 2010

ACTION REQUEST/CONDITION REPORTS

00214466

Section 1RO6: Flood Protection Measures

DOCUMENT TYPE

NUMBER	TITLE	REVISION / DATE
FSAR	Final Safety Analysis Report, Sections 2.4.2 and 3.4.1.5.2	Amendment 57

Section 1RO6: Flood Protection Measures

DOCUMENT TYPE

NUMBER	TITLE	REVISION / DATE

Section 1RO7: Heat Sink Performance

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
EC 8798	Deferral of Eddy Current Testing of the DCW Heat Exchangers for DCW-HX-1A1 and DCW-HX-1A2	N/A
ME-02-02-244	Calculation for Minimum Heat Transfer Rate Required for DCW Heat Exchangers A and B	000.001

ACTION REQUEST/CONDITION REPORTS

00206073	00195096	00190633	02102275	00210271
00201393	00190208	00039780	00039871	00033124
00039060	00181532	00191717	00191271	00210274
00204842	00052602	00050370	00051205	00181491
20602131	00180613	00056060	00055600	00207787
00198326	00108599	00195503	00193835	00193046
00175797	00056797	00055329	00049325	00049325
20260003	00206073	00176659	00037966	00052024
00205590	02133792	00213793	00213798	00202600
00013908	00213776	00051561	00053856	00055910
00056778	00185513	00193488	00056781	00052603
00049325				

WORK ORDERS

01110450 01	01151572 01	01165397 01	01165689 01	01110450 01
01167559 01	01151179 01	01107072 01	01107071 01	01069816 01
01058827 01	01067538 01	01037256 01	01067539 01	01037255 01

01010765 01	01010766 01	29053127 01	29054942 01	01133885 01
01134553 01	01110451 01	01076267 01	01138062 01	01107893 01
01177465 01	01174283 01	01175778 01	01174283 01	01175778 01
01155544 01	01088200 01	01141314 02	01106929 01	01123814 01
01031130 01	01106011 01	01161233 04	01135052 02	01142335 01
01109770 01	01156909 01	01159168 01	00016858 01	01174773 01
01141852	01141856			

PROCEDURES AND TESTS

NUMBER	TITLE	REVISION / DATE
12.14.1	Chemical Treatment of Standby Service Water	14
SWP-CHE-02	Chemical Process Management and Control	16
PPM 8.4.62	Thermal Performance Monitoring of DCW-HX-1B1 and DCW-HX-1B2	7
PPM 8.4.63	Thermal Performance Monitoring of DCW-HX-1C	8
PPM 8.4.62	Thermal Performance Monitoring of DCW-HX-1B1 and 1B2	8
PPM 8.4.54	Thermal Performance Monitoring of DCW-HX-1A1 and DCW-HX-1A2	9
1.3.66	Operability and Functionality Evaluation	14
PPM-8.4.63	Thermal Performance Monitoring of DCW-HX-1C	7
GEK-71336A	Operation and maintenance instructions for Residual Heat Removal System	November 1983
1.5.13	Preventive maintenance Optimization Living Program	17
Appendix 1	Heat Exchanger Program	5
Appendix 2	SW Reliability Program	5

4th Quarter 2009	Service Water Health Report	December 2010
4th Quarter 2009	Emergency Diesel Generator Health Report	December 2010
4.601.A1	601.A1 Annunciator Panel Alarms	18
ISP-SW-X304	Accident Monitoring Instruments Standby Service Water Return Flow	2
SWP-CAP-01	Corrective Action Program	18
4th Quarter 2009	Residual Heat Removal System Health Report	December 2009
OPS-SW-M101	Standby Service Water Loop A Valve Position Verification	22
OPS-SW-M102	Standby Service Water Loop B Valve Position Verification	18
OSP-SW-M103	HPCS Service Water Valve Position Verification	15
OSP-RHR-M101	RHR A Fill Verification	6
10.24.59	PM cal/Test Bailey Alarm Unit	8
10.24.21	Instrument Master Data Sheet	6
PPM 8.4.42	Thermal Performance Monitoring of RHR-HX-1A and RHR-HX-B	9
PPM 8.4.42	Thermal Performance Monitoring of RHR-HX-1A and RHR-HX-B	6
EC 8798	Deferral of Eddy Current Testing of the DCW Heat Exchangers for DCW-HX-1A1 and DCW-HX-1A2	EC 8798

CALCULATIONS

NUMBER	TITLE	REVISION / DATE
EC 7525	Assessment of Design and Licensing Basis for ECCS Water Hammer	December 11, 2008
ME-02-92-43	Room Temperature Calculation	8

ME-02-92-41	Ultimate Heat Sink Analysis	6
ME-02-96-28	Evaluation of Cavitation Potential in the Service Water System	0
ME-02-08-15	Determination of Allowable Volumes of Air/Gas in the ECCS Discharge Piping	0
09-004	Proto-Power Calculation Test Data Evaluation and Uncertainty Analysis for the RHR Heat Exchangers	A
ME-02-92-242	DCW-HX-1C Performance Evaluation	0
ME-02-02-244	Calculation for Minimum Heat Transfer Rate Required for DCW Heat Exchangers A and B	ME-02-02-244

PROBLEM EVALUATION REQUEST

NUMBER	SUBJECT	DATE
202-3407	Standby Service Water Flow to Three Room Coolers was Below Surveillance Flow Balance	December 4, 2002
202-1977	Cavitation Potential in the Service Water System	February 28, 2004

Section 1R11: Licensed Operator Requalification Program
Operations Requalification Training, February 10, 2010

Section 1R12: Maintenance Effectiveness

ACTION REQUEST/CONDITION REPORTS

211561	194765	209852	208472	213502
213488	189527			

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
EL000522	Technical Training, Identified Fuse Installation Problems	0

Night Order 1122	Interim Action for RCIC Turbine Out Board Bearing Oil Level Indicator	February 8, 2010

Section 1R13: Maintenance Risk Assessment and Emergent Work Controls

PROCEDURES

NUMBER	TITLE	REVISION / DATE
PPM 1.5.14	Risk Assessment and Management for Maintenance/Surveillance Activities	17

WORK ORDERS

01179684	01172229	01155648	01145710

Section 1R15: Operability Evaluations

PROCEDURES

NUMBER	TITLE	REVISION / DATE
PPM 1.3.66	Operability and Functionality Evaluation	14
8778	Engineering Change 8778	0

ACTION REQUEST/CONDITION REPORTS

209831	210420	211422	213502

WORK ORDERS

01183039

Section 1R18: Plant Modifications

NUMBER	TITLE	REVISION / DATE
TMR-09-007	Installation of Non-conforming FPC-M-P/1A for failed motor	4/21/2009

Section 1R19: Postmaintenance Testing

PROCEDURES

NUMBER	TITLE	REVISION / DATE
OSP-SLC-/IST-Q701	Standby Liquid Control Pumps Operability Test	February 9, 2010
OSP-SLC-/IST-Q701	Standby Liquid Control Pumps Operability Test	20
OSP-ELEC-M703	HPCS Diesel Generator Monthly Operability Test	44
TSP-DG3 B502	HPCS Diesel Generator DG3 Load Testing	8
OSP-ELEC-S703	HPCS Diesel Generator Semi-Annual Operability Test	41
TSP-DG3/LOCA-B501	HPCS Diesel Generator DG3 LOCA Test	13
TSP-DG3/LOP-B501	HPCS Diesel Generator DG3 Loss of Power Test	11

WORK ORDERS

01145710	01186149

Section 1R22: Surveillance Testing

PROCEDURES

NUMBER	TITLE	REVISION / DATE
ESP-SM4-B501	SM-4 Loss of Voltage Relays	10
ISP-RPS-Q903	RPS (Channel B1) and ECO Recirc Pump Trip – TGV Fast Closure RPS-PS-5B-CFT/CC	5
OSP-SW/IST-Q703	HPCS Service Water Operability	14

Section 1R22: Surveillance Testing

PROCEDURES

NUMBER	TITLE	REVISION / DATE
OSP-HPCS/IST-Q701	HPCS System Operability Test	34

ACTION REQUEST/CONDITION REPORTS

211012

WORK ORDERS

01175652

Section 1EP6: Drill Evaluation

DOCUMENT TYPE

NUMBER	TITLE	REVISION / DATE
	Columbia Generating Station Operations Department 2010 Emergency Organization Response Team Training Drill	January 12, 2010

Section 4OA1: Performance Indicator Verification

DOCUMENT TYPE

NUMBER	TITLE	REVISION / DATE
NEI 99-02	Regulatory Assessment Performance Indicator Guideline	6

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
	Operator Logs	
	Energy Northwest and NRC Performance Indicator Data	

Section 4OA2: Identification and Resolution of Problems

ACTION REQUEST/CONDITION REPORTS

00211697	00210350	00210538	00210629	00210624
00210638	00211494	00211492	00211481	00211892
00211849	00212277	00212287	00212288	00212103
00212119	00212033	00212038	00212044	00212047
00212058	00212058	00212082	00212084	00212098
00212103	00212117	00211986	00211823	00211841
00211849	00211895	00211730	00211733	00211784
00211603	00211609	00211614	00211623	00211628
00211631	00211640	00211641	00211685	00211689
00212426	00212424	00212329	00212333	00212341
00212352	00212361	00212376	00212391	00212403
00212407	00209852	00208472	00212844	00212785
00212840	00212858	00212872	00212880	00212893
00212609	00212641	00212671	00212678	00211533
00211538	00211538	00211545	00210753	00210796
00210705	00210713	00210715	00210718	00210719
00211549	00212459	00212466	00212470	00212514
00211499	00212867	00212928	00212937	00212948
00212960	00212964	00212967	00213482	00213343
00213344	00213370	00213390	00213391	00213392
00213394	00213395	00213396	00213397	00213403
00213415	00213420	00213426	00213427	00213428
00213431	00213218	00213242	00213249	00213246
00213244	00213207	00213217	00213041	00213131
00213132	00213137	00213139	00213160	00213162
00214037	00214053	00214057	00213896	00213908

00213911	00213920	00213781	00213793	00213808
00213810	00213812	00213814	00213816	00213923
00213926	00213894	00213923	00213817	00213818
00213828	00213849	00213876	00213877	00213881
00213882	00213884	00213885	00213886	00213569
00213620	00213626	00213638	00213656	00213667
00213681	00213688	00213599	00213565	00213586

MISCELLANEOUS DOCUMENTS

NUMBER	TITLE	REVISION / DATE
AR/CR 212671	Negative Trend for Troubleshooting	March 16, 2010
AR/CR 205314	TMR 09-019 Issued Unnecessarily	October 1, 2009
AR/CR 205529	High vibration levels for installed/refurbished COND-M-P/2B	October 6, 2009
AR/CR 206620	Replace RRC-VD-R673 with a controlling touch-screen.	October 27, 2009
AR/CR 207493	W/O# 01180669 (HD-V-20C) "RETURNED" to revise (TMR# 09-024)	November 11, 2009
AR/CR 212336	TMR On-Line Restorable PI Yellow for Two Months	February 4, 2010
AR/CR 212987	Controlling temp mod procedures don't ensure 50.59 review	February 18, 2010
AR/CR 213005	Insufficient detail, technical justification to extend	February 18, 2010
AR/CR 213309	MS-LS-24B failed - high level indication stuck on	February 24, 2010
AR/CR 213365	ARP 4.840.A1 Drop 8-4 Requires Revision per TMR 10-001	February 25, 2010

Section 4OA3: Event Follow-Up

ACTION REQUEST/CONDITION REPORTS

210420 210638

PROCEDURES

NUMBER	TITLE	REVISION / DATE
PPM 10.2.10	Fastener Torque and Tensioning	022.002
PPM 10.2.28	Installation, Modification and Inspection of Piping Systems	18

Section 4OA5: Other Activities

DOCUMENT TYPE NUMBER	TITLE	REVISION / DATE
Memorandum	Interim Guidance for Security Inspections by Resident Inspectors	May 9, 2008
SPIP-SEC-35	Columbia Generating Station Security Plan	4
SPIP-SEC01	Sergeant and Lieutenant Duties	15
SPIP-SEC-02	Central and Secondary Alarms Stations	13
10 CFR 73.55(g)	Requirements for Physical Protection	January 1, 2009