UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
1600 EAST LAMAR BLVD
ARLINGTON, TEXAS 76011-4511

February 13, 2012

Mr. M.E. Reddemann
Chief Executive Officer
Energy Northwest
P.O. Box 968, Mail Drop 1023
Richland, WA 99352-0968

Subject: COLUMBIA GENERATING STATION - NRC INTEGRATED INSPECTION REPORT NUMBER 05000397/20011005

Dear Mr. Reddemann:

On December 31, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Columbia Generating Station. The enclosed inspection report documents the inspection results which were discussed on January 4, 2012, with Mr. B. Sawatzke, Vice President Nuclear Generation/Chief Nuclear Officer, 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.

Two NRC-identified and two self-revealing findings of very low safety significance (Green) were identified during this inspection. Three of these findings were determined to involve violations of NRC requirements. Further, a licensee-identified violation which was determined to be of very low safety significance is listed in this report. The NRC is treating these violations as non-cited violations (NCVs) consistent with Section 2.3.2 of the Enforcement Policy.

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

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

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosure, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's Agencywide Document Access and Management 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 Walker, Chief
Project Branch A
Division of Reactor Projects

Docket No: 05000397
License No: NPF-21

Enclosure:
NRC Inspection Report 05000397/2011005
w/Attachment: Supplemental Information

cc w/Enclosure: Electronic Distribution

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DRS Deputy Director (Tom.Blount@nrc.gov)
Senior Resident Inspector (Jeremy.Groom@nrc.gov)
Resident Inspector (Mahdi.Hayes@nrc.gov)
Branch Chief, DRP/A (Wayne.Walker@nrc.gov)
Senior Project Engineer, DRP/A (David.Proulx@nrc.gov)
Project Engineer, DRP/A (Jason.Dykert@nrc.gov)
Site Administrative Assistant (Crystal.Myers@nrc.gov)
Public Affairs Officer (Victor.Dricks@nrc.gov)
Public Affairs Officer (Lara.Uselding@nrc.gov)
Project Manager (Mohan.Thadani@nrc.gov)
Acting Branch Chief, DRS/TSB (Ryan.Alexander@nrc.gov)
RITS Coordinator (Marisa.Herrera@nrc.gov)
Regional Counsel (Karla.Fuller@nrc.gov)
Congressional Affairs Officer (Jenny.Weil@nrc.gov)
OEMail Resource
ROPreports
RIV/ETA: OEDO (Lydia.Chang@nrc.gov)
DRS/TSB STA (Dale.Powers@nrc.gov)

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| SUNSI Rev Compl. | ☒ Yes ☐ No | ADAMS | ☒ Yes ☐ No | Reviewer Initials | WW |
| Publicly Avail | ☒ Yes ☐ No | Sensitive | ☐ Yes ☒ No | Sens. Type Initials | WW |

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**U.S. NUCLEAR REGULATORY COMMISSION**

**REGION IV**

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| Docket: | 05000397 |
| License: | NPF-21 |
| Report: | 05000397/2011005 |
| Licensee: | Energy Northwest |
| Facility: | Columbia Generating Station |
| Location: | Richland, WA |
| Dates: | September 25, 2011 through December 31, 2011 |
| Inspectors: | J. Groom, Senior Resident Inspector<br>M. Hayes, Resident Inspector<br>P. Elkmann, Senior Emergency Preparedness Inspector |
| Approved By: | W. Walker, Chief, Project Branch A<br>Division of Reactor Projects |

## SUMMARY OF FINDINGS

IR 05000397/2011005; 09/25/2011 – 12/31/2011; Columbia Generating Station, Integrated Resident and Regional Report; Maintenance Effectiveness; Operability Evaluations; Surveillance Testing; Event Follow-up;

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Three Green non-cited violations, one Green Finding, and one Severity Level IV non-cited violation 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." The cross-cutting aspect is determined using Inspection Manual Chapter 0310, "Components Within the Cross Cutting Areas." 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 licensee's failure to follow work instructions. Specifically, mechanics failed to properly implement Work Order 01188696, Task 7, when fabricating the gagging device used to maintain main condenser hotwell surge volume bypass valve closed during planned maintenance. As a result, on November 2, 2011, a rapid, unexpected rise in hotwell level and conductivity and a rapid drop in condensate storage tank level occurred. Subsequent review revealed that the gagging device installed on the main condenser hotwell surge volume bypass valve failed, which allowed a vacuum drag flow path of condensate storage tank water to the main condenser hotwell. Following identification, the licensee re-fabricated a gagging device in accordance with engineering's specifications. This issue was entered into the licensee's corrective action program as Action Request AR 00251720.

  The finding was more than minor because it affected the design control attribute of the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined this finding to be of very low safety significance (Green) because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance associated with the decision making component because the licensee failed to implement roles and authorities as designed when fabricating the gagging device for COND-V-170 [H.1(a)] (Section 1R12).

Cornerstone: Mitigating Systems

- Green. The inspectors identified a non-cited violation of Technical Specification 5.4.1.a, for the licensee's failure to include appropriate steps in a surveillance test procedure. Specifically, Procedure OSP-ELEC-W101, "Offsite Station Power Alignment Check," Revision 20, only verified that voltage was within a specified band and proper onsite breaker alignment, without verifying that the site was aligned to a credited power source. The inspectors determined that the licensee could complete the surveillance procedure as written and declare the surveillance requirement met even with the startup transformer being powered from the un-credited 115kV distribution system. The inspectors identified this issue in followup of an October 5, 2011 issue where the licensee experienced a loss of the licensing bases power supply to the startup transformer without operator knowledge. Following identification of this issue, the licensee revised Procedure OSP-ELEC-W101 to have operators verify the startup transformer is powered from the licensing basis power source. This issue was entered into the licensee's corrective action program as Action Request AR 249931.

  The finding was more than minor because it affected the procedure quality attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined this finding to be of very low safety significance (Green) because it did not result in the loss of a system safety function, did not represent the loss of safety function of a single train for greater than its allowed outage time, did not result in the loss of safety function of any non-technical specification equipment, and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. The inspectors determined a cross-cutting aspect was not applicable since the cause of the procedure inadequacy originated from its original implementation with missed opportunities in 2007 and therefore was not reflective of current plant performance (Section 1R15).

Cornerstone: Barrier Integrity

- Green. The inspectors reviewed a self-revealing non-cited violation of Technical Specification 5.4.1.a, for the licensee's failure to follow procedures. Specifically, on November 2, 2011, operators failed to follow Procedure SOP-HVAC/RB-START, "Reactor Building Ventilation Start", Revision 2, by skipping a required step for restoration of reactor building ventilation to the normal alignment following testing of secondary containment isolation valves. As a result, when the reactor building ventilation fans were started, secondary containment pressure increased rapidly to a peak positive pressure of approximately 0.29 inch of water, while secondary containment is normally maintained at 0.6 inch of water vacuum to meet its design basis function. When operators completed of the surveillance test of the secondary containment isolation valves, operators entered Procedure SOP-HVAC/RB-START at

Step 5.1.5 which started the fans. The operators should have entered the procedure at Step 5.1.1 which would have placed pressure controller REA-DPIC-1B in manual. This step was necessary since the response time of the controller was not rapid enough to compensate for the rapid changes in air flows associated with a fan start. An event investigation concluded that the missed procedural step was caused by poor planning and preparation and less than adequate self and peer checks. This issue was entered into the licensee's corrective action program as Action Request AR 00251613.

The finding was more than minor because it affected the human performance attribute of the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined this finding to be of very low safety significance (Green) because it only represented a degradation of the radiological barrier function provided for by the standby gas treatment system. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance associated with the work practices component because the licensee failed to use human error prevention techniques such as self and peer checking [H.4(a)] (Section 1R22).

Cornerstone: Emergency Preparedness

- Green. The inspectors identified a non-cited violation of Technical Specification 5.4.1.a for the licensee's failure to follow the abnormal procedure for earthquakes. Specifically, the licensee failed to follow Procedure "ABN-Earthquake," Revision 6, by not recalibrating seismic instruments within 30 days of two earthquakes near the site that occurred on September 3, and October 14, 2011. Consequently, several seismic instruments were not all functional following the September 3, 2011 earthquake, and the same seismic monitoring devices were not functional during the October 14, 2011 earthquake, which complicated post-earthquake evaluation. Following identification of this issue, the licensee performed calibrations of all seismic instruments on November 2, 2011. This issue was entered into the licensee's corrective action program as Action Request AR 00251987.

  The finding was more than minor because it affected the human performance attribute of the Emergency Preparedness Cornerstone objective to ensure the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, seismic instrumentation is required following a seismic event to evaluate the necessity of an emergency declaration and to determine the impact of strong motion on structures, systems and components or the need for a reactor shutdown. Using Inspection Manual Chapter 0609, Appendix B, "Emergency Preparedness Significance Determination Process" the inspectors determined this finding to be of very low safety significance (Green) because while some

seismic instruments were non-functional and that did complicate the operator's response to the October 14, 2011 earthquake, the non-functional instruments did not result in a loss of planning standard or risk-significant planning standard function. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance associated with the work control component because the licensee failed to appropriately plan work activities by incorporating the need for planned contingencies such as those needed to recalibrate seismic instruments following an earthquake [H.3(a)] (Section 4OA3).

## B. Licensee-Identified Violations

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

## REPORT DETAILS

### Summary of Plant Status

The inspection period began with Columbia Generating Station in Mode 2, “Startup," with reactor power at approximately two percent rated thermal power. On September 27, 2011, the main generator was synchronized with the grid. Full power was achieved on October 2, 2011. On October 3, 2011, Columbia Generating Station reduced power to 65 percent for a control rod pattern adjustment and returned to 100 percent power on October 4, 2011. On October 8, 2011, Columbia Generating Station reduced power to approximately 85 percent due to problems with cooling tower 1C. The unit returned to full power on October 9, 2011. On November 17, 2011, Columbia Generating Station reduced power to 20 percent to support balancing of the main turbine. Following balancing, the main generator was synchronized to the grid on November 19, 2011, and returned to 100 percent power on November 21, 2011. Columbia Generating Station reduced power to 65 percent on December 10, 2011 to support a rod pattern adjustment and returned to full power on December 11, 2011. The unit remained at or near full power 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 freezing conditions were forecast in the vicinity of the facility for October 25, 2011, the inspectors reviewed overall preparations/protection for the expected weather conditions. On October 25-27, 2011, the inspectors performed walkdowns of the reactor protection system and emergency diesel generators because their safety-related functions could be affected or required as a result of the extreme cold conditions forecast for the facility. The inspectors observed insulation, heat trace circuits, space heater operation, and weatherized enclosures to ensure operability of affected systems. The inspectors reviewed licensee procedures and discussed potential compensatory measures with control room personnel. The inspectors focused on plant management’s actions for implementing the station’s procedures for ensuring adequate personnel for safe plant operation and emergency response would be available. Specific documents reviewed during this inspection are listed in the attachment.

Additionally, since high winds were forecast in the vicinity of the facility for November 22, 2011, the inspectors reviewed the plant personnel’s overall preparations for the expected weather conditions. On November 22-23, 2011, the inspectors walked down the transformer yard and emergency diesel generator 3 because components in these systems could be affected as a result of high winds or tornado-generated missiles. 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 high winds. 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 procedures. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings 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:

- October 7, 2011, high pressure core spray system following keep fill pump maintenance
- October 19, 2011, seismic instrumentation
- November 21, 2011, Division 3 emergency diesel generator
- December 29, 2011, residual heat removal train C

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 four partial system walkdown samples as defined in Inspection Procedure 71111.04-05.

b. Findings

No findings were identified.

.2 Complete Walkdown

a. Inspection Scope

On November 23, 2011, the inspectors performed a complete system alignment inspection of the standby liquid control 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 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 were identified.

## 1R05 Fire Protection (71111.05)

.1 Quarterly Fire Inspection Tours

a. Inspection Scope

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

- October 12, 2011, Fire area R-1, reactor building 548' elevation
- November 9, 2011, Fire areas M-9, R-1 and R-4, reactor building 471' elevation
- November 15, 2011, Fire area RC-13, radwaste building 525' elevation
- December 2, 2011, Fire areas RC-1 and RC-2 radwaste building 487' elevation
- December 30, 2011, Fire areas R-1 and R-15, reactor building 422' 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 five quarterly fire-protection inspection samples as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings 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.

- October 6, 2011, electrical manholes 43 and 44

- December 15, 2011, flooding safe shutdown analysis for a postulated pipe break in the condensate storage tank 24 inch supply line and potential impact to components HPCS-PS-3A and 3B

These activities constitute completion of one flood protection measures inspection sample and an annual review of cables located in manholes/bunkers consisting of a review of two individual manholes as defined in Inspection Procedure 71111.06-05.

b. Findings

No findings were identified.

**1R07 Heat Sink Performance (71111.07)**

a. Inspection Scope

The inspectors reviewed licensee programs, verified performance against industry standards, and reviewed critical operating parameters and maintenance records for the Division 2 diesel cooling water heat exchangers. 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 were identified.

## 1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On November 15, 2011, 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 were identified.

## 1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

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

- November 7, 2011, Action Request 249959, failure of control room handswitch for valve RHR-V-24B

- December 19, 2011, Action Request 251720, Maintenance associated with main condenser hotwell makeup valve COND-V-0170 results in hotwell level transient

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

b. Findings

Introduction. The inspectors reviewed a self-revealing Green finding for the licensee's failure to follow work instructions when fabricating the gagging device used to maintain main condenser hotwell surge volume bypass valve closed during planned maintenance.

Description. On November 2, 2011, the main control room received unexpected annunciator “Main Condenser Hotwell Level High.” Indications in the control room included a rapid, unexpected rise in hotwell level, increases in hotwell conductivity and a

rapid drop in condensate storage tank level. Operators entered the alarm response procedure and determined that an undesired flow path from the condensate storage tanks to the main condenser hotwell was the cause of the level transient. Operators closed isolation valve COND-V-17 to stop the water transfer. In total, approximately 91,500 gallons of water was transferred from the condensate storage tanks to the main condenser hotwell. The licensee discovered that a gagging device installed on main condenser hotwell surge volume bypass valve COND-V-170 under Work Order 01188696, Task 5, did not hold resulting in the valve opening slightly. This open valve allowed a vacuum drag flow path of condensate storage tank water to the main condenser hotwell.

The design of the gagging device had been established under Action Request AR-EVAL 219734 and specified that it was machined out of A36 steel bar stock and had the same thread pitch as the stem for valve COND-V-170. This design allowed for the gagging device to be clamped around the valve stem threads and rested against the valve yoke to keep the valve closed so that the operator could be removed. Fabrication of the gagging device was performed under Work Order 01188696, Task 7. The inspectors interviewed the machinist responsible for fabricating the gag and discovered that the design was changed during the fabrication process. Specifically, the machinist elected to use a pre-existing gagging device made of brass rather than to fabricate a new gag. When installed, the brass gagging device did not properly engage the valve stem threads so the machinist modified the design to a smooth bore which would only clamp around the exterior of the valve stem and relied on friction to maintain the valve closed. When installed in this configuration, the forces associated with re-installing the operator were of sufficient magnitude to overcome the friction imparted by the gagging device. Consequently, the valve opened and transferred water from the condensate storage tanks to the main condenser hotwell. The modifications to the gagging device were implemented by the machinist without consultation of the engineer responsible for the design.

Analysis. The failure of licensee personnel to follow work instructions when fabricating a gagging device for main condenser hotwell surge volume bypass valve COND-V-170 was a performance deficiency. The finding was more than minor because it affected the design control attribute of the Initiating Events Cornerstone objective to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Using Inspection Manual Chapter 0609.04, “Phase 1 – Initial Screening and Characterization of Findings,” the inspectors determined this finding to be of very low safety significance (Green) because the finding did not contribute to both the likelihood of a reactor trip and the likelihood that mitigation equipment or functions will not be available. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance associated with the decision making component because the licensee failed to act with proper authority when fabricating the gagging device for COND-V-170 [H.1(a)].

Enforcement. Enforcement action does not apply because the performance deficiency did not involve a violation of regulatory requirements. The finding is of very low safety significance and the issue was entered into the licensee's corrective action program as

AR 00251720: FIN 05000397/2011005-01, “Failure to Follow Work Instructions when Fabricating a Gagging Device for Main Condenser Hotwell Surge Bypass Valve."

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

a. Inspection Scope

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

- October 19, 2011, Yellow risk during planned reactor core isolation cooling maintenance window
- October 24, 2011, Yellow risk during planned maintenance on reactor core isolation maintenance and control room emergency filtration fan A
- November 10, 2011, Yellow risk during planned surveillance testing of diesel generator 2
- November 15, 2011, Yellow risk during planned work on the offsite power system, standby gas treatment system B and standby liquid control system
- December 12-14, 2011, Yellow risk during planned maintenance of the standby gas treatment system A and quarterly surveillance testing of the standby liquid control system

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. Findings

No findings were identified.

**1R15 Operability Evaluations (71111.15)**

a. Inspection Scope

The inspectors reviewed the following issues:

- October 6, 2011, Action Request AR 249795 documenting loss of both credited power sources to the startup transformer
- October 12, 2011, Action Requests AR 248876, 249535 and 249891 documenting issues related to the fill material for cooling tower 1C
- October 18, 2011, Action Request AR 250306 documenting unevaluated shielding installed on residual heat removal system
- November 7, 2011, Action Requests AR 219624 and 250150, documenting operating experience related to Ametek® static uninterruptible power supplies
- November 14, 2011, Action Request AR 251613 documenting a failure of ventilation damper WMA-AD-51A/1A
- December 9, 2011, Action Request AR 254047 documenting a ten drop per minute leak on Division 2 diesel cooling water heat exchanger DCW-HX-1B2
- December 29, 2011, Action Request AR 253985 documenting that electrical disconnect WMA-42-8F1E inadvertently opened

The inspectors selected these potential operability and functionality 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 seven operability evaluations inspection samples as defined in Inspection Procedure 71111.15-05

b. Findings

Introduction. The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a, "Procedures," for the licensee's failure to include appropriate instructions in Surveillance Testing Procedure OSP-ELEC-W101, "Offsite Station Power Alignment Check," Revision 20, for verifying breaker alignment conformed with licensing basis documents. Specifically, licensee personnel failed to include steps in the procedure that verified the startup transformer was powered from the credited 230kV power distribution system.

Description. On October 5, 2011, the inspectors reviewed Action Request AR 249795 which documented the loss of the licensing basis power supply to the startup transformer. The startup transformer is powered through a substation that is either powered from the 230kV distribution system or the 115kV distribution system. When the startup transformer is powered from the 115kV distribution system the licensee is required to enter Technical Specification 3.8.1, "AC Sources Operating", Condition A due to one offsite source being inoperable. One offsite source is considered inoperable in this condition since the 115kV distribution is not a credited source of power to the startup transformer in the Columbia Generating Station licensing basis. The inspectors reviewed Surveillance Requirement 3.8.1.1 which required the licensee to "verify correct breaker alignment and indicated power availability for each offsite circuit". The inspectors reviewed the technical specification bases and noted the following:

> The breaker alignment verifies that each breaker is in its correct position to ensure that distribution buses and loads are connected to their preferred power source and that appropriate independence of offsite circuits is maintained.

The inspectors reviewed Procedure OSP-ELEC-W101, "Offsite Station Power Alignment Check," Revision 20, and found that the procedure only verified voltage was within a specified band and that the onsite breaker alignment was aligned to the appropriate electrical buses. The inspectors determined that the licensee could complete the surveillance procedure as written and declare the surveillance requirement met even though the startup transformer is being powered from the non-credited 115kV distribution system since the licensee does not actively verify the startup transformer is powered from the appropriate 230kV substation. The inspectors determined that Procedure OSP-ELEC-W101 did not meet the intent of the surveillance requirement since it did not verify the appropriate independence of the offsite power circuits.

The inspectors reviewed Action Request 54232, from July 2007, which documented the differences between the credited and non-credited supplies to the startup transformer. A corrective action from this action request added a precaution and limitation to Procedure OSP-ELEC-W101 that alerted operators of the potential of being lined up to an un-credited source and the need to review technical specifications if this occurred. The inspectors interviewed control room operators to determine if the operators were verifying which source was powering the startup transformer while performing the

surveillance procedure. The inspectors determined the operators were not verifying the plant was lined up to the credited source for the startup transformer unless a diesel generator was concurrently out of service. The licensee documented the inspectors concerns regarding the adequacy of Procedure OSP-ELEC-W101 in Action Request AR 249931. The licensee revised Procedure OSP-ELEC-W101 on November 29, 2011, to have operators verify the startup transformer is powered from its licensing basis source.

Analysis: The licensee's failure to include steps to ensure the startup transformer is powered from its credited offsite source in a surveillance procedure was a performance deficiency. The finding was more than minor because it affected the procedure quality attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined this finding to be of very low safety significance (Green) because it did not result in the loss of a system safety function, did not represent the loss of safety function of a single train for greater than its allowed outage time, did not result in the loss of safety function of any non-technical specification equipment, and did not screen as potentially risk significant due to seismic, flooding, or severe weather initiating events. The inspectors determined a cross-cutting aspect was not applicable since the cause of the procedure inadequacy originated from its original implementation with missed opportunities in 2007 and therefore was not reflective of current plant performance.

Enforcement: Technical Specification 5.4.1.a requires, in part, that written procedures be established, implemented, and maintained as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Paragraph 8.b, Section 2.q of Regulatory Guide 1.33, Appendix A, requires specific procedures for surveillance tests associated with emergency power tests. Contrary to the above, since November 8, 2007, the licensee failed to maintain Surveillance Procedure OSP-ELEC-W101, "Offsite Station Power Alignment Check" Revision 0-20 by not including steps to have operators verify appropriate independence of offsite power circuits was maintained regardless of plant configuration. This was identified on October 5, 2011 and the surveillance procedure was revised on November 29, 2011 to include steps to verify the correct lineup to the startup transformer. Because this finding is of very low safety significance and was entered into the licensee's corrective action program as Action Request AR 249931, the violation is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000397/2011005-02, "Failure to Include Appropriate Acceptance Criteria in Offsite Power Alignment Procedure."

## 1R18 Plant Modifications (71111.18)

a. Inspection Scope

To verify that the safety functions of important safety systems were not degraded, the inspectors reviewed the following plant modifications:

- Applicability Determination 11-0260, Revision of Standby Liquid Control Quarterly Operability Procedure to Incorporate Engineering Calculation that Defines

Maximum Water Level in Standby Liquid Control Test Tank to Ensure System Operability

For temporary modifications, the inspectors reviewed 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.

For modifications that involved permanent changes to the plant's configuration, 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.

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 modification design assumptions were appropriate; 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 plant modifications as defined in Inspection Procedure 71111.18-05.

b. Findings

No findings 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:

- September 28, 2011, postmaintenance testing of reactor feedwater pump 1A following turbine overhaul

- September 29, 2011, postmaintenance testing of weld repair to main steam valve MS-V-707C

- October 24, 2011, postmaintenance testing of reactor core isolation cooling valve RCIC-V-22 following stem nut replacement

- November 14, 2011, postmaintenance testing of technical support center following work on ventilation system

- December 19, 2011, postmaintenance testing of residual heat removal system relay E-RLY-RHRA/62/1

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 FSAR, 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 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 refueling outage that began on April 2, 2011 and concluded on September 27, 2011, to confirm that licensee personnel had appropriately considered risk, industry experience, and previous site-specific problems in developing and implementing a plan that assured

maintenance of defense in depth. During the refueling outage, the inspectors observed portions of the reactor startup 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.

- Controls over activities that could affect reactivity.

- Startup and ascension to full power operation, tracking of startup prerequisites, walkdown of the drywell (primary containment) to verify that debris had not been left which could block emergency core cooling system suction strainers, and reactor physics testing.

- Licensee identification and resolution of problems related to refueling outage activities.

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

These activities constitute completion of one refueling outage and other outage inspection sample as defined in Inspection Procedure 71111.20-05.

b. Findings

No findings were identified.

**1R22 Surveillance Testing (71111.22)**

a. Inspection Scope

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

- Preconditioning

- Evaluation of testing impact on the plant

- Acceptance criteria

- Test equipment
- Procedures
- Jumper/lifted lead controls
- Test data
- Testing frequency and method demonstrated technical specification operability
- Test equipment removal
- Restoration of plant systems
- Fulfillment of ASME Code requirements
- Updating of performance indicator data
- Engineering evaluations, root causes, and bases for returning tested systems, structures, and components not meeting the test acceptance criteria were correct
- Reference setting data
- Annunciators and alarms setpoints

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

- November 2, 2011, Work Order 02007123, reactor building ventilation (secondary containment) isolation valve operability test
- November 3, 2011, Work Order 02007056, diesel generator 3 semi-annual operability test
- November 8, 2011, reactor coolant system leakage detection calculation used to satisfy Technical Specification Surveillance Requirement SR 3.4.5.1
- December 19, 2011, Work Order 02010460, residual heat removal system A quarterly inservice/operability surveillance testing
- December 28, 2011, Work Order 02010572, containment isolation 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

Introduction. The inspectors reviewed a self revealing Green non-cited violation of Technical Specification 5.4.1.a, “Procedures” for the failure of the licensee to follow procedures associated with surveillance testing of secondary containment isolation valves.

Description. On November 2, 2011, operations personnel performed testing of secondary containment isolation valves in accordance with Procedure OSP-CONT/IST-Q702, “Reactor Building Ventilation Isolation Valve Operability,” Revision 8. Following completion of the surveillance test, OSP-CONT/IST-Q702, Step 7.1.13, directed operators to restore reactor building ventilation to a normal alignment in accordance with Procedure SOP-HVAC/RB-START, “Reactor Building Ventilation Start”, Revision 2. The operators mistakenly believed that all of the prerequisite steps required to start the reactor building outside air fan ROA-FN-1A and reactor building exhaust air fan REA-FN-1B had been met so the operators entered Procedure SOP-HVAC/RB-START at Step 5.1.5 which started the fans. The operators should have entered the procedure at Step 5.1.1 which would have placed pressure controller REA-DPIC-1B in manual. This step is necessary since the response time of REA-DPIC-1B in automatic was not rapid enough to compensate for the rapid changes in air flows associated with a fan start. Consequently, when the reactor building outside air and exhaust fans were started, secondary containment pressure increased rapidly to a peak of approximately 0.29 inch of water.

Procedure OSP-CONT/IST-Q702 is written such that the licensee enters Technical Specification 3.6.4.1, “Secondary Containment” in anticipation of exceeding the minimum required pressure of 0.25 inch of vacuum water gauge. However, the procedure is also designed to preserve the analytical assumptions associated with the post-loss of coolant accident performance of the standby gas treatment system specified in the Columbia Generating Station Final Safety Analysis Report Table 6.2-28, “Analytical Sequence of Events in Secondary Containment” which assumed reactor building (secondary containment) starting pressure of 0.0 inch of water gauge. The error that occurred on November 2, 2011 resulted in secondary containment pressure briefly exceeding the analytical starting assumption of 0.0 inch of water gage specified in the Columbia Generating Station Final Safety Analysis Report. Upon exceeding 0.0 inch of water, the control room operators received an annunciator for high reactor building differential pressure and entered Emergency Operating Procedure 5.3.1, “Secondary Containment Control,” Revision 18. In response to the high pressure in secondary containment, the operators placed REA-DPIC-1B in manual and restored secondary containment vacuum to greater than the technical specification minimum of 0.25 inch of vacuum water gauge.

An event investigation conducted by the licensee concluded that the missed procedural step was caused by poor planning and preparation and less than adequate self and peer checks.

Analysis. The failure of licensee personnel to follow surveillance procedures associated with reactor building ventilation isolation valve testing was a performance deficiency. The finding was more than minor because it affected the human performance attribute of the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers (fuel cladding, reactor coolant system, and containment) protect the public from radionuclide releases caused by accidents or events. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined this finding to be of very low safety significance (Green) because it only represented a degradation of the radiological barrier function provided for by the standby gas treatment system. The inspectors determined that this finding had a cross-cutting aspect the area of human performance associated with the work practices component because the licensee failed to use human error prevention techniques such as self and peer checking [H.4(a)].

Enforcement. Technical Specification 5.4.1.a, requires, in part, that written procedures be established, implemented, and maintained as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Paragraph 8.b, Section 2.b of Regulatory Guide 1.33, Appendix A, requires specific procedures for surveillance tests associated with containment isolation tests. Procedure OSP-CONT/IST-Q702, "Reactor Building Ventilation Isolation Valve Operability," Revision 8, is the licensee procedure used to test secondary containment isolation valves. Step 7.1.13 of Procedure OSP-CONT/IST-Q702 directed operators to restore reactor building ventilation to a normal alignment in accordance with Procedure OSP-CONT/IST-Q702, "Reactor Building Ventilation Start", Revision 2. Contrary to this requirement, on November 2, 2011, the licensee failed to complete SOP-HVAC/RB-START Step 7.1.13 as required. Specifically, operators started reactor building outside air fan ROA-FN-1A and reactor building exhaust air fan REA-FN-1B at Step 5.1.5 of Procedure SOP-HVAC/RB-START without first performing Steps 5.1.1 through 5.1.4. Because this finding is of very low safety significance and was entered into the licensee's corrective action program as Action Request AR 00251613, the violation is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000397/2011005-03, "Missed Procedural Step Results in Secondary Containment Pressure Excursion."

**Cornerstone: Emergency Preparedness**

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

.1 Review of Columbia Generating Station Emergency Plan, Revisions 51 through 54, Procedure 13.1.1, "Classifying the Emergency," Revision 39, and Procedure 13.1.1A, "Classifying the Emergency, Technical Bases," Revisions 21-001 through 23.

a. Inspection Scope

The inspector performed in-office reviews of Columbia Generating Station Emergency Plan, Revisions 51 through 54, Procedure 13.1.1, "Classifying the Emergency,"

Revision 39, and Procedure 13.1.1A, “Classifying the Emergency, Technical Bases,” Revisions 21-001 through 23. These revisions:

- Added the Federal Emergency Management Agency to the list of agencies responding to radiological emergencies under the National Response Framework;

- Removed the requirement for Energy Northwest to inform the Fast Flux Test Facility Control Room when site evacuation is initiated;

- Clarified that transient populations in the emergency planning zone are warned of an emergency by outdoor sirens;

- Clarified that equipment for three environmental monitoring teams is stored onsite, with one additional set of equipment stored at the Energy Northwest Office Complex in Richland;

- Added coordination between the Columbia Generating Station Emergency Plan and the emergency plan for remediation activities at the Department of Energy 618-11 Burial Ground;

- Clarified that radioactive or chemical releases from activities at the Department of Energy 618-11 Burial Ground are classifiable when conditions onsite meet applicable emergency action level thresholds;

- Added a requirement for the licensee to notify personnel at the Department of Energy 618-11 Burial Ground when a site evacuation is initiated;

- Clarified that the Department of Energy 618-11 Burial Ground Project is responsible for notifying the Columbia Generating Station Control Room of radioactive, flammable, or toxic releases from the burial ground site;

- Added emergency action levels 9.3.U.4, “Release of radioactive materials from an event at 618-11 Burial Ground deemed detrimental to safe operation of the plant,” and 9.3.A.4, “Release of radioactive materials from an event at 618-11 Burial Ground that has entered a CGS plant structure that jeopardizes operation of systems required to maintain safe operations or to establish and maintain safe shutdown”;

- Added emergency plan section 5.5.1, “618-11 Burial Ground Protective Actions”;

- Added Procedure 13.5.8, “618-11 Waste Burial Ground Remediation Project Responsibilities,” to Appendix 2, “Emergency Plan Implementing Procedures”;

- Changed the emergency action level Table 3 General Emergency value for monitor PRM-RE-1C, Reactor Building Exhaust High, from 9.35E4 counts/second to 9.35E6 counts/second;

- Changed “thermoluminescent dosimeter (TLD)” to “dosimeter of legal record (DDR)”;

- Changed the licensee’s dosimetry vendor from the Fermi-2 Dosimetry Laboratory to Landauer, Inc.;

- Procedure 13.1.1, “Classifying the Emergency,” Revision 39, step 4.1.1, changed ‘when indications of abnormal occurrences are received by the Control Room staff the Shift Manager shall…’ to ‘the Shift Manager should…’”;

- Procedure 13.1.1A, “Classifying the Emergency, Technical Bases,” Revision 21-001 changed the main steam line tunnel temperature referenced in the basis for emergency action level 3.4.A.1 from 156 degrees to 164 degrees;

- Procedure 13.1.1A, “Classifying the Emergency, Technical Bases,” Revision 22, changed notes in emergency action levels 2.2.S.1, ‘Failure of RPS instrumentation to complete or initiate an automatic reactor scram once a RPS setpoint has been exceeded and manual scram was not successful,’ and 2.2.G.1, ‘Failure of the RPS to complete an automatic scram and manual scram was not successful and there is indication of an extreme challenge to the ability to cool the core,’ from ‘declaration shall be based…’ to ‘declaration should be based…’;

- Procedure 13.1.1A, “Classifying the Emergency, Technical Bases,” Revision 22, changed the note in emergency action level 8.1.U.1, “Unexpected increase in ISFSI radiation,” from ‘the average surface dose rates of each overpack shall not exceed…,’ to ‘…of each overpack should not exceed…’”; and

- Procedure 13.1.1A, “Classifying the Emergency, Technical Bases,” Revision 23, clarified that emergency action level 9.3.U.3, “Release of toxic or flammable gases affecting the Protected Area boundary deemed detrimental to safe operation of the plant,” is intended for uncontrolled processes, precluding small or incidental releases or those not impacting structures needed for plant operation.

These revisions also corrected and revised titles, made minor editorial corrections, and corrected typographical errors.

These revisions were compared to their previous revisions, to the criteria of NUREG-0654, “Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants,” Revision 1, to Nuclear Energy Institute Report 99-01, “Emergency Action Level Methodology,” Revision 4, and to the standards in 10 CFR 50.47(b) to determine if the revisions adequately implemented the requirements of 10 CFR 50.54(q). These reviews were not documented in a safety evaluation report and did not constitute an approval of licensee-generated changes; therefore, the revisions are subject to future inspection.

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

b. Findings

No findings were identified.

.2 Review of Columbia Generating Station Emergency Plan, Revision 55.

a. Inspection Scope

The inspector performed an on-site and in-office review of Columbia Generating Station Emergency Plan, Revision 55. This revision:

- Deleted the Operations Support Center Information Coordinator emergency response organization position;
- Deleted the Technical Support Center to Operations Support Center Communicator emergency response organization position;
- Removed the stand-alone Operations Support Center located in the Yakima Building and moved Operations Support Center functions to areas within the existing Technical Support Center; and
- Deleted telecommunications links to the previous Operations Support Center in the Yakima Building.

This revision was compared to its previous revision, to the criteria of NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1, and to the standards in 10 CFR 50.47(b) to determine if the revisions adequately implemented the requirements of 10 CFR 50.54(q). The inspector toured the areas designated for the Operations Support Center during an onsite inspection August 8 - 12, 2011. This review was not documented in a safety evaluation report and did not constitute an approval of licensee-generated changes; therefore, the revision is subject to future inspection.

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

b. Findings

No findings were identified.

## 1EP6 Drill Evaluation (71114.06)

.1 Emergency Preparedness Drill Observation

a. Inspection Scope

The inspectors evaluated the conduct of a routine licensee emergency drill on November 1, 2011, to identify any weaknesses and deficiencies in classification, notification, and protective action recommendation development activities. The inspectors observed emergency response operations in the technical support center and the emergency operations facility to determine whether the event classification, notifications, and protective action recommendations were performed in accordance with procedures. The inspectors also attended the licensee drill critique to compare any inspector-observed weakness with those identified by the licensee staff in order to evaluate the critique and to verify whether the licensee staff was properly identifying weaknesses and entering them into the corrective action program. As part of the inspection, the inspectors reviewed the drill 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 were identified.

.2 Training Observations

a. Inspection Scope

The inspectors observed a simulator training evolution for licensed operators on December 13, 2011, which required emergency plan implementation by a licensee operations crew. This evolution was planned to be evaluated and included in performance indicator data regarding drill and exercise performance. The inspectors observed event classification and notification activities performed by the crew. The inspectors also attended the post-evolution critique for the scenario. The focus of the inspectors' activities was to note any weaknesses and deficiencies in the crew's performance and ensure that the licensee evaluators noted the same issues and entered them into the corrective action program. As part of the inspection, the inspectors reviewed the scenario package and other documents listed in the attachment.

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

b. Findings

No findings were identified.

## 4. OTHER ACTIVITIES

### 4OA1 Performance Indicator Verification (71151)

.1 Data Submission Issue

a. Inspection Scope

The inspectors performed a review of the performance indicator data submitted by the licensee for the third Quarter 2011 performance indicators for any obvious inconsistencies prior to its public release in accordance with Inspection Manual Chapter 0608, "Performance Indicator Program."

This review was performed as part of the inspectors' normal plant status activities and, as such, did not constitute a separate inspection sample.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - heat removal system performance indicator for the period from the fourth quarter 2010 through the third quarter 2011. 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 6. The inspectors reviewed the licensee's operator narrative logs, issue reports, event reports, mitigating systems performance index derivation reports, and NRC integrated inspection reports for the period of October 2010 through September 2011, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - cooling water systems performance indicator for the period from the fourth quarter 2010 through the third quarter 2011. 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 6. 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 October 2010 through September 2011, to validate the accuracy of the submittals. The inspectors reviewed the mitigating systems performance index component risk coefficient to determine if it had changed by more than 25 percent in value since the previous inspection, and if so, that the change was in accordance with applicable NEI guidance. The inspectors also reviewed the licensee's issue report database to determine if any problems had been identified with the performance indicator data collected or transmitted for this indicator and none were identified. Specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings 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 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 were identified.

.3 Semi-Annual Trend Review

a. Inspection Scope

The inspectors performed a review of the licensee's corrective action program and associated documents to identify trends that could indicate the existence of a more significant safety issue. The inspectors focused their review on repetitive equipment issues, but also considered the results of daily corrective action item screening discussed in Section 4OA2.2, above, licensee trending efforts, and licensee human performance results. The inspectors nominally considered the 6-month period of July 2011 through December 2011 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 semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings and Observations

The inspectors noted a continuing trend involving inadequate storage of equipment near safety related equipment. Specifically, the following action requests were generated documenting continuing weakness in complying with plant procedures PPM 10.2.53, "Scaffolding", Revision 38 and PPM 10.2.222, "Seismic Storage Requirements for Transient Equipment", Revision 1.

- Action Request 244730, "Transient Equipment in Diesel Generator Number 1 area not placed in accordance with PPM 10.2.53."
- Action Request 247524, "55 gallon drums staged too close to safety related equipment."
- Action Request 252323, "Gang box located too close to safety related equipment."

The inspectors verified that this adverse trend is being evaluated in the licensee's corrective action program as Action Request AR 245159

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

The inspectors reviewed several corrective action documents associated with secondary containment to determine if the licensee correctly evaluated the reportability of each item. Included in the review was a search of the licensee's corrective action program for the previous three years for keywords "secondary containment inoperable."

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

c. Findings

No findings were identified.

.5 In-depth Review of Operator Workarounds

a. Inspection Scope

On October 5, 2011, the inspectors reviewed the operations department burden list, control room deficiencies, and operator work around list to determine if any operator work arounds, either individually or collectively, could unnecessarily challenge mitigating system performance or operators during event response. The inspectors verified that Energy Northwest was identifying and documenting operator work around problems at an appropriate threshold. Documents reviewed are listed in the attachment.

These activities constitute completion of one sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings were identified.

**4OA3 Event Follow-up (71153)**

.1 NRC Event Follow-up to the October 14, 2011, Magnitude 3.4 Earthquake Located near Richland, Washington

Introduction. The inspectors identified a Green non-cited violation of Technical Specification 5.4.1.a, "Procedures" for the failure of the licensee to follow the abnormal procedure for earthquakes. Specifically, the licensee failed to take procedurally required steps to re-calibrate seismic instruments within 30 days after entry into the abnormal procedure.

Description. On September 3, 2011, while the plant was in a refueling outage, a Magnitude 3.7 earthquake occurred, centered about four miles south of the plant. Procedure "ABN-Earthquake," Revision 6, was implemented immediately following the earthquake. Operators walked down key safe-shutdown equipment and concluded there was no system or structural damage due to the earthquake. The licensee determined in Step 4.7 of "ABN-Earthquake," that no emergency declaration was necessary since the control room did not receive an alarm for "minimum seismic earthquake exceeded" or "operating basis earthquake exceeded." The minimum seismic detected annunciator has a set point of .01g. In contrast, the operating basis earthquake and safe shutdown earthquakes for Columbia Generating Station are .125g and .25g respectively.

On October 14, 2011, a Magnitude 3.4 earthquake, centered about four miles south of the plant, was felt in the main control room and by other plant personnel. Operators again entered abnormal procedure "ABN-Earthquake" which required walk downs of key safe shutdown equipment. Following those walkdowns, the licensee concluded there was no system or structural damage due to the earthquake. Similar to the September 3, 2011, earthquake, no emergency declaration was necessary since the control room did

not receive an alarm for “minimum seismic earthquake exceeded” or “operating basis earthquake exceeded.”

The inspectors reviewed the licensee’s response to the September 3 and October 14, 2011 earthquakes. The inspectors noted that not all available seismic monitoring devices were functional during the September 3 and October 14, 2011, earthquakes which complicated post earthquake evaluation. Specifically, since June 28, 2011, the tri-axial accelerograph tape recorder SEIS-TR-3 had been inoperable due to a non-functioning trigger switch and one of three tri-axial response spectrum recorders had been inoperable due to a damaged recording reed. Additionally, since September 7, 2011, the seismic trigger for the tri-axial accelerographs was not functioning to start the required tape recorders. The inspectors went on to identify that following the September 3, 2011 earthquake the licensee failed to perform Step 4.21 of “ABN-Earthquake” which required the licensee re-calibrate all seismic instruments within 30 days. Consequently, the failure to perform Step 4.21 resulted in the same instruments being non-functional during the October 14, 2011, earthquake.

Following identification of this issue, the licensee performed calibrations of all seismic instruments restoring the equipment to a function status on November 2, 2011.

Analysis. The failure to follow abnormal procedures associated with earthquake response was a performance deficiency. The finding was more than minor because it affected the human performance attribute of the Emergency Preparedness Cornerstone objective to ensure the licensee is capable of implementing adequate measures to protect the health and safety of the public in the event of a radiological emergency. Specifically, seismic instrumentation is required following a seismic event to evaluate the necessity of an emergency declaration and to determine the impact of strong motion on structures, systems and components or the need for a reactor shutdown. Using Inspection Manual Chapter 0609, Appendix B, “Emergency Preparedness Significance Determination Process” the inspectors determined this finding to be of very low safety significance (Green) because while some seismic instruments were non-functional and that did complicate the operator’s response to the October 14, 2011 earthquake, the non-functional instruments did not result in a loss of planning standard or risk-significant planning standard function. The inspectors determined that this finding had a cross-cutting aspect in the area of human performance associated with the work control component because the licensee failed to appropriately plan work activities by incorporating the need for planned contingencies such as those needed to recalibrate seismic instruments following an earthquake [H.3(a)].

Enforcement. Technical Specification 5.4.1.a requires, in part, that written procedures be established, implemented, and maintained as recommended in Regulatory Guide 1.33, Revision 2, Appendix A, dated February 1978. Paragraph 6.w. of Regulatory Guide 1.33, Appendix A, requires specific procedures for acts of Nature (e.g., tornado, flood, dam failure, earthquakes). On September 3, 2011, licensee Procedure “ABN-Earthquake”, Revision 6, was implemented in response to a seismic event. Step 4.21 required that seismic instruments be re-calibrated within 30 days following entry into the procedure. Contrary to this requirement, on October 3, 2011, the licensee failed to re-calibrate all seismic instruments following the September 3, 2011 earthquake.

Consequently, several required seismic instruments were non-functional during a similar earthquake that occurred on October 14, 2011. Because this finding is of very low safety significance and was entered into the licensee's corrective action program as Action Request AR 00251987, the violation is being treated as a non-cited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000397/2011005-04, "Failure to Follow Earthquake Abnormal Procedure."

### 4OA6 Meetings

Exit Meeting Summary

On November 9, 2011, the inspector presented the results of in-office inspection of eight changes to the licensee emergency plan and emergency plan implementing procedures to Mr. D. Gregoire, Manager, Regulatory Affairs, and other members of the licensee's staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On December 13, 2011, the inspector presented the results of in-office inspection of a change to the licensee emergency plan to Mr. D. Gregoire, Manager, Regulatory Affairs, and other members of the licensee's staff. The licensee acknowledged the issues presented. The inspector asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On January 4, 2012, the inspectors presented the inspection results to Mr. B. Sawatzke, 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.

### 4OA7 Licensee-Identified Violations

The following violation of very low safety significance (Green) was identified by the licensee and is a violation of NRC requirements which met the criteria of Section 2.3.2 of the NRC Enforcement Policy for being dispositioned as a non-cited violation:

Title 10 of the Code of Federal Regulations Part 50, Appendix B, Criterion III, "Design Control," requires, in part, that measures be established to assure that applicable regulatory requirements and the design basis, for structures, systems, and components are correctly translated into specifications, drawings, procedures, and instructions. Contrary to the above, on September 18, 1996, the licensee failed to adequately translate the design and licensing basis seismic requirements for the residual heat removal system when installing shielding on valves RHR-V-144A, RHR-V-144B and RHR-V-145B under RFTS-96-10-003. Specifically, the licensee failed to account for the additional weight of the shielding that would add mechanical stress to the system's piping during a safe shutdown earthquake. Following discovery by the licensee, the shielding on valves RHR-V-144A, RHR-V-144B and RHR-V-145B was removed. Subsequent evaluation by the licensee revealed that the additional shielding would add substantial stresses to the system piping but the stresses would still be below design specifications. This finding was

entered in the licensee's corrective action program as Action Requests AR 00250306. This finding is greater than minor because it was associated with the design control attribute of the Mitigating Systems Cornerstone and adversely affected the cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. This finding is of very low safety significance because it was a design or qualification deficiency confirmed not to result in a loss of operability or functionality.
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## SUPPLEMENTAL INFORMATION
## KEY POINTS OF CONTACT

Licensee Personnel

B. Adami, Manager, Technical Services
J. Bekhazi, Manager, Maintenance
D. Brown, Manager, Operations
K. Christianson, Regulatory Affairs, Licensing Engineer
M. Davis, Manager, Radiological Services
Z. Dunham, Supervisor, Licensing
C. England, Manager, Chemistry
A. Fahnestock, Manager, Emergency Preparedness
R. Garcia, Licensing Engineer
C. Golightly, Root Cause Analyst
D. Gregoire, Manager, Regulatory Affairs
C. King, Assistant Plant General Manager
B. MacKissock, Plant General Manager
D. Mand, Manager, Design Engineering
C. Moon, Manager, Training
B. Sawatzke, Vice President Nuclear Generation/Chief Nuclear Officer
B. Sherman, BPA, Nuclear Engineer
S. Wood, Manager, Organizational Effectiveness

## LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None.

Opened and Closed

| | | |
|---|---|---|
| 05000397-2011005-01 | FIN | Failure to Follow Work Instructions when Fabricating a Gagging Device for Main Condenser Hotwell Surge Bypass Valve (Section 1R12) |
| 05000397-2011005-02 | NCV | Failure to Include Appropriate Acceptance Criteria in Offsite Power Alignment Procedure (Section 1R15) |
| 05000397-2011005-03 | NCV | Missed Procedural Step Results in Secondary Containment Pressure Excursion (Section 1R22) |
| 05000397-2011005-04 | NCV | Failure to Follow Earthquake Abnormal Procedure (Section 4OA3) |

Closed

None.

Discussed

None.

## LIST OF DOCUMENTS REVIEWED

### Section 1RO1: Adverse Weather Protection

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| ABN-WIND | Tornado/High Winds | 22 |
| SOP-COLDWEATHER-OPS | Cold Weather Operations | 19 |

ACTIONS REQUESTS

| | | |
|---|---|---|
| 00249800 | 00250815 | 00252469 |

### Section 1RO4: Equipment Alignment

DRAWINGS

| NUMBER | TITLE | REVISION |
|---|---|---|
| M520 | Flow Diagram HPCS and LPCS Systems Reactor Building | 98 |
| M522 | Flow Diagram Standby Liquid Control System Reactor Building | 37 |
| M521-3 | Flow Diagram Residual Heat Removal Loop “C” | 8 |

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| ISP-SEIS-S401 | Triaxial Time History Accelrograph Functional Check | 1 |
| ISP-SEIS-X301 | Triaxial Time History Accelrograph Channel Calibration | 5 |
| ISP-SEIS-X302 | Peak Acceleration Recorder Par 400 – CC | 0 |
| OSP-SW-M103 | HPCS Service Water Valve Position Verification | 17 |

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| SOP-DG3-STBY | High Pressure Core Spray Diesel Generator Standby Lineup | 12 |
| SOP-HPCS-STBY | Placing HPCS in Standby Status | 2 |
| SOP-RHR-LU | RHR System Valve and Breaker Lineup | 2 |
| SOP-SLC-LU | SLC System Valve and Breaker Lineup | 0 |

ACTION REQUESTS

| | | | | |
|---|---|---|---|---|
| 00201671 | 00207848 | 02005222 | 00245254 | 00247873 |
| 00243476 | 00243593 | 00244059 | 00248593 | 00249214 |
| 00244468 | 00245216 | 00245253 | 00251207 | 00251351 |
| 00248005 | 00248056 | 00248440 | 00249694 | 00249806 |
| 00251206 | | | | |

WORK ORDER

29078547

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | REVISION / DATE |
|---|---|---|
| | Design Specification for Division 15 Section 15A.3 General Piping and Mechanical Installation | 5 |
| ANSI/ANS-2.2-1978 | Earthquake instrumentation Criteria for Nuclear Power Plants | September 5, 1978 |
| QID 144025 | Flexible Couplings and Hoses | 2 |

**Section 1RO5: Fire Protection**

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| 15.3.17 | Fire Door Operability – Semiannual, Annual and Biennial | 6 |

ACTION REQUEST

00247367

WORK ORDER

02000988

**Section 1RO6: Flood Protection Measures**

ACTION REQUESTS

00237290 249867 249729 249178

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| Calc 5.51.58 | Flooding Safe Shutdown Analysis | 4 |
| CCER No. 03-002 | Component CER Summary Sheet HPCS-PS-3A, HPCS-PS-3B | 0 |
| EC 2074 | HPCS-LS-3A and HPCS-LS-3B Replacement | 0 |
| ME-02-02-02 | Table of Pump Room/Stairwell Flooding Scenarios | 1 |

**Section 1RO7: Heat Sink Performance**

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| PPM 8.4.62 | Thermal Performance Monitoring of DCW-HX-1B1 and DCW-HX-1B2 | 8 |

DRAWINGS

| NUMBER | TITLE | REVISION |
|---|---|---|
| M512-3 | Flow Diagram Diesel Oil and Miscellaneous Systems Diesel Generator Building | 36 |
| SW-283-1.5 | To Loop B Return from DG-ENG-1B | 8 |
| 22029 | Washington Public Power Supply System Engine Jacket Water Heat Exchanger Tandem 20-645-E4 4650KW Generator Set | E |

ACTION REQUEST

00254538

WORK ORDERS

01107072 01183223 01198321

**Section 1R11: Licensed Operator Requalification**

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| TDI-08 | Licensed Operator Requalification program | 8 |
| PPM 5.1.1 | RPV Control | 19 |
| PPM 13.1.1 | Classifying the Emergency | 37 |
| PPM 5.1.2 | RPV Controls – ATWS | 20 |
| PPM 5.2.1 | Primary Containment Control | 19 |
| PPM 5.3.1 | Secondary Containment Control | 18 |
| OI-15 | EOP and EAL Clarifications | 21 |
| PPM 5.5.1 | Overriding ECCS Valve Logic to Allow Throttling RPV Injection | 6 |

**Section 1R12: Maintenance Effectiveness**

ACTION REQUESTS

00216276 00219734 00249959 00251720 00252156
00253693

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| 4.840.A3 | 840.A3 Annunciator Panel Alarms | 17 |

DRAWINGS

| NUMBER | TITLE | REVISION / DATE |
|---|---|---|
| A-12802-M-2A | Cast Steel Bolted Bonnet Globe Valve w/ Duplex Gear Operator | December 5, 1973 |
| | Temporary Gag for COND-V-170- Information Only | N/A |

WORK ORDER

01188696

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

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| 1.3.76 | Integrated Risk Management | 29 |
| 1.3.83 | Protected Equipment Program | 8 |
| 1.5.14 | Risk Assessment and Management for Maintenance/Surveillance Activities | 22 |

**Section 1R15: Operability Evaluations**

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| DES-2-9 | Technical Evaluations | 18 |
| PPM 1.3.66 | Operability and Functionality Evaluation | 20 |
| PPM 1.3.67 | Operational Decision Making Process | 10 |
| SWP-CAP-01 | Corrective Action Program | 24 |

ACTION REQUESTS

| | | | | |
|---|---|---|---|---|
| 00219624 | 00248876 | 00248877 | 00249891 | 00249535 |
| 00250009 | 00250150 | 00250306 | 00250415 | 00250490 |
| 00252299 | 00254047 | 00254858 | | |

WORK ORDER

01107071

**Section 1R18: Plant Modifications**

| NUMBER | TITLE | REVISION / DATE |
|---|---|---|
| OSP-SLC/IST-Q701 | Standby Liquid Control Pumps Operability Test | 22 |

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| Calculation CE 02-10-14 | Standby Liquid Control Test Tank Structural Evaluation | 0 |
| AD-11-0260 | Applicability Determination for Licensing Basis Changes | 0 |

**Section 1R19: Postmaintenance Testing**

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| 10.18.3 | Reactor Feedwater Pump Overhaul | 12 |
| 10.25.169 | Maintenance and Repair of Limitorque Valve Operators – Model SMB and SB 0 Through 4 | 11 |
| ESP-RLYRHRA621-B301 | LPCI Pump A Start – LOCA Time Delay Relay, E-RLY-RHRA/62/1 – CC | 8 |
| SWP-TST-01 | Post Maintenance Testing Program | 14 |

ACTION REQUESTS

| | | |
|---|---|---|
| 00248704 | 00248809 | 00252176 |

WORK ORDERS

| | | | | |
|---|---|---|---|---|
| 01177825 | 01179637 | 001196711 | 01190703 | 02001104 |
| 02003493 | 02002110 | 02013230 | 02013055 | |

MISCELLANEOUS DOCUMENT

| NUMBER | TITLE | REVISION / DATE |
|---|---|---|
| | ASME Section XI Work Plan Number 2-2419 | N/A |

**Section 1R20: Refueling and Other Outage Activities**

PROCEDURES

| NUMBER | TITLE | REVISION / DATE |
|---|---|---|
| 3.1.1 | Master Startup Checklist | 50 |
| 3.1.2 | Reactor Plant Startup | 74 |

ACTION REQUEST

00249102

**Section 1R22: Surveillance Testing**

PROCEDRUES

| NUMBER | TITLE | REVISION |
|---|---|---|
| OSP-CONT/IST-Q701 | CSP and CEP Containment Isolation Valve Operability | 11 |
| OSP-CONT/IST-Q702 | Reactor Building Ventilation Isolation Valve Operability | 8 |
| OSP-ELEC-S703 | HPCS Diesel Generator Semi-Annual Operability Test | 48 |
| OSP-INST-H101 | Shift and Daily Instrument Checks (Modes 1, 2, 3) | 73 |
| PPM 5.3.1 | | |
| SOP-HVAC/RB-START | Reactor Building Ventilation Start | 2 |
| OSP-RHR/IST-Q702 | RHR Loop A Operability Test | 31 |
| OI-17 | System Availability Tracking | 0 |
| 1.5.14 | Risk Assessment and Management for Maintenance/Surveillance Activities | 22 |

ACTION REQUEST

00251613

WORK ORDERS

02007056 02007123 02010572

**Section 1EP6: Drill Evaluation**

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| ABN-Flooding | Flooding | 12 |
| 5.1.1 | RPV Control | 19 |
| 5.1.2 | RPV Control – ATWS | 20 |
| 5.1.3 | Emergency RPV Depressurization | 18 |
| 5.1.4 | RPV Flooding | 9 |
| 5.4.1 | Radioactive Release Control | 14 |
| 10.25.156 | Emergency Light Inspection – Annual | 7 |
| 13.1.1 | Classifying the Emergency | 39 |
| SAG-1 | RPV and Primary Containment Flooding | 2 |
| SAG-2 | Containment and Radioactive Release Control | 3 |

ACTION REQUESTS

| | | | | |
|---|---|---|---|---|
| 00251608 | 00251652 | 00251658 | 00251695 | 00252031 |

**Section 4OA1: Performance Indicator Verification**

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| SOP-SW-START | Standby Service Water System Start | 4 |
| SOP-SW-LU | Standby Service Water System Valve and Breaker Lineup | 3 |

ACTION REQUESTS

| | | | | |
|---|---|---|---|---|
| 00234051 | 00234141 | 00239952 | 00248836 | 00249423 |

MISCELLANEOUS DOCUMENTS

| NUMBER | TITLE | REVISION |
|---|---|---|
| MSPI-01-BD-0001 | Mitigating System Performance Index (MSPI) Basis Document | 11 |

**Section 4OA2: Identification and Resolution of Problems**

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| 1.3.81 | Maintaining Plant Component Status Control | 4 |
| 10.20.18 | Division 3 Diesel Generator Engine 2/4/6/12 Year Preventative Maintenance | 0 |
| OI-9 | Operations Standards and Expectation | 49 |
| SWP-CAP-01 | Corrective Action Program | 24 |

ACTION REQUESTS

| | | | | |
|---|---|---|---|---|
| 00035504 | 00231240 | 00213502 | 00242217 | 00244452 |
| 00244730 | 00244905 | 00245139 | 00245159 | 00245996 |
| 00247524 | 00247710 | 00249287 | 00252282 | 00252323 |

**Section 4OA3: Event Follow-up**

PROCEDURES

| NUMBER | TITLE | REVISION |
|---|---|---|
| ABN-Earthquake | Earthquake | 6 |

ACTION REQUEST
00219734

**Section 4OA7: Licensee-Identified Violations**

ACTION REQUEST

00250306