



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

November 2, 2011

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

Subject: COLUMBIA GENERATING STATION - NRC INTEGRATED INSPECTION REPORT
05000397/2011004

Dear Mr. Reddemann:

On September 24, 2011, the U.S. Nuclear Regulatory Commission (NRC) completed an inspection at your Columbia Generating Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on September 29, 2011, with yourself 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.

Based on the results of this inspection, the NRC has identified five issues that were evaluated under the significance determination process as having very low safety significance (Green). The NRC has determined that violations are associated with these issues. Additionally, one licensee-identified violation, which was determined to be of very low safety significance, is listed in this report. However, because of the very low safety significance and because they were entered into your corrective action program, the NRC is treating these findings as noncited violations, consistent with Section 2.3.2 of the NRC Enforcement Policy.

If you contest the violation or the significance of the noncited violations, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the U.S. Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington, D.C. 20555-0001, with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 612 E. Lamar Blvd, Suite 400, Arlington, Texas, 76011-4125; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, D.C. 20555-0001; and the NRC Resident Inspector at the facility. In addition, if you disagree with the cross-cutting aspect assigned to any finding in this report, you should provide a response within 30 days of the date of this inspection report, with the basis for your disagreement, to the Regional Administrator, Region IV, and the NRC Resident Inspector at the facility.

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 you choose to provide one for cases where a response is not required, will be made available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC Web site at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy or proprietary information so that it can be made available to the Public without redaction.

Sincerely,

/RA/

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

Docket: 50-397
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NRC Inspection Report 05000397/2011004
w/Attachment: Supplemental Information

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U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket: 05000397

License: Energy Northwest

Report: 05000397/2011004

Licensee: Energy Northwest

Facility: Columbia Generating Station

Location: Richland, WA

Dates: June 26 through September 24, 2011

Inspectors: J. Groom, Senior Resident Inspector
R. Cohen, Senior Resident Inspector
M. Hayes, Resident Inspector
L. Carson II, Senior Health Physicist
L. Ricketson, P.E., Senior Health Physicist
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G. George, Senior Reactor Inspector
A. Fairbanks, Reactor Inspector
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P. Elkmann, Senior Emergency Preparedness Inspector
E. Ruesch, Reactor Engineer

Approved By: W. Walker, Chief, Project Branch A
Division of Reactor Projects

SUMMARY OF FINDINGS

IR 05000397/2011004; 06/26/2011 – 09/24/2011; Columbia Generating Station, Integrated Resident and Regional Report; Equipment Alignment; Maintenance Effectiveness; Operability Evaluations; Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications; Event Follow-up

The report covered a 3-month period of inspection by resident inspectors and announced baseline inspections by region-based inspectors. Five Green noncited violations of significance were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Inspection Manual Chapter 0609, "Significance Determination Process." 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: Mitigating Systems

- Green. The inspectors identified a noncited violation of Technical Specification 5.4.1.a for the failure of the licensee to maintain an adequate reactor core isolation cooling pump surveillance procedure. Specifically, Procedure OSP-RCIC/IST-B501, "RCIC LSFT Surveillance," Revision 9, required that the licensee maintain bearing oil level in the green band during turbine operation per Procedure PPM 3.1.10, "Operating Data and Logs", Revision 76. The inspectors found that the licensee staff did not have a common understanding of the requirement to maintain turbine oil level and that Procedure PPM 3.1.10 only provided guidance for bearing oil levels while the reactor core isolation cooling turbine was in a standby condition, not while the equipment was operating. Consequently, when the surveillance was performed, the inspectors noted that the turbine west end bearing oil level had decreased through the yellow band into the red band of the attached sight glass and was allowed to run for approximately 36 minutes after the control room was informed of the low bearing oil level. This condition was entered into the licensee's corrective action program as Action Request 248813.

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 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 verify the validity of underlying assumptions associated with the precaution listed in Procedure OSP-RCIC/IST-B501 [H.1(b)] (Section 1R04).

- Green. The inspectors identified a noncited violation of Technical Specification 3.8.1, "AC Sources – Operating," for the licensee's failure to meet testing requirements of Surveillance Requirement 3.8.1.13. Specifically, the inspectors determined the licensee had not performed tests to determine if the critical trips associated with the emergency diesel generators would perform their required function. Following identification of the issue by the inspectors, the licensee personnel revised the surveillance testing procedures associated with the emergency diesel generators. Critical trips for all three emergency diesel generators tested successfully. This issue was placed in the licensee's corrective action program as Action Request 244898.

The finding was more than minor because it affected the equipment performance attribute of the Mitigating Systems Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events. The inspectors determined the at-power significance determination process was to be used since this performance deficiency affected at-power operations only. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined the performance deficiency was of very low safety significance (Green) because it was a qualification deficiency confirmed not to result in a loss of operability since all three diesel generators tested successfully. The inspectors determined a cross-cutting aspect was not applicable to this finding because the decision to not test the non emergency trips was made early in plant operation and therefore not reflective of current plant performance (Section 1R15).

- Green. The inspectors identified a noncited violation of 10 CFR Part 50, Appendix B, Criterion V, for failure to accomplish activities affecting quality. From July 13, 2011, to July 19, 2011, the licensee failed to accomplish the storage of transient equipment in accordance with the seismic storage requirements in Procedure PPM 10.2.53, "Seismic Requirements for Scaffolding, Ladders, Man-Lifts, Tool Gang Boxes, Hoists, Metal Storage Cabinets, and Temporary Shielding Racks," Revision 37. Specifically, a wheeled toolbox and lifting beam were stored in a location, near safety-related emergency diesel generator DG-1 conduits and service water pump SW-P-1A conduits, that did not meet the seismic overturning and sliding requirements. This condition was entered into the licensee's corrective action program as Action Request 244730.

The inspectors determined that the failure to meet the seismic storage requirements of Procedure PPM 10.2.53 was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events attribute of the Mitigating Systems Cornerstone and adversely affected the Mitigating System Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Since the finding affected

the safety of the reactor during a refueling outage and entry conditions for residual heat removal were initiated, the inspectors used NRC Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," to evaluate the significance of the finding. The finding did not require a quantitative risk assessment because adequate mitigating equipment remained available and the finding did not constitute a loss of control, as defined in Appendix G. Therefore, the finding screened as having very low safety significance, or Green. The inspectors determined that the finding had a cross-cutting aspect in the area of human performance and work practices component, because the licensee failed to ensure personnel practices supported human performance. Specifically, the licensee failed to ensure supervisory and management oversight of work activities such that nuclear safety was supported [H.4.c] (Section 1R17).

Cornerstone: Barrier Integrity

- Green. The inspectors identified a noncited violation of Technical Specification 5.4.1.a for failure to follow Procedure PPM 10.2.80, "CVB and CSP Valve Air Operator Seal Replacement," Revision 4. On May 28, 2011, containment vacuum breaker valve CVB-V-1JK was rebuilt using Procedure PPM 10.2.80. During the procedure, the lubricant used for reassembling the pressure cylinder was not available and a substitute was used that did not meet procedure requirements specified in PPM 10.2.13, "Approved Lubricants" Revision 57. The same unapproved lubricant was used when rebuilding similarly designed containment supply purge valves CSP-V-5 and CSP-V-6. Consequently, both containment vacuum breaker valve CVB-V-1JK and similarly designed valves CSP-V-5 and CSP-V-6 exhibited signs of high friction after postmaintenance testing was complete. Inspector review of the maintenance history for these components identified that an unapproved substitute was used when reassembling the pressure cylinder. This condition was entered into the licensee's corrective action program as Action Request 248154.

The finding was more than minor because if left uncorrected, the use of an inappropriate or unevaluated lubricant could become a more significant safety concern. This finding affected the barrier integrity cornerstone. Since the finding was discovered and corrected while in a shutdown condition, the inspectors evaluated the finding using Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process." The finding was determined to be of very low safety significance (Green) since it was not associated with a finding that degraded the licensee's ability to terminate a leak path or add reactor coolant system inventory when needed, did not significantly degrade the licensee's ability to recover decay heat removal when lost and did not impact a heat removal path to the suppression pool while the vessel head was installed. The inspectors determined that the cause of the finding had a cross-cutting aspect in the area of human performance associated with the decision making component in that the licensee failed to make a safety-significant decision about lubricant selection using a systematic process and failed to obtain interdisciplinary reviews of the proposed substitute [H.1.a] (Section 1R12).

- Green. The inspectors reviewed a self revealing violation of 10 CFR Part 50 Appendix B, Criterion III for the licensee's failure to perform an adequate review of a design modification that changed the isolation logic for the main steam isolation valves from Level 2 to Level 1. This modification inadvertently changed the isolation logic for outboard containment isolation valves located in containment isolation Groups 3 and 4 due to inadequate design reviews. Prior to the modification, the containment isolation Groups 3 and 4 received a half isolation when swapping power supplies in the reactor protection system. After the modification the containment isolation Groups 3 and 4 received a full outboard isolation signal when the reactor protection system A was swapped from its normal to alternate source. The licensee changed half of the isolation logic to be powered from reactor protection system B. This issue was entered into the licensee's corrective action program as Action Request 238830.

The finding was more than minor because it affected the design control attribute of the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by events. Since the finding was discovered and corrected while in a shutdown condition, the inspectors evaluated the finding using Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process." The finding was determined to be of very low safety significance (Green) since it was not associated with a finding that degraded the licensee's ability to terminate a leak path or add reactor coolant system inventory when needed, did not significantly degrade the licensee's ability to recover decay heat removal when lost and did not impact a heat removal path to the suppression pool while the vessel head was installed. During the review of the licensee's root cause, the inspectors identified a cross-cutting aspect in the area of problem identification and resolution, associated with the corrective action program component, because the licensee failed to communicate issues identified from self assessments to affected personnel. Specifically, the licensee failed to take corrective action from self assessments that identified the licensee's shortcomings in reviewing vendor prepared design documents [P.3.c] (Section 4OA3).

B. Licensee-Identified Violations

A violation of very low safety significance, which was identified by the licensee, has been reviewed by the inspectors. Corrective actions taken or planned by the licensee have been entered into the licensee's corrective action program. This violation and 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 shutdown in Refueling Outage R20. On September 19, 2011, the licensee performed a reactor startup and brought the reactor critical and to the point of adding heat. At the end of the inspection period, Columbia Generating Station was in Mode 2, "Startup" with reactor power at approximately two percent rated thermal power.

1. REACTOR SAFETY

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

1R01 Adverse Weather Protection (71111.01)

.1 Summer Readiness for Offsite and Alternate-ac Power

a. Inspection Scope

The inspectors performed a review of preparations for summer weather for selected systems, including conditions that could lead to loss-of-offsite power and conditions that could result from high temperatures. The inspectors reviewed the procedures affecting these areas and the communications protocols between the transmission system operator and the plant to verify that the appropriate information was being exchanged when issues arose that could affect the offsite power system. Examples of aspects considered in the inspectors' review included:

- The coordination between the transmission system operator and licensee personnel during off-normal or emergency events
- The explanations for the events
- The estimates of when the offsite power system would be returned to a normal state
- The notifications from the transmission system operator to the plant when the offsite power system was returned to normal

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

program in accordance with station corrective action procedures. The inspectors' reviews focused specifically on the following plant system:

- July 20, 2011, standby service water pump houses A and B

These activities constitute completion of one readiness for summer weather affect on offsite and alternate-ac power sample 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:

- August 19, 2011, residual heat removal system Train A while supporting shutdown cooling
- September 7, 2011, low pressure core spray system
- September 12, 2011, standby gas treatment system train B
- September 13, 2011, standby service water trains A, B, C
- September 20-21, 2011, reactor core isolation cooling system

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

b. Findings

Introduction. The inspectors identified a Green non-cited violation for the failure of the licensee to maintain an adequate procedure associated with reactor core isolation cooling system surveillance testing.

Description. On September 21, 2011, during plant startup following Refueling Outage R20, operations personnel performed reactor core isolation cooling logic system functional tests in accordance with Procedure OSP-RCIC/IST-B501, "RCIC LSFT Surveillance," Revision 9. These tests satisfy Technical Specification Surveillance Requirements SR 3.3.5.2.4, 3.5.3.4, and 3.5.3.5. Step 3.5 of the surveillance procedure required as a prerequisite that the licensee verify that reactor core isolation cooling turbine west end bearing oil level was in the green band. Step 4.17, in the "Precautions and Limitations" section of the procedure, further required that this bearing oil level be maintained in the green band during turbine operation per Procedure PPM 3.1.10, "Operating Data and Logs", Revision 76. The inspectors reviewed PPM 3.1.10 and found that the procedure only provided guidance for bearing oil levels while the reactor core isolation cooling turbine is in a standby condition, not while the equipment was operating.

At 8:56 a.m., on September 21, 2011, the licensee simulated a reactor vessel water level decrease to Level 2 in accordance with Step 7.4.4 of the surveillance procedure which caused the reactor core isolation cooling pump to start. After the completion of Section 7.4, operations personnel continued to run the pump while waiting to perform Section 7.5 of the surveillance procedure. At approximately 10:01 a.m., the inspectors noted that the turbine west end bearing oil level had decreased through the yellow band and was at the top of the red band on the operator aid attached to the sight glass. The yellow band indicated low level; the red band indicated that the turbine was inoperable. The inspectors brought this to the attention of the control room supervisor and the shift manager approximately 5 minutes after making the observation.

Control room personnel dispatched an operator to the reactor core isolation cooling pump room. The operator verified the low oil level condition noted by the inspectors. The operator further observed that the turbine east end bearing oil level had decreased well into the red band. The operators continued to perform the surveillance procedure despite the low oil level indications. At 10:42 a.m., operators tripped the reactor core isolation cooling pump in accordance with Step 7.5.13 of Procedure OSP-RCIC/IST-B501. The licensee then restored the oil level to the green band. The turbine ran for approximately 36 minutes after the control room was informed of the low bearing oil level.

The inspectors determined that Step 4.17 of Procedure OSP-RCIC/IST-B501 was inadequate because the precaution and limitation required the licensee maintain reactor core isolation cooling turbine west end bearing oil level in the green band, but provided inadequate guidance on actions necessary to accomplish this step. The inspectors also

noted that the reference to Procedure PPM 3.1.10 was inadequate because that procedure only provided guidance for bearing oil levels while the reactor core isolation cooling turbine was in a standby condition, not while the equipment was operating. Consequently, during intermittent operation of the reactor core isolation cooling turbine over a two-day period the licensee failed to ensure that bearing oil level was maintained in the green band as required by Procedure OSP-RCIC/IST-B501.

Analysis. The failure of licensee personnel to maintain an adequate procedure associated with reactor core isolation cooling surveillance testing 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 that this findings had a cross-cutting aspect in the area of human performance associated with the decision making component because the licensee failed to verify the validity of underlying assumptions associated with the precaution listed in Procedure OSP-RCIC/IST-B501 [H.1(b)].

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. of Regulatory Guide 1.33, Appendix A, requires that specific procedures for surveillance tests, including reactor core isolation cooling tests, be written and that implementing procedures are required for each surveillance test, inspection, or calibration listed in the technical specifications. Contrary to the above, from June 29, 2011 to September 21, 2011, Procedure OSP-RCIC/IST-B501, "RCIC LSFT Surveillance," Revision 9 used to implement Technical Specification Surveillance Requirements SR 3.3.5.2.4, 3.5.3.4, and 3.5.3.5 was inadequate because it provided inadequate or conflicting guidance on actions necessary to maintain reactor core isolation cooling turbine bearing oil level. Because this finding is of very low safety significance and was entered into the licensee's corrective action program as Action Request AR 248813, the violation is being treated as a noncited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000397/2011004-01, "Failure to Maintain Adequate Reactor Core Isolation Cooling Surveillance Procedure."

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:

- July 6, 2011, fire area SW-2, standby service water pump house 1A
- July 7, 2011, main transformer yard
- August 29, 2011, fire area RC-2/1, cable spreading room
- September 16, 2011, fire area DG-3/2, division 2 diesel generating room
- September 23, 2011, fire area TG-1, turbine building 441' 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.

.2 Annual Fire Protection Drill Observation (71111.05A)

a. Inspection Scope

On September 1, 2011, the inspectors observed a fire brigade activation due to a simulated fire in the auxiliary boiler room. The observation evaluated the readiness of the plant fire brigade to fight fires. The inspectors verified that the licensee staff identified deficiencies, openly discussed them in a self-critical manner at the drill debrief, and took appropriate corrective actions. Specific attributes evaluated were (1) proper wearing of turnout gear and self-contained breathing apparatus; (2) proper use and layout of fire hoses; (3) employment of appropriate fire fighting techniques; (4) sufficient firefighting equipment brought to the scene; (5) effectiveness of fire brigade leader communications, command, and control; (6) search for victims and propagation of the fire into other plant areas; (7) smoke removal operations; (8) utilization of preplanned strategies; (9) adherence to the preplanned drill scenario; and (10) drill objectives.

These activities constitute completion of one annual fire-protection inspection sample as defined in Inspection Procedure 71111.05-05.

b. Findings

No findings 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.

- July 26, 2011, Reactor Building 422' level all emergency core cooling system rooms

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

b. Findings

No findings were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On August 17 and September 21, 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 two quarterly licensed-operator requalification program samples 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:

- August 8, 2011, Action Request/Condition Report 244898, emergency diesel generator 2 critical trips testing
- August 18, 2011, Action Request/Condition Report 245854, containment vacuum breaker and containment supply purge valve lubrication

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 identified a Green noncited violation of Technical Specification 5.4.1.a for failure to follow procedures for containment vacuum breaker and containment supply purge air operator seal replacement.

Description. On May 28, 2011, containment vacuum breaker valve CVB-V-1JK was rebuilt using Procedure PPM 10.2.80, "CVB and CSP Valve Air Operator Seal Replacement," Revision 4. While performing the rebuild, the technicians discovered that the silicon based lubricant called for when reassembling the pressure cylinder was unavailable. The pressure cylinder contained an o-ring that seals the sliding surfaces of the actuator piston from the cylinder housing. Specifically, the procedure called for using General Electric Versilube® or Dow Silicone III®. Since the required lubricant was not available, the mechanical maintenance technicians requested a substitute from the tool room who issued Parker Super-O® lubricant, a silicon based grease typically used at the station for static o-ring applications. Following maintenance, the valve successfully passed its postmaintenance test.

On August 4, 2011, Action Request 245854 was written to document that the front and rear disc for containment vacuum breaker CVB-V-1JK were not fully closing. The inspectors reviewed the work history associated with containment vacuum breaker valve CVB-V-1JK and other similar valves. The inspectors noted that the air operator for a similar valve, containment supply purge valve CSP-V-5, showed signs of high friction following overhaul. The inspectors met with mechanical maintenance to determine if the use of Parker Super-O® lubricant in place of the procedurally required lubricant contributed to the high friction in the air operators and if it was allowed by procedure. The licensee stated that the use of Parker Super-O® lubricant was allowed because it was listed within Procedure PPM 10.2.13, "Approved Lubricants," Revision 57. The licensee went on to state that the air operators were not functioning as required because an excess amount of lubricant was used and that because Parker Super-O® is more viscous, it built up on one side of the cylinder causing "dry stroking" to occur. The

licensee also informed the inspectors that containment supply purge damper CSP-V-5 and the containment vacuum breakers would be rebuilt using Moykote-44[®] grease, the vendor recommended lubricant. For the remaining containment supply purge valve, the licensee informed the inspectors that Parker Super-O[®] lubricant would remain installed pending successful stroking of the valves.

The inspectors reviewed Procedure PPM 10.2.80, "CVB and CSP Valve Air Operator Seal Replacement" and PPM 10.2.13, "Approved Lubricants" and found that the use of Parker Super-O[®] lubricant was not currently allowed for this particular application. Specifically, PPM 10.2.13, Section 7.1, required that the licensee use a lubricant specifically designated for a particular piece of equipment, use a vendor recommended lubricant or provide an engineering evaluation for the use of a substitute. For the containment supply purge and containment vacuum breaker valves, none of these requirements were met to justify using Parker Super-O[®] lubricant. Following a challenge by the inspectors, the licensee documented Engineering Evaluation EC 10443 that allowed the use of Parker Super-O[®] lubricant in the containment supply purge air actuators.

On September 3, 2011, while stroking containment supply purge valve CSP-V-6, the valve exhibited signs of high friction including a squealing within the valve's air operator. The valve was rebuilt using Molykote-44[®] on September 7, 2011. The remaining containment supply purge valve CSP-V-9 was determined to be acceptable based on surveillance data but would be refurbished in the following refueling outage since Parker Super-O[®] lubricant is not the optimum choice for this particular application.

Analysis. The inspectors determined that the failure to follow procedures associated with maintenance of containment vacuum breakers and containment supply purge valves was a performance deficiency. The performance deficiency was more than minor because if left uncorrected, the use of an inappropriate or unevaluated lubricant could become a more significant safety concern. This finding impacted the barrier integrity cornerstone. Since the finding was discovered and corrected while in a shutdown condition, the inspectors evaluated the finding using Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process." The finding was determined to be of very low safety significance (Green) since it was not associated with a finding that degraded the licensee's ability to terminate a leak path or add reactor coolant system inventory when needed, did not significantly degrade the licensee's ability to recover decay heat removal when lost and did not impact a heat removal path to the suppression pool while the vessel head was installed. The inspectors determined that the cause of the finding has a cross-cutting aspect in the area of human performance associated with the decision making component in that the licensee failed to make safety-significant decisions about lubricant selection using a systematic process and failed to obtain interdisciplinary reviews of the proposed substitute [H.1.a].

Enforcement. Technical Specification 5.4.1.a requires, in part, that procedures be established, implemented and maintained as recommended in NRC Regulatory Guide 1.33, Appendix A, February 1978. Section 9.a, requires, in part, that maintenance affecting safety-related equipment be accomplished in accordance with written procedures. Licensee Procedure PPM 10.2.80, "CVB and CSP Valve Air Operator Seal Replacement", Revision 4, Section 5.4, specifies that General Electric Versilube[®] or Dow

Silicone III[®] be used during refurbishment of containment supply purge and containment vacuum breaker valves. Contrary to the above, on May 28, 2011, containment vacuum breaker valve CVB-V-1JK was rebuilt using Procedure PPM 10.2.80 without using the lubricant specified in Section 5.4 or without following the station established process for selecting a substitute lubricant specified in Procedure PPM 10.2.13, "Approved Lubricants", Revision 57. Because the finding is of very low safety significance (Green) and has been entered into the licensee's corrective action program as Action Request 248154, this violation is being treated as a noncited violation, consistent with Section 2.3.2. of the NRC Enforcement Policy: NCV 05000397/2011004-02, "Failure to Follow Maintenance and Lubrication Procedures."

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

a. Inspection Scope

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

- July 11, 2011, yellow risk due to the backup transformer being out-of-service for maintenance
- July 12, 2011, risk associated with the scheduling of online work along with outage work
- July 18, 2011, divisional swap from residual heat removal system B to residual heat removal system A
- August 9, 2011, yellow risk due to both trains of standby liquid control unavailable due to clearance order boundaries
- September 20, 2011, yellow risk during reactor core isolation cooling surveillance testing

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:

- July 12, 2011, Action Request/Condition Report 244476, relay installed without bench testing
- August 19, 2011, Action Request/Condition Report 246610 and 246894, operability of emergency diesel generator 2 with fan DMA-FN-51A out of service

The inspectors selected these potential operability issues based on the risk significance of the associated components and systems. The inspectors evaluated the technical adequacy of the evaluations to ensure that technical specification operability was properly justified and the subject component or system remained available such that no unrecognized increase in risk occurred. The inspectors compared the operability and design criteria in the appropriate sections of the technical specifications and FSAR to the licensee personnel's evaluations to determine whether the components or systems were operable. Where compensatory measures were required to maintain operability, the inspectors determined whether the measures in place would function as intended and were properly controlled. The inspectors determined, where appropriate, compliance with bounding limitations associated with the evaluations. Additionally, the inspectors also reviewed a sampling of corrective action documents to verify that the licensee was identifying and correcting any deficiencies associated with operability evaluations. Specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

Introduction. The inspectors identified a Green noncited violation of Technical Specification 3.8.1, "AC Sources – Operating," for the licensee's failure to meet the testing requirements of Surveillance Requirement 3.8.1.13. Specifically, the inspectors determined that the licensee had not performed tests to determine if the critical trips associated with the emergency diesel generators would perform their function.

Description. On July 14, 2011, the inspectors reviewed the licensee's technical specifications in response to a condition report written to document that an overspeed trip relay was installed without bench testing in one of the emergency diesel generators.

The inspectors reviewed Technical Specification Surveillance Requirement 3.8.1.13 which required:

Verify each required DG's automatic trips are bypassed on an actual or simulated ECCS initiation signal except:

- a. Engine overspeed;
- b. Generator differential current; and
- c. Incomplete starting sequence

This surveillance requirement is required to be performed every 24 months and be considered current in Modes 1, 2, or 3. The inspectors determined that in order to meet the surveillance requirement the licensee would need to conduct testing on the automatic trips that were bypassed on an emergency initiation signal and the automatic trips that are active during an emergency initiation signal. The inspectors reviewed Procedure TSP-DG1/LOCA-B501, "Standby Diesel Generator DG2 LOCA Test," Revision 17, and noted that only the automatic trips that are bypassed on an emergency signal were tested within the surveillance. The inspectors also reviewed the maintenance procedures associated with diesel generator overhaul and determined that only the engine overspeed trip is tested.

The inspectors met with licensee engineering personnel to determine how the generator differential current and incomplete starting sequence trips were being tested. During this meeting the inspectors discovered that the differential current and incomplete starting sequence trips had not been tested since initial plant startup testing. Licensee personnel informed the inspectors that they were in compliance with the testing methodology documented in NRC Regulatory Guide 1.9, "Selection, Design, Qualification, and Testing of Emergency Diesel Generator Units Used as Class 1E Onsite Electric Power Systems at Nuclear Power Plants" and in IEEE Standard 387-1984, "IEEE Standard Criteria for Diesel-Generator Units Applied as Standby Power Supplies for Nuclear Power Generating Stations", and therefore in compliance with the requirements of the surveillance. The inspectors reviewed both the IEEE standard and the regulatory guide and determined that while the documents state that the intent of the surveillance was to only test that the non-critical protective functions are bypassed the technical specification bases provided amplifying information that the surveillance also ensures that critical protective functions trip the diesel generator to avert substantial damage to the unit. The inspectors went on to review Inspection Manual Chapter Part 9900 Technical Guidance, "Standard Technical Specifications Section 4.1.1.1.2" which was issued in 1986, that documented the NRC position on the testing of the emergency diesel generator trips, and stated that:

Conformance to TS requirements is not subject to interpretations with regard to intent... Thus, in this case, the lockout features indicated...are those which must be addressed and tested in conformance to the stated requirements.

For plants...the TS requirements should be met as they are stated or the requirements are changed by a license amendment

The inspectors determined that the licensee had failed to perform all aspects of surveillance testing requirements as written in the licensee's technical specification since initial construction and therefore the diesel could not be considered operable in Modes 1, 2, or 3.

The licensee revised their surveillance testing procedure to include testing of the generator differential current and incomplete starting sequence trips. The licensee performed the revised procedure on all three diesel generators and all three diesel generators tested successfully.

Analysis. The failure to perform the testing requirements of Surveillance Requirement 3.8.1.13 was a performance deficiency. This performance deficiency was more than minor because it affected the equipment performance attribute of the Mitigating Systems Cornerstone objective of ensuring the reliability of systems that respond to initiating events. Specifically, the failure to test critical protective functions of emergency diesel generators increases the probability of substantial damage occurring to the emergency diesel generators during accident start signals and surveillance testing. This performance deficiency was identified while the plant was shutdown in Mode 4. The inspectors determined the at-power significance determination process was to be used since this performance deficiency affected at-power operations only. Using Inspection Manual Chapter 0609.04, "Phase 1 – Initial Screening and Characterization of Findings," the inspectors determined the performance deficiency was of very low safety significance (Green) because it was a qualification deficiency confirmed not to result in a loss of operability since all three diesel generators tested successfully. The inspectors determined a cross-cutting aspect was not applicable to this finding because the decision to not test the generator differential current and incomplete starting sequence trips was made early in plant operation and therefore not reflective of current plant performance.

Enforcement. Technical Specification Surveillance Requirement 3.8.1.13 requires, in part, that verification that each emergency diesel generator's non critical trips are bypassed on an actual or simulated emergency core cooling system initiation signal with the exception of engine overspeed, generator differential current, and incomplete starting sequence. Surveillance Requirement 3.0.1 requires surveillance requirements to be met during the modes of applicability for Individual Limiting Conditions for Operations and that failure to meet the surveillance requirement is a failure to meet the Limiting Condition for Operation. Limiting Condition for Operation 3.8.1 requires three diesel generators to be operable in Modes 1, 2, and 3 or enter Limiting Condition for Operation 3.0.3. Limiting Condition for Operation 3.0.3 requires Columbia Generating Station to be in Mode 2 in 7 hours, Mode 3 within 13 hours, and Mode 4 within 37 hours. Contrary to the above, since initial plant startup until August 26, 2011, Columbia Generating Station failed to comply with plant Technical Specifications 3.8.1 by not performing surveillance testing according to surveillance requirements. Because this finding was determined to be of very low safety significance (Green) and was entered into the licensee's corrective action program as Action Request/Condition Report 244898, this violation is being treated as a noncited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000397/2011004-03, "Failure to Test Emergency Diesel Generator Critical Trips."

1R17 Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications (71111.17)

a. Inspection Scope

The inspectors reviewed the effectiveness of the licensee's implementation of evaluations performed in accordance with 10 CFR 50.59, "Changes, Tests, and Experiments," and changes, tests, experiments, or methodology changes that the licensee determined did not require 10 CFR 50.59 evaluations.

The inspectors reviewed 8 evaluations required by 10 CFR 50.59; 24 changes, tests, and experiments that were screened out by licensee personnel; and 9 permanent plant modifications. Documents reviewed are listed in the attachment.

The inspectors verified that, when changes, tests, or experiments were made, evaluations were performed in accordance with 10 CFR 50.59 and licensee personnel had appropriately concluded that the change, test or experiment can be accomplished without obtaining a license amendment. The inspectors also verified that safety issues related to the changes, tests, or experiments were resolved. The inspectors reviewed changes, tests, and experiments that licensee personnel determined did not require evaluations and verified that the licensee personnel's conclusions were correct and consistent with 10 CFR 50.59. The inspectors also verified that procedures, design basis, and licensing basis documentation, used to support the changes, were accurate after the changes had been made.

In the inspection of modifications the inspectors verified that supporting design and license basis documentation had been updated accordingly and was still consistent with the new design. The inspectors verified that procedures, training plans and other design basis features had been adequately accounted for and updated. Specific documents reviewed during this inspection are listed in the attachment.

These activities constitute completion of 8 samples of evaluations, 24 samples of changes, tests, and experiments that were screened out by licensee personnel; and 9 samples of permanent plant modifications as defined in Inspection Procedure 71111.17-04.

b. Findings

Introduction. The inspectors identified a Green noncited violation of 10 CFR 50, Appendix B, Criterion V, for failure to follow procedures for the storage of transient equipment in accordance with seismic requirements. Specifically, a wheeled toolbox and lifting beam were stored in a location, near safety-related emergency diesel generator DG-1 conduits and service water pump SW-P-1A conduits, that did not meet the seismic overturning and sliding requirements.

Description. On July 19, 2011, the inspectors completed a walkdown of the room containing emergency diesel generator DG-1. During this walkdown, the inspectors identified that a wheeled toolbox and a lifting beam were stored near safety-related

conduits. The safety-related conduits contained power cables for many emergency diesel generator DG-1 auxiliary systems and service water pump SW-P-1A.

On the wheeled toolbox, a label read, "Do not store within 7 feet of safety-related equipment." However, the toolbox was stored within 6 feet of safety-related conduits for emergency diesel generator auxiliary power cables and stored within 3 feet of the safety-related conduit for the power cable for service water pump SW-P-1A. In addition to the toolbox, a lifting beam was stored within 1 foot of the emergency diesel generator DG-1 and service water pump SW-P-1A safety-related conduits.

Procedure PPM 10.2.53, "Seismic Requirements for Scaffolding, Ladders, Man-Lifts, Tool Gang Boxes, Hoists, Metal Storage Cabinets, and Temporary Shielding Racks," Revision 37, Section 7.2.2, ensured that overturning or sliding unrestrained equipment will not damage safety-related equipment. Step 7.2.2.a, "Overturning Requirements," stated, "Gang boxes, cabinets, wheeled tool boxes, carts, and other items will not overturn if they meet the aspect ratios for scaffolding in Attachment 9.2. If the aspect ratios are not satisfied, then store the item [greater or equal to] its full height plus 12 inches from any safety-related equipment in all directions." Contrary to Step 7.2.2.a, the wheeled toolbox was stored near emergency diesel generator DG-1 and service water pump SW-P-1A safety-related conduits at a distance less than required. Step 7.2.2.b, "Sliding Requirements," stated, "Store these items [transient equipment] so they do not slide during an earthquake." Contrary to 7.2.2.b, the lifting beam was stored near emergency diesel generator DG-1 and service water pump SW-P-1A safety related conduits at a distance where the beam could slide into the conduits.

The licensee entered the conditions into the corrective action program as Action Request 244730 and relocated the toolbox and lifting beam to acceptable storage locations. In the investigation of the condition, the toolbox and lifting beam were confirmed to be placed in their unacceptable storage locations on July 13, 2011. July 13, 2011, corresponded with the date when emergency diesel generator DG-1 was returned to operable status after routine maintenance. Additionally, the licensee determined that their final walkdown, completed by maintenance leadership before returning DG-1 to operable status, failed to identify the unacceptable storage locations of the toolbox and lifting beam.

Analysis. The inspectors determined that the failure to meet the seismic storage requirements of Procedure PPM 10.2.53 was a performance deficiency. The performance deficiency was more than minor because it was associated with the protection against external events attribute of the Mitigating Systems Cornerstone and adversely affected the Mitigating System Cornerstone objective to ensure the availability, reliability, and capability of systems that respond to initiating events to prevent undesirable consequences. Since the finding affected the safety of the reactor during a refueling outage and entry conditions for residual heat removal were initiated, the inspectors used NRC Inspection Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process," to evaluate the significance of the finding. The finding did not require a quantitative risk assessment because adequate mitigating equipment remained available and the finding did not constitute a loss of control, as defined in Appendix G. Therefore, the finding screened as having very low safety significance, or Green. The inspectors determined that the finding included a

crosscutting aspect in the area of Human Performance, Work Practices Component, because the licensee failed to ensure personnel practices supported human performance. Specifically, the licensee failed to ensure supervisory and management oversight of work activities such that nuclear safety is supported [H.4.(c)].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion V requires, in part, that activities affecting quality shall be prescribed by documented instructions, procedures, or drawings, of a type appropriate to the circumstances and shall be accomplished in accordance with these instructions, procedures, or drawings. Contrary to the above, from July 13, 2011, to July 19, 2011, the licensee failed to accomplish the storage of transient equipment in accordance with the seismic storage requirements in Procedure PPM 10.2.53, "Seismic Requirements for Scaffolding, Ladders, Man-Lifts, Tool Gang Boxes, Hoists, Metal Storage Cabinets, and Temporary Shielding Racks," Revision 37. Specifically, a wheeled toolbox and lifting beam were stored in a location, near safety-related emergency diesel generator DG-1 conduits and service water pump SW-P-1A conduits, that did not meet the overturning requirements and sliding requirements. Since this violation is very low safety significance and entered into the licensee's corrective action program as Action Request 244730, this violation is being treated as a noncited violation, consistent with the Section 2.3.2 of the NRC Enforcement Policy: NCV 05000397/2011004-04, "Failure to Comply with Seismic Storage Requirements 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 11-1012, Revising Emergency Diesel Generator Emergency Starting Surveillance Procedures
- Engineering Change 7095, Lower Group 1 Isolation Valve's Setpoint from L2 to L1

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 two samples 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:

- July 28, 2011, Work Orders 02010398 and 02010399, directional control valve replacement for fast Rods
- August 11, 2011, Work Order 01190299, postmaintenance testing of emergency diesel generator 2 following overhaul
- August 12, 2011, Work Request 29091520, diesel generating testing of critical trips
- August 19, 2011, Work Order 02008781, postmaintenance test of high pressure core spray valve HPCS-V-4 following machining of valve yoke
- August 25, 2011, TSP-CONT/ISOL-B501, main steam isolation valve logic testing following relay replacement
- August 31, 2011, PPM 8.3.438, vacuum pull for main condenser following replacement

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 six 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, 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 shutdown and cooldown processes and monitored licensee controls over the outage activities listed below.

- Configuration management, including maintenance of defense in depth, is commensurate with the outage safety plan for key safety functions and compliance with the applicable technical specifications when taking equipment out of service.
- Clearance activities, including confirmation that tags were properly hung and equipment appropriately configured to safely support the work or testing.
- Installation and configuration of reactor coolant pressure, level, and temperature instruments to provide accurate indication, accounting for instrument error.

- Status and configuration of electrical systems to ensure that technical specifications and outage safety-plan requirements were met, and controls over switchyard activities.
- Monitoring of decay heat removal processes, systems, and components.
- Verification that outage work was not impacting the ability of the operators to operate the spent fuel pool cooling system.
- Reactor water inventory controls, including flow paths, configurations, and alternative means for inventory addition, and controls to prevent inventory loss.
- Controls over activities that could affect reactivity.
- Maintenance of secondary containment as required by the technical specifications.
- Refueling activities, including fuel handling and sipping to detect fuel assembly leakage.
- 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.
- The inspectors reviewed the licensee's actions for managing fatigue per the requirements of 10 CFR Part 26, Subpart I.

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.

- June 30, 2011, Work Order 01173410, control rod insert and withdrawal timing
- July 6, 2011, Work Order 02000422, OSP-SW-IST-Q701, standby service water loop A operability
- July 13, 2011, Work Order 01175993, reactor building drawdown test
- August 4, 2011, Work Order 01177935, standby liquid control loop A functional test

- August 15, 2011, Work Order 01198627, normal/startup transformer fast transfer test
- September 13, 2011, OSP-INST-H101, shift and daily instrument checks (Modes 1, 2, 3), Revision 74
- September 21, 2011, Work Order 01187182, reactor core isolation cooling logic system functional tests

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

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

b. Findings

No findings were identified.

Cornerstone: Emergency Preparedness

1EP2 Alert Notification System Testing (71114.02)

a. Inspection Scope

The inspectors discussed with licensee staff the operability of offsite siren emergency warning systems, tone alert radio systems, and backup alerting methods to determine the adequacy of licensee methods for testing the alert and notification system in accordance with 10 CFR Part 50, Appendix E. The licensee's alert and notification system testing program was compared with criteria in NUREG-0654, "Criteria for Preparation and Evaluation of Radiological Emergency Response Plans and Preparedness in Support of Nuclear Power Plants," Revision 1; FEMA Report REP-10, "Guide for the Evaluation of Alert and Notification Systems for Nuclear Power Plants"; and the licensee's current FEMA-approved alert and notification system design report, "Washington Nuclear Project Site-Specific Offsite Radiological Emergency Preparedness Alert and Notification System Quality Assurance Verification Report," Revision 1, May 19, 1994. The specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

1EP3 Emergency Response Organization Augmentation Testing (71114.03)

a. Inspection Scope

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

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

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors performed on-site reviews of four licensee 50.54(Q) reviews.

These reviews were compared 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 reviews 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 associated documents are subject to future inspection. The specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors reviewed the licensee's corrective action program requirements in Procedure SWP-CAP-01, "Corrective Action Program," Revision 24-3. The inspectors reviewed summaries of two-hundred-forty-six corrective action program entries generated by the emergency preparedness department and emergency response

organization between September 2009 and July 2011, and selected twenty-seven for detailed review against program requirements. The inspectors evaluated the response to the corrective action requests to determine the licensee's ability to identify, evaluate, and correct problems in accordance with the licensee program requirements, planning standard 10 CFR 50.47(b)(14), and 10 CFR Part 50, Appendix E. The specific documents reviewed during this inspection are listed in the attachment.

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

b. Findings

No findings were identified.

2. RADIATION SAFETY

Cornerstone: Occupational and Public Radiation Safety

2RS06 Radioactive Gaseous and Liquid Effluent Treatment (71124.06)

a. Inspection Scope

This area was inspected to: (1) ensure the gaseous and liquid effluent processing systems are maintained so radiological discharges are properly mitigated, monitored, and evaluated with respect to public exposure; (2) ensure abnormal radioactive gaseous or liquid discharges and conditions, when effluent radiation monitors are out-of-service, are controlled in accordance with the applicable regulatory requirements and licensee procedures; (3) verify the licensee's quality control program ensures the radioactive effluent sampling and analysis requirements are satisfied so discharges of radioactive materials are adequately quantified and evaluated; and (4) verify the adequacy of public dose projections resulting from radioactive effluent discharges. The inspectors used the requirements in 10 CFR Part 20; 10 CFR Part 50, Appendices A and I; 40 CFR Part 190; the Offsite Dose Calculation Manual, and licensee procedures required by the Technical Specifications as criteria for determining compliance. The inspectors interviewed licensee personnel and reviewed and/or observed the following items:

- Radiological effluent release reports since the previous inspection and reports related to the effluent program issued since the previous inspection, if any
- Effluent program implementing procedures, including sampling, monitor setpoint determinations and dose calculations
- Equipment configuration and flow paths of selected gaseous and liquid discharge system components, filtered ventilation system material condition, and significant changes to their effluent release points, if any, and associated 10 CFR 50.59 reviews
- Selected portions of the routine processing and discharge of radioactive gaseous and liquid effluents (including sample collection and analysis)

- Controls used to ensure representative sampling and appropriate compensatory sampling
- Results of the inter-laboratory comparison program
- Effluent stack flow rates
- Surveillance test results of technical specification-required ventilation effluent discharge systems since the previous inspection
- Significant changes in reported dose values, if any
- A selection of radioactive liquid and gaseous waste discharge permits
- Part 61 analyses and methods used to determine which isotopes are included in the source term
- Offsite dose calculation manual changes, if any
- Meteorological dispersion and deposition factors
- Latest land use census
- Records of abnormal gaseous or liquid tank discharges, if any
- Groundwater monitoring results
- Changes to the licensee's written program for identifying and controlling contaminated spills/leaks to groundwater, if any
- Identified leakage or spill events and entries made into 10 CFR 50.75 (g) records, if any, and associated evaluations of the extent of the contamination and the radiological source term
- Offsite notifications, and reports of events associated with spills, leaks, or groundwater monitoring results, if any
- Audits, self-assessments, reports, and corrective action documents related to radioactive gaseous and liquid effluent treatment since the last inspection

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

These activities constitute completion of the one required sample, as defined in Inspection Procedure 71124.06-05.

b. Findings

No findings were identified.

2RS07 Radiological Environmental Monitoring Program (71124.07)

a. Inspection Scope

This area was inspected to: (1) ensure that the radiological environmental monitoring program verifies the impact of radioactive effluent releases to the environment and sufficiently validates the integrity of the radioactive gaseous and liquid effluent release program; (2) verify that the radiological environmental monitoring program is implemented consistent with the licensee's technical specifications and/or offsite dose calculation manual, and to validate that the radioactive effluent release program meets the design objective contained in Appendix I to 10 CFR Part 50; and (3) ensure that the radiological environmental monitoring program monitors non-effluent exposure pathways, is based on sound principles and assumptions, and validates that doses to members of the public are within the dose limits of 10 CFR Part 20 and 40 CFR Part 190, as applicable. The inspectors reviewed and/or observed the following items:

- Annual environmental monitoring reports and offsite dose calculation manual
- Selected air sampling and thermoluminescence dosimeter monitoring stations
- Collection and preparation of environmental samples
- Operability, calibration, and maintenance of meteorological instruments
- Selected events documented in the annual environmental monitoring report which involved a missed sample, inoperable sampler, lost thermoluminescence dosimeter, or anomalous measurement
- Selected structures, systems, or components that may contain licensed material and has a credible mechanism for licensed material to reach ground water
- Records required by 10 CFR 50.75(g)
- Significant changes made by the licensee to the offsite dose calculation manual as the result of changes to the land census or sampler station modifications since the last inspection
- Calibration and maintenance records for selected air samplers, composite water samplers, and environmental sample radiation measurement instrumentation
- Interlaboratory comparison program results

- Audits, self-assessments, reports, and corrective action documents related to the radiological environmental monitoring program since the last inspection

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

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.07-05.

b. Findings

No findings were identified.

2RS08 Radioactive Solid Waste Processing, and Radioactive Material Handling, Storage, and Transportation (71124.08)

a. Inspection Scope

This area was inspected to verify the effectiveness of the licensee's programs for processing, handling, storage, and transportation of radioactive material. The inspectors used the requirements of 10 CFR Parts 20, 61, and 71 and Department of Transportation regulations contained in 49 CFR Parts 171-180 for determining compliance. The inspectors interviewed licensee personnel and reviewed the following items:

- The solid radioactive waste system description, process control program, and the scope of the licensee's audit program
- Control of radioactive waste storage areas including container labeling/marketing and monitoring containers for deformation or signs of waste decomposition
- Changes to the liquid and solid waste processing system configuration including a review of waste processing equipment that is not operational or abandoned in place
- Radio-chemical sample analysis results for radioactive waste streams and use of scaling factors and calculations to account for difficult-to-measure radionuclides
- Processes for waste classification including use of scaling factors and 10 CFR Part 61 analysis
- Shipment packaging, surveying, labeling, marking, placarding, vehicle checking, driver instructing, and preparation of the disposal manifest
- Audits, self-assessments, reports, and corrective action reports radioactive solid waste processing, and radioactive material handling, storage, and transportation performed since the last inspection

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

These activities constitute completion of the one required sample as defined in Inspection Procedure 71124.08-05.

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 second 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 - Emergency ac Power System (MS06)

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - emergency ac power system performance indicator for the period from the third quarter 2010 through the second 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, mitigating systems performance index derivation reports, issue reports, event reports, and NRC integrated inspection reports for the period of July 2010 through June 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 - emergency ac power system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - high pressure injection systems performance indicator for the period from the third quarter 2010 through the second 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 July 2010 through June 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 - high pressure injection system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

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

a. Inspection Scope

The inspectors sampled licensee submittals for the mitigating systems performance index - residual heat removal system performance indicator for the period from the third quarter 2010 through the second 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 July 2010 through June 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 - residual heat removal system sample as defined in Inspection Procedure 71151-05.

b. Findings

No findings were identified.

.5 Drill/Exercise Performance (EP01)

a. Inspection Scope

The inspectors sampled licensee submittals for the Drill and Exercise Performance, performance indicator for the period July 2010 through June 2011. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revisions 5 and 6, were used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator; assessments of performance indicator opportunities during predesignated control room simulator training sessions, performance during the 2010 biennial exercise, and performance during other drills. The specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

.6 Emergency Response Organization Drill Participation (EP02)

a. Inspection Scope

The inspectors sampled licensee submittals for the Emergency Response Organization Drill Participation performance indicator for the period July 2010 through June 2011. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revisions 5 and 6, were used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported

the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator, rosters of personnel assigned to key emergency response organization positions, and exercise participation records. The specific documents reviewed are described in the attachment to this report.

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

b. Findings

No findings were identified.

.7 Alert and Notification System (EP03)

a. Inspection Scope

The inspectors sampled licensee submittals for the Alert and Notification System performance indicator for the period July 2010 through June 2011. To determine the accuracy of the performance indicator data reported during those periods, performance indicator definitions and guidance contained in Nuclear Energy Institute Document 99-02, "Regulatory Assessment Performance Indicator Guideline," Revisions 5 and 6, were used. The inspectors reviewed the licensee's records associated with the performance indicator to verify that the licensee accurately reported the indicator in accordance with relevant procedures and the Nuclear Energy Institute guidance. Specifically, the inspectors reviewed licensee records and processes including procedural guidance on assessing opportunities for the performance indicator and the results of periodic alert notification system operability tests. The specific documents reviewed are described in the attachment to this report.

These activities constitute completion of the alert and notification 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 January 2011 through June 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 single semi-annual trend inspection sample as defined in Inspection Procedure 71152-05.

b. Findings

No findings were identified.

.4 Selected Issue Follow-up Inspection

a. Inspection Scope

During a review of items entered in the licensee's corrective action program, the inspectors recognized a corrective action item documenting a missing overspeed trip cam for the division 2 emergency diesel generator. The inspectors reviewed the licensee's evaluation of the potential impact of the missing component to ensure it was technically accurate. Additionally, the inspectors reviewed the licensee's cause determination and extent of condition review to ensure that adequate corrective actions were implemented. To determine if other configuration control issues existed for the emergency diesel generators, the inspectors reviewed work orders associated with the diesels 2, 4 and 6 year preventative maintenance tasks.

These activities constitute completion of one in-depth problem identification and resolution 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 September 3, 2011, Magnitude 3.7 Earthquake Located near Richland, Washington

On September 3, 2011, at 9:14 p.m. PDT, an earthquake of sufficient magnitude to be felt by the main control room operators occurred approximately four miles south of Columbia Generating Station. At the time of the earthquake, Columbia Generating Station was in cold shutdown for a refueling and maintenance outage. Procedure "ABN-Earthquake", Revision 6, was implemented immediately following the earthquake. The licensee performed detailed walkdowns of key safe shutdown equipment. The

results of the licensee's inspections concluded there was no system or structural damage due to the earthquake.

The inspectors responded and performed visual inspections in the control room and other safety-related areas of the plant, such as the reactor building and standby service water buildings. No evidence of damage that would affect safety system operability was identified. The inspectors performed further walkdowns during the period of September 5-16, 2011. During this period, all levels of the turbine, reactor, radwaste and standby service water buildings were visually inspected, with particular attention given to systems and components having the most risk significance. During the inspections, no system or structural damage was detected, and no exterior site ground defects were noted.

The inspectors also reviewed the licensee's evaluation of various seismic monitoring instruments. The inspectors found that the licensee's evaluation of available seismic data was not consistent with Procedure ABN-Earthquake in that Section 7.3.5 required the licensee to inspect or replace the seismic devices within 24 hours. The inspectors also noted that not all available seismic monitoring devices were functional during the September 3, 2011, earthquake which complicated post earthquake evaluation. The issues associated with the timeliness of evaluation and individual equipment issues have been entered into the licensee's corrective action program.

The seismic monitoring system at Columbia Generating Station consisted of three subsystems including the tri-axial accelerographs, the tri-axial response spectrum recorders and the tri-axial peak acceleration recorders. No data was available on the tri-axial accelerographs since the ground force accelerations were not of sufficient magnitude to trigger the recorders. The only data the licensee evaluated was that associated with the tri-axial peak acceleration recorders. The licensee's evaluation concluded that the ground force accelerations recorded were not reliable and the data was not consistent with other independent seismic monitors in the area. These independent instruments were in close proximity to Columbia Generating Station and were confirmed to provide a representative measurement of ground force acceleration experienced at the plant. The independent seismic monitors registered a peak ground force acceleration of approximately .016g, whereas the Operating Basis Earthquake and the Design Basis Earthquake maximum ground accelerations for Columbia Generating Station were 0.125g and 0.25g, respectively.

As a result of their independent walkdowns of plant equipment and after a review of seismic monitoring data, the inspectors concluded that the September 3, 2011, earthquake did not result in any plant damage and the operating basis earthquake for Columbia Generating Station was not exceeded.

.2 (Closed) Licensee Event Report 2011-001-00, Failure to Follow Technical Specification during Control Rod Exercise

On June 28, 2011, the licensee performed control rod stroke time testing. During the test, control rod 34-47 displayed an erroneous indication which required the position indicator to be declared inoperable per Technical Specification 3.9.4, "Control Rod Position Indication." The technical specification required that when one or more required control rod position indication channels were inoperable, action should be taken to

immediately suspend control rod withdrawal. Contrary to this requirement, the control room operators continued with control rod withdrawal with the full in position indicator for control rod 34-47 inoperable. Upon discovery of this issue on June 29, 2011, the licensee took action to comply with the requirement of Technical Specification 3.9.4. The inspectors reviewed the licensee event report associated with this event and determined that the report adequately documented the summary of the event including the potential safety consequences and corrective actions required to address the performance deficiency. The inspectors noted a licensee identified noncited violation of Technical Specification 3.9.4, "Control Rod Position Indication." The enforcement aspects of the violation are discussed in Section 4OA7 of this report. No additional violations were identified during the inspectors' review. This licensee event report is closed.

.3 Event Notifications 46972 and 46977, Invalid Containment Isolation System Actuations

Introduction. The inspectors reviewed a self revealing violation of 10 CFR Part 50, Appendix B, Criterion III for the licensee's failure to perform an adequate review of a design modification that changed the isolation logic for the main steam isolation valves from Level 2 to Level 1. This modification inadvertently changed the logic for outboard containment isolation valves located in containment isolation Groups 3 and 4 due to inadequate design reviews.

Description. On April 21, 2011, the licensee was preparing to shift the reactor protection system bus A from its normal power supply to its alternate power supply source to facilitate maintenance. When reactor protection system bus A was taken from its normal to its alternate power supply operations staff received a full unexpected Group 3 and 4 outboard containment isolation signal. During troubleshooting the licensee determined that the design modification that changed the setpoint for the main steam isolation valves to go closed on Level 1 introduced an unanalyzed failure mechanism.

The reactor protection system can be powered from two different sources. One source is its normal power supply source while the other is an alternate source of power. In order to switch from one source to the other the power supplies are arranged as a "break before make" electrical contact. That is, when power is transferred there is a momentary loss of electrical power resulting in a trip of half of the reactor protection system. During the design modification the licensee inadvertently powered both sides of the logic from one power source. This has the effect of isolating the outboard containment isolation valves anytime reactor protection system A power supplies are switched between normal and alternate power supplies. This configuration was not the configuration of the isolation system before the modification, nor was this configuration intended to be introduced after the modification.

The licensee conducted a root cause to determine how this failure mechanism was introduced. The licensee determined that they had failed to establish clear design attributes as part of the overall modification process, and that they had less than adequate review of the design package. The licensee contracted with an outside vendor to complete the design review. The design was based on a similar design at another plant and was changed during the middle of the project to incorporate powered trip units, a more technically complex design, but an operational failure analysis was not

conducted. When the licensee conducted their review of the design they focused on component level failures and not the impact to plant operation. This resulted in the failure mechanism not being discovered until operators shifted power supplies to facilitate maintenance. During the root cause, the licensee noted multiple self assessments and corrective action documents noting inadequate engagement from the licensee with vendor sourced changes leading to operational challenges when these changes were implemented dating back to 2008. The licensee corrected the condition by having half of the isolation logic powered from reactor protection system power supply B. This ensures that only half of the logic can be made up when changing power supplies between normal and alternate sources.

Analysis. The failure to perform an adequate design review was a performance deficiency. The finding was more than minor because it affects the design control attribute of the Barrier Integrity Cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by events. Since the finding was discovered and corrected while in a shutdown condition, the inspectors evaluated the finding using Manual Chapter 0609, Appendix G, "Shutdown Operations Significance Determination Process." The finding was determined to be of very low safety significance (Green) since it was not associated with a finding that degraded the licensee's ability to terminate a leak path or add reactor coolant system inventory when needed, did not significantly degrade the licensee's ability to recover decay heat removal when lost and did not impact a heat removal path to the suppression pool while the vessel head was installed. During the review of the licensee's root cause the inspectors identified a cross-cutting issue in the area of problem identification and resolution, associated with the corrective action program component, because the licensee failed to communicate issues identified from self-assessments to affected personnel. Specifically, the licensee failed to take corrective action from self assessments that identified the licensee's shortcomings in reviewing vendor prepared design documents [P.3.c].

Enforcement. Title 10 CFR Part 50, Appendix B, Criterion III, requires, in part, that design control measures shall be provided for verifying or checking the adequacy of designs. Contrary to the above in February 2009, the licensee failed to adequately review the modification to change the main steam isolation valves closure setpoint. Specifically, the licensee failed to review the change that powered trip units would have on overall plant operations. This violation was identified on April 21, 2011. Because this finding was determined to be of very low safety significance (Green) and was entered into the licensee's corrective action program as Action Request/Condition Report 238830, this violation is being treated as a noncited violation consistent with Section 2.3.2 of the NRC Enforcement Policy: NCV 05000397/2011004-05, "Failure to Ensure Main Steam Isolation Valve Setpoint Change is Adequate."

4OA6 Meetings

Exit Meeting Summary

On July 14, 2011, the inspectors presented the results of the radiation safety inspections to Mr. B. Sawatzke, Chief Nuclear Officer, and other members of the licensee staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials

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

The inspectors briefed Mr. B. Sawatzke, Chief Nuclear Officer, and other members of the licensee's staff, on the preliminary results of the evaluation of changes, tests, experiments, and permanent plant modifications on July 26, 2011. The licensee acknowledged the findings presented. The inspectors briefed the final results of the inspection, via telephonic exit, with Mr. R. Garcia, on August 3, 2011. The licensee acknowledged the results as presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On August 12, 2011, the inspector presented results of the onsite inspection of the licensee's emergency preparedness program to Mr. B. Sawatzke, Chief Nuclear Officer, and other members of the licensee's staff. The licensee acknowledged the issues presented. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified.

On September 29, 2011, the inspectors presented the inspection results to Mr. M. Reddemann, Chief Executive 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.

40A7 Licensee-Identified Violations

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

- .1 Technical Specification 3.9.4, "Control Rod Position Indication," requires, in part, that when one or more required control rod position indication channels are inoperable, action should be taken to immediately suspend control rod withdrawal. Contrary to the above, on June 28, 2011, control rod withdrawal was performed with the full in position indicator for control rod 34-47 inoperable. The full in position indicator was inoperable based on not meeting Technical Specification Surveillance Requirement 3.9.4.1. Upon discovery of this issue on June 29, 2011, the licensee took action to comply with the requirement of Technical Specification 3.9.4. This finding was entered in the licensee's corrective action program as Action Request 243588. This finding is greater than minor because it was associated with the human performance attribute of the Barrier Integrity Cornerstone and adversely affected the cornerstone objective to provide reasonable assurance that physical design barriers protect the public from radionuclide releases caused by accidents or events. This finding was of very low safety significance because it was determined to only potentially impact the functionality of the fuel cladding barrier.

SUPPLEMENTAL INFORMATION
KEY POINTS OF CONTACT

Licensee Personnel

M. Armonde, Manager, Reactor Fuels
N. Chadha, Engineer, System Engineering
K. Clark, Environmental Scientist II, Environmental Services
D. Clymer, Supervisor, Quality
M. Davis, Radiological Services Manager
K. Dittmer, Manager, Systems Engineering
C. England, Chemistry Manager
A. Fahnestock, Manager, Emergency Preparedness
R. Garcia, Engineer, Regulatory Affairs
B. Green, Crew Manager, Operations
D. Gregoire, Manager, Regulatory Affairs
M. Hedges, Specialist, Chemistry
M. Holle, Supervisor, Systems Engineering
M. Huiatt, Senior Licensing Engineer
D. Kania, Radwaste and Transportation Specialist, Chemistry
S. Kartchner, Engineer, Design Engineering
C. King, Assistant Plant Manager
B. MacKissock, Plant Manager
C. Madden, Specialist, Chemistry
D. Mand, Manager, Design Engineering
D. Mee, Environmental Scientist III, Environmental Services
C. Moon, Training Manager
R. Parmelee, Manager, Systems Engineering
B. Sawatzke, Chief Nuclear Officer
R. Schott, Senior Radwaste and Transportation Specialist, Chemistry
M. Shobe, Chemistry Technical Supervisor
J. Slack, Manager, Maintenance
D. Swank, General Manager, Engineering
G. Strong, Supervisor, Design Engineering
R. Torres, Quality Manager
L. Williams, Acting Supervisor, Regulatory Affairs

NRC Personnel

J. Anderson, Emergency Preparedness Specialist, NSIR
R. Cohen, Senior Resident Inspector
J. Groom, Senior Resident Inspector
M. Hayes, Resident Inspector

LIST OF ITEMS OPENED, CLOSED, AND DISCUSSED

Opened

None.

Opened and Closed

05000397/2011004-01	NCV	Failure to Maintain Adequate Reactor Core Isolation Cooling Surveillance Procedure (Section 1R04)
05000397/2011004-02	NCV	Failure to Follow Maintenance and Lubrication Procedures (Section 1R12)
05000397/2011004-03	NCV	Failure to Test Emergency Diesel Generator Critical Trips (Section 1R15)
05000397/2011004-04	NCV	Failure to Comply with Seismic Storage Requirements Procedure (Section 1R17)
05000397/2011004-05	NCV	Failure to Ensure Main Steam Isolation Valve Setpoint Change is Adequate (Section 4OA3)

Closed

05000397-2011-01-00	LER	Failure to Follow Technical Specification during Control Rod Exercise
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Discussed

None.

LIST OF DOCUMENTS REVIEWED

Section 1RO1: Adverse Weather Protection

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
OI-53	Offsite Power	11
ABN-ELEC- GRID	Degraded Off Site Power Grid	3

Section 1RO4: Equipment Alignment

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
ABN-SW	Service Water Trouble	11
ABN-WIND	Tornado/High Winds	22
MSP-SGT-B101	Standby Gas Treatment System Unit A HEPA Filter Test	4
MSP-SGT-B102	Standby Gas Treatment System Unit B HEPA Filter Test	4
MSP-SGT-B103	Standby Gas Treatment Filtration System – Unit A Carbon Adsorber Test	7
MSP-SGT-B104	Standby Gas Treatment Filtration System – Unit B Carbon Adsorber Test	8
OSP-LPCS-M102	LPCS Valve Lineup	1
OSP-RCIC/IST- B501	RCIC LSFT Surveillance	9
OSP-RCIC/IST- Q701	RCIC Operability Test	43
OSP-SGT-B701	Standby Gas Treatment System A – Manual Initiation, Bypass Damper and Heater Test	4
OSP-SGT-B702	Standby Gas Treatment System B – Manual Initiation, Bypass Damper and Heater Test	5
OSP-SW-M101	Standby Service Water Loop A Valve Position Verification	27
OSP-SW-M102	Standby Service Water Loop B Valve Position Verification	22
OSP-SW-M103	Standby Service Water Loop C Valve Position Verification	17

PPM 3.1.10	Operating Data and Logs	76
SOP-LPCS-STBY	Placing LPCS in Standby Status	2
SOP-RHR-SDC	RHR Shutdown Cooling	18
SOP-RHR-SDC-BYPASS	Bypassing RHR Shutdown Cooling Isolation Logic in Mode 4 and 5	10
TSP-BOP/ISOL-B501	Balance of Plant Isolation Logic System Functional Test	6

WORK REQUESTS

29091627	01172416	01177394	01180565	01184808
01172415	01184809			

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
Regulatory Guide 1.52	Design, Testing and Maintenance Criteria for Post Accident Engineered-Safety-Feature Atmosphere Cleanup System Air Filtration and Adsorption Units of Light Water Cooled Nuclear Power Plants	2

Section 1RO5: Fire Protection

MISCELLANEOUS DOCUMENT

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
FSAR	Columbia Generating Station Final Safety Analysis Report, Appendix F	60

Section 1RO6: Flood Protection Measures

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
ABN-FLOODING	Flooding	11

Section 1R11: Licensed Operator Requalification Program

LR002028	Columbia Generating Station Simulator Examination	0
LR002035	Columbia Generating Station Simulator Examination	0

Section 1R12: Maintenance Effectiveness**PROCEDURES**

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
PPM 10.2.13	Approved Lubricants	57
PPM 10.2.80	CVB and CSP Valve Air Operator Seal Replacement	4

ACTION REQUESTS

00237528 00247019

WORK REQUEST

29091627

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

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	R-20 Outage Shutdown Safety Plan	1
PPM 1.3.76	Integrated Risk Management	29
PPM 1.3.68	Work Management Process	24

Section 1R15: Operability Evaluations**PROCEDURES**

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
PPM 10.25.129	Testing of Auxiliary and Control Relays	7

ENGINEERING CHANGES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EC 0000010425	Calculation for Room Temperature for Diesel Generator Building Corridor	August 18, 2011

Section 1R17: Evaluations of Changes, Tests, or Experiments and Permanent Plant Modifications

CALCULATIONS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
M-2048	Basis for Diesel Engine lube oil availability requirement and lube oil consumption rate	1
ME-02-92-234	Calculation for On Site Diesel Fuel Storage for the Emergency Diesel Generators DG-1, DG-2, and DG-3	1
NE-02-94-71	Reactor Building Temperature and Humidity Longterm Response Following a LOCA	0
CAL 8.14.57A	Calculation for RCC supply & Return for EDR Heat Exchanger 1	0
EQ-02-85- 064003-01	Demonstrate Seismic Capability of Ruskin Guillotine Type Fire Doors	0
E/I-02-08-05	Setpoint Determination for MS-LIS-200A and MS-LS-300A	0
ME-02-08-07	Calculation to Support Entry info ABN-FPC-ASSIST	0
B & R 6.19-34	WNP2 – Reactor Bldg	3

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
SOP-DG-LUBEOIL	Diesel Generator Lube Oil Level Control	5

SOP-HPCS-CST/SP	HPCS CST and Suppression Pool Operations	9
SOP-HPCS-Fill	HPCS Fill and Vent	8
MSP-SLC-B101	Standby Liquid Control Squib Valve Test and Replacement	6
PPM 10.2.53	Seismic Requirements for Scaffolding, Ladders, Man-Lifts, Tool Gang Boxes, Hoists, Metal Storage Cabinets, and Temporary Shielding Racks	37
PPM 10.2.10	Fastener Torque and Tensioning	23
SOP-HVAC/CR-START	Control, Cable, and Critical Switchgear Rooms HVAC Start	4
SWP-CAP-01	Corrective Action Program	24
1.3.66	Operability and Functionality Evaluation	20
ISP-SLC-X301	Standby Liquid Control Tank Level – CC	7
1.10.1	Notification and Reportable Events	32
ISP-MS-Q940	DIV 1 Channel A Isolation Actuation on Reactor Level 1 and Reactor Level 2 – CFT/CC	1
OSP-INST-H101	Shift and Daily Instrument Checks (Modes 1, 2, and 3)	74
10.24.245	RTT-Rosemount Master/Slave Trip Units	0
TSP-CONT/ISOL-B501	Containment Isolation – LSFT	7
10.25.171	Agastat Relay Replacement – Bench Test	2
ISP-MS-B601	MSIV Isolation Logic Actuation on Reactor Level 1 Channels A & C – RTT	6
ICP-PMR/RTT-C601	Bench Response Time Test (RTT)	5
OSP-RCIC/IST-Q702	RCIC Valve Operability Test	30
OSP-RCIC/IST-Q701	RCIC Operability Test	43
SOP-MSIV-OPS	Main Steam Isolation Valve Operation	12

ABN-RAD-CR	Control Room HVAC High Radiation	9
ABN-FIRE	Fire	22

SCREENINGS

5059SCREEN-07-0017	5059SCREEN-09-0188	5059SCREEN-10-0136
5059SCREEN-08-0272	5059SCREEN-09-0237	5059SCREEN-10-0182
5059SCREEN-09-0014	5059SCREEN-09-0247	5059SCREEN-10-0219
5059SCREEN-09-0018	5059SCREEN-09-0263	5059SCREEN-11-0008
5059SCREEN-09-0047	5059SCREEN-10-0004	5059SCREEN-11-0027
5059SCREEN-09-0056	5059SCREEN-10-0086	5059SCREEN-11-0080
5059SCREEN-09-0080	5059SCREEN-10-0103	5059SCREEN-11-0134
5059SCREEN-09-0142	5059SCREEN-10-0104	5059SCREEN-11-0140

ENGINEERING CHANGES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EC 0000007095	Lower Group 1 Isolation Valves Setpoint	July 18, 2011
EC 0000007769	Replacement of DG1 Speed Switch DG-SS-DG1/A12	January 23, 2009
EC 0000007920	Replace RHR 2B Motor	May 17, 2009
EC 0000008076	Replace Power Range Neutron Monitoring System	June 16, 2010
EC 0000008181	Revise SLC Squib Firing Circuit	May 28, 2009
EC 0000008444	Replace HPCS-M-P/2	April 28, 2010
EC 0000008767	Evaluation of Under-Torque Condition of LPCS-V-3	
EC 0000010004	Replacement Motor (LPCS-MO-12) for LPCS-V-12	April 23, 2011
EC 0000010167	Eliminate Spring Can Hanger RCC-324 from Piping System Calculation 8.14.57A	May 26, 2011

ACTION REQUESTS

244730	209463	244668	244478	244737
201951	208592	208952	197480	202477
204839	207219	211150	244584	244458
215467	231971	244737	215614	192240
244455	214219	231073	244458	244478
244668	244584	245078	215445	

EVALUATIONS

5059-09-0001	5059-09-0002	5059-09-0004	5059-09-0005
5059-10-0001	5059-10-0002	5059-11-0001	5059-11-0002

WORK ORDERS

1194836	1106675	1179876
118011	1188250	1179876

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EWD-62E-039	Electrical Wiring Diagram Fire Protection System FCP PWR Dist. Internal & Gen Alarm RMB & COMM Interface, Zone 51	October 20, 2010
DGENG1A2	Mounting Feet and Dowel Pin Location Details DG-ENG- 1A2	0

LICENSING DESIGN CHANGE NOTICE

LDCN-FSAR-97-0151	LDCN-FSAR-11-003
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MISCELLANEOUS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
W01776-001	Evaluation of Qualifiability of WOA-SMD-1A and 1B	April 20, 2010

Section 1R18: Plant Modifications

PROCEDURE

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
TSP-DG2/LOCA- B501	Standby Diesel Generator DG2 LOCA Test	18
PPM 10.25.129	Testing of Auxiliary and Control Relays	7
TSP-DG1/LOCA- B501	Standby Diesel Generator DG1 LOCA Test	17
TSP-DG3/LOCA- B501	HPCS Diesel Generator DG3 LOCA Test	16

ACTION REQUEST

00245988

WORK REQUESTS

29091520 29091521

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EWD-47E-048	Electrical Wiring Diagram Standby AC Power System DG 1 Unit Protection Circuits	14
EWD-7E-004C	Electrical Wiring Diagram High Pressure Core Spray System HPCS Diesel Engine DG-ENG-1C Controls	1

Section 1R19: Postmaintenance Testing

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
PPM 10.25.4	Lubrication and Inspection of Limitorque MOV(s)	25
PPM 10.25.132	Thrust Adjustment and Diagnostic Analysis of Motor Operated Valves	25
OSP-HPCS- M102	HPCS Valve Lineup	3
TSP- CONT/ISOL- B501	Containment Isolation – LSFT	7
PPM 8.3.438	Vacuum Pull for Condenser and/or MSR Tube leak Checks	3

WORK ORDER

02008781 01179408

Section 1R20: Refueling and Other Outage ActivitiesPROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
ABN-RHR-SDC- LOSS	Loss of Shutdown Cooling	5
SOP-RHR-SPC	Suppression Pool Cooling/Spray/Discharge/Mixing	7

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
188C7813	Elec Prot Assy	1
944E970	Electric Protection Logic Card	3
E504	Vital One Line Diagram	58

ACTION REQUEST/CONDITION REPORTS

00088061 00248171

Section 1R22: Surveillance TestingPROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
OSP-SLC-B701	Standby Liquid Control Loop A Injection Functional Test	7
PPM 9.3.8	Control Rod Insert and Withdrawal Timing	18
OSP-ELEC-B703	Normal/Startup Transformer Fast Transfer Test	1
ECP-TRN/TRS- B101	Normal/Startup Transformer Fast Transfer Test	March 31, 2011
TSP-RB-B501	Reactor Building (Secondary Containment) Drawdown/Leakage Functional Test	7
OSP-RCIC/IST- B501	RCIC LSFT Surveillance	9
OSP-RCIC/IST- Q701	RCIC Operability Test	43

ACTION REQUEST/CONDITION REPORTS

00243588 00222419 00219122 00219208 00248813

WORK ORDERS

01198627 0117934 01177935 01194836 01197972

Section 1EP2: Alert Notification System Testing

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EPI-26	Tone Alert Radio Test and Survey	0
TSI 6.2.25	Weekly Site Evacuation Siren System Polling Test	11
TSI 6.2.32	Weekly Emergency Response River Siren Polling Test	14
TSI 6.2.7	Weekly Radio Pager System Test	9

Section 1EP3: Emergency Response Organization Augmentation Testing

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EPI-11	ERO Administration Program	8
EPI-13	Automated Notification System	8
EPI-14	Actions in the Event of an Automated Notification System Failure	4
	Evaluation for Quarterly Pager Drill conducted August 23, 2009	
	Evaluation for Quarterly Pager Drill conducted December 2, 2009	
	Evaluation for Quarterly Pager Drill conducted January 14, 2010	
	Evaluation for Quarterly Pager Drill conducted April 13, 2010	
	Evaluation for Quarterly Pager Drill conducted November 30, 2010	
	Evaluation for Quarterly Pager Drill conducted January 28, 2011	
	Evaluation for Quarterly Pager Drill conducted for April 28, 2011	
	Evaluation for Quarterly Pager Drill conducted August 18, 2011	

Section 1EP4: Emergency Action Level and Emergency Plan Changes

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
EPI-16	Emergency Plan Change Processing	9
LDCN EP-10-024	Licensing Basis Impact Evaluation, Emergency Plan	November 8, 2010
LDCN EP-10-005	Licensing Basis Impact Evaluation, Emergency Plan	March 1, 2010
	10CFR50.54Q Evaluation, Emergency Plan R51	November 8, 2010
LDCN EP-11-017	Licensing Basis Impact Evaluation, Draft Emergency Plan	

Section 1EP4: Emergency Action Level and Emergency Plan Changes

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
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Section 1EP5: Correction of Emergency Preparedness Weaknesses and Deficiencies

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
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13.13.2	Emergency Event Termination and Recovery Operations	16-1
13.13.4	After Action Reporting	10-1
SWP-CAP-03	Operating Experience Program	9-01
EPI-10	EP Records Administration Program	4
EPI-17	After Action Report/Improvement Plan Formatting, Distribution, and Retention	8
EPI-30	Emergency Preparedness Condition Report Processing	2
SWP-PRO-02	Preparation, Review, Approval, and Distribution of Procedures	22
CMS 2.1.8	Engineering Guidelines for Work Planning, Documentation, and Closure	5, 6
	After Action Report / Improvement Plan, April 7, 2011, Unusual Event Declaration	
AU-EP-10	Quality Services Audit Report: Emergency Preparedness Program	April 1, 2010
AU-EP-11	Quality Services Audit Report: Emergency Preparedness Program	March 7, 2011
232448	Energy Northwest Self Assessment Report: Emergency Preparedness (Autodialer Telephone Notification System)	January 14, 2011
233570	Energy Northwest Self Assessment Report: Emergency Preparedness (Craft Use of ERO Pagers)	May 12, 2011
	Reportability Evaluation: EOF Not activated within 90 minutes	November 8,

	during Drill	2010
	Apparent Cause Evaluation (AR00228111): Untimely ERO Response and Activation of Emergency Response Facilities	Revision 2, December 30, 2010
234074	Energy Northwest Benchmarking Report: Determine best Practices for responding to Training Drills	March 15, 2011
Form 26573	SCC Duty Officer Checklist Evaluation Report for Drill Conducted October 27, 2009 Evaluation Report for Drill Conducted January 12, 2010 Evaluation Report for Drill Conducted March 16, 2010 Evaluation Report for Drill Conducted May 11, 2010 Evaluation Report for Drill Conducted July 20, 2010 Evaluation Report for Drill Conducted August 31, 2010 Evaluation Report for Drill Conducted January 11, 2011 Evaluation Report for Drill Conducted march 15, 2011	1

ACTION REQUESTS

00204022	00204032	00205196	00205523	00205764
00206107	00206287	00206332	00206406	00206558
00206711	00207963	00208996	00212072	00212782
00213352	00214540	00214622	00215169	00219403
00225605	00228111	00228136	00230200	00231798
00233763	00235894	00236264	00243522	00244578
00244838	00246318	00246319	00246320	00246321
00246383	00246384	00246385		

Section 2RS06: Radioactive Gaseous and Liquid Effluent Treatment

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
12.1.1	Laboratory Quality Assurance	17
12.4.21	The Sampling and Determination of Tritium	24
16.11.1	Monthly Grab Gas Samples	10
16.11.3	Primary Containment Purge Sampling Analysis	14
16.12.5	Preparation of Radioactive Effluent Release Reports	7
CI-9.3	Waste Water Management Plan Development	3
MSP-SGT-B103	Standby Gas Treatment Filtration System-Unit A	8
SWP-CHE-01	Groundwater Protection Program	2

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
189062	Energy Northwest Self-Assessment Report	September 06, 2010
AU-CH-10	Chemistry Environmental and Effluents Program	October 14, 2010

ACTION REQUESTS

00203833	00212523	00213293	00214244	00218390
00218564	00229933			

10 CFR 50.75(g) ACTION REQUESTS

00236591	00237107	00238114	00241218
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RELEASE PERMITS: Primary Containment Purge Sampling Analysis

10/16/10	10/17/10	04/01/11	04/04/11
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IN-PLACE FILTER TESTING RECORDS

<u>SYSTEM</u>	<u>TRAIN</u>	<u>TEST</u>	<u>DATE</u>
Standby Gas Treatment	MSP-SGT-B104	Charcoal Adsorber	December 13, 2010
Standby Gas Treatment	MSP-SGT-B102	HEPA Filter Unit-B	June 18, 2010
Standby Gas Treatment	MSP-SGT-B101	HEPA Filter Unit-A	November 13, 2009
Standby Gas Treatment	MSP-SGT-B103	Charcoal Adsorber	October 21, 2009

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
	Columbia Generating Station Annual Radiological Effluent Release Report	2009
	Columbia Generating Station Annual Radiological Effluent Release Report	2010
	Intra-Laboratory Comparison Results	2009
	Intra-Laboratory Comparison Results	2010

Section 2RS07: Radiological Environmental Monitoring Program

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
1.11.1	Radiological Environmental Monitoring Program Implementation Procedure	12
16.13.1	Annual 5-Mile Land Use Census	2
SOP 11.01	Milk Sampling	6
SOP 11.02	Soil and Sediment Sampling	2
SOP 11.05	Garden Produce Sampling	2
SOP 11.06	Fish Collection and Preparation	1
SOP 11.07	REMP Water Sample Collection	2
SOP 12.08	Measurement Control Program for the Radiological Laboratory	0
SWP-CHE-01	Groundwater Protection Program	2

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
AU-CH-10	Chemistry Environmental and Effluents Program	October 14, 2010
10-CG-03	Energy Northwest Commercial Grade Survey Of PNNL - Battelle Pacific Northwest Division Survey Report	September 27, 2010

ACTION REQUESTS

00212250	00215415	00218335	00227329	00230345
00236591	00235222	00203190	00203405	00230341
00227025				

CALIBRATION AND MAINTENANCE RECORDS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
1292424071	Air Sampler 6615 calibration	December 10, 2010
1304237804	Air Sampler 6618 calibration	May 11, 2011

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
	Columbia Generating Station Annual Environmental Operating Report	2009
	Columbia Generating Station Annual Environmental Operating Report	2010
TBD 08-03	Prospective Evaluation of Public Dose at Columbia Generating Station	01

Section 2RS08: Radioactive Solid Waste Processing and Radioactive Material Handling, Storage, and Transportation

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
CI-9.5	Radioactive Waste Characterization Scaling Factors	0
GEN-RPP-04	Entry Into, Conduct In, and Exit from Radiologically Controlled Areas	26
HP001839-HO	Shipping and Receiving Radioactive Materials	1
RW000116	NRC Packaging and Shipping Regulations	0
SOP-RW/CPR-LU	Solid Waste Processing System Lineup	0
SWP-RMP-01	Radioactive Waste Management Program	1
SWP-RMP-02	Radioactive Waste Process Control Program	3
1.11.23	Radioactive Material Container Control	4
11.2.14.9	Control and Labeling of Radioactive Material	15
11.2.23.1	Shipping Radioactive Materials and Waste	9
11.2.23.2	Computerized Radioactive Waste and Material Characterization	18

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
11.2.23.4	Preparing Radioactive Waste and Materials Packages	21
11.2.23.7	Shipping Empty Radioactive Materials Packages	11
11.2.23.14	Sampling of Radioactive Waste Streams	11

AUDITS, SELF-ASSESSMENTS, AND SURVEILLANCES

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
189064	Energy Northwest Self-Assessment Report	August 20, 2009
204992	Energy Northwest Self-Assessment Report	June 21, 2010
224120	Energy Northwest Self-Assessment Report	April 26, 2011
AU-RP/RW-09	Quality Services Audit Report: Radiation Protection and Process Control Program	November 24, 2009
	Part 61 Sample Gamma Comparison	June 24, 2010

ACTION REQUESTS

00204097	00204591	02207207	00207294	00207756
00207951	00208006	00208049	00209561	00211853
00212910	00215697	00218975	00231704	00238259
00241041	00241855	00243656		

RADIOACTIVE MATERIAL SHIPMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
10-10	1 TN-RAM Liner/Cask (Type B)	February 22, 2010
10-11	1 TN-RAM Liner/Cask (Type B)	March 1, 2010
10-12	1 TN-RAM Liner/Cask (Type B)	March 8, 2010
10-13	1 TN-RAM Liner/Cask (Type B)	March 16, 2010
10-23	SPF Steel Liner 8-120B Cask (Type B)	April 21, 2010
10-27	4 Fuel Pool C/U Tool Boxes (SCO II)	April 27, 2010
11-12	11 L-59 Laundry Boxes (LSA-II)	February 17, 2011
11-13	3 Liners and 3 Boxes Flatbed (LSA-II)	February 23, 2011
11-16	14 Empty New Fuel Boxes (Empty)	March 7, 2011

RADIOACTIVE MATERIAL SHIPMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>DATE</u>
11-88	1 Liner and 6 Boxes – Flatbed (LSA-II)	July 13, 2011

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
DIC 1554.5	Scaling Factor Determination Package	August 10, 2010
	Columbia Generating Station Final Safety Analysis Report: Chapters 11 and 12	57

Section 40A1: Performance Indicator Verification

MISCELLANEOUS DOCUMENTS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
NEI 00-02	Regulatory Assessment Performance Indicator Guidelines	6
	Columbia Generating Station Emergency Plan	50
	Energy Northwest and NRC Performance Indicator Data for July 2010 through June 2011	N/A
	Energy Northwest Operator Logs for July 2010 through June 2011	N/A

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION</u>
EPI-18	Emergency Preparedness Performance Indicators	18
13.1.1	Classifying the Emergency	38
13.1.1A	Classifying the Emergency – Technical Bases	21, 22, 23
13.2.1	Emergency Exposure Levels/Protective Action Guides	19
13.4.1	Emergency Notifications	38, 39, 40
13.10.1	Control Room Operation and Shift Manager Duties	33
EPI-11	ERO Administration Program	8

Section 40A2: Identification and Resolution of Problems

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
PPM 10.20.12	Division 1 and 2 Diesel Generator 2,4 and 6 Year Preventative Maintenance	18

ACTION REQUEST/CONDITION REPORTS

00243588	00243866	00243867	00243868	00243885
00243887	00243934	00243935	00243534	00243537
00243559	00243612	00243614	00243615	00243677
00243694	00243810	00243822	00243823	00243836
00243837	00243838	00243853	00243854	00244882
00244884	00244791	00244855	00244879	00244880
00244882	00244884	00244887	00244888	00244895
00245039	00245042	00244714	00244716	00244717
00244758	00244759	00244760	00247473	00244879
00244880				

WORK ORDERS

01190299

Section 4OA3: Event FollowupPROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
ABN-Earthquake	Earthquake	6
ISP-SEIS-X302	Peak Acceleration Recorder Par 400 – CC	0
OI-34	Notifications	24
PPM 1.3.1	Operating Policies, Programs and Practices	98
PPM 10.3.22	Reactor Pressure Vessel Reassembly	29
PPM 10.3.22	Reactor Pressure Vessel Reassembly	30
SWP-IRP-03	Event Investigation	5

DRAWINGS

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
M-529	Flow Diagram Nuclear Boiler – Main Steam System Reactor Building	102
M5-2619-2	RPV Head Vent to Main Steam Line “A”	14

ACTION REQUESTS

00248005 00247873 00247874 00245507 00243588

Work Orders

29092170 02011594 0247873 29092108 29090814

Section 40A7: Licensee-Identified Violations

PROCEDURES

<u>NUMBER</u>	<u>TITLE</u>	<u>REVISION / DATE</u>
PPM 1.3.1	Operating Policies, Programs and Policies	98

ACTION REQUEST

243588