UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-4005

August 4, 2003

Mr. J. V. Parrish
Chief Executive Officer
Energy Northwest
P.O. Box 968; MD 1023
Richland, Washington 99352-0968

SUBJECT: COLUMBIA GENERATING STATION - NRC INTEGRATED INSPECTION REPORT 05000397/2003005

Dear Mr. Parrish:

On July 5, 2003, 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 July 1, 2003, with Mr. D. Atkinson 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.

There were four findings of very low safety significance (Green) identified in this report. Three of the findings were determined to be violations of NRC requirements however, because of their very low safety significance and because they were entered into your corrective action program, the NRC is treating the findings as noncited violations, in accordance with Section V1.A.1 of the NRC's Enforcement Policy. If you contest any of the enforcement conclusions, you should provide a response with the basis for your denial, within 30 days of the date of this inspection report, to the U.S. Nuclear Regulatory Commission, ATTN.: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, U.S. Nuclear Regulatory Commission, Region IV, 611 Ryan Plaza Drive, Suite 400, Arlington, Texas 76011-4005; the Director, Office of Enforcement, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident inspector at the Columbia Generating Station.

Since the terrorist attacks on September 11, 2001, NRC has issued five Orders and several threat advisories to licensees of commercial power reactors to strengthen licensee capabilities, improve security force readiness, and enhance controls over access authorization. In addition to applicable baseline inspections, the NRC issued Temporary Instruction 2515/148, "Inspection of Nuclear Reactor Safeguards Interim Compensatory Measures," and its subsequent revision, to audit and inspect licensee implementation of the interim compensatory measures required by order. Phase 1 of TI 2515/148 was completed at all commercial power nuclear power plants during Calendar Year 2002 and the remaining inspection activities for Columbia Generating Station were completed in March 2003. The NRC will continue to monitor overall safeguards and security controls at Columbia Generating Station.

In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosure will be available electronically for public inspection in the NRC Public Document Room or from the Publicly Available Records (PARS) component of NRC's document system (ADAMS). ADAMS is accessible from the NRC Web site at http://www.gov/reading-rm/ADAMS.html (the Public Electronic Reading Room).

Sincerely,

/RA/

William B. Jones, Chief
Project Branch E
Division of Reactor Projects

Docket: 50-397
License: NPF-21

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w/Attachment: Supplemental Information

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION

REGION IV

Docket:	50-397
License:	NPF-21
Report:	05000397/2003005
Licensee:	Energy Northwest
Facility:	Columbia Generating Station
Location:	North Power Plant Loop Richland, Washington
Dates:	March 23 through July 5, 2003
Inspectors:	G. D. Replogle, Senior Resident Inspector, Project Branch E, DRP Z. K. Dunham, Resident Inspector, Project Branch E, DRP D. L. Stearns, Acting Resident Inspector, Project Branch E, DRP V. G. Gaddy, Senior Project Engineer, Project Branch E, DRP C. J. Paulk, Senior Reactor Inspector, Engineering and Maintenance Branch, DRS T. O. McKernon, Senior Licensing Examiner, Operations Branch, DRS P. J. Elkmann, Emergency Preparedness Inspector, Plant Support Branch, DRS D. R. Carter, Health Physicist, Plant Support Branch, DRS
Approved By:	W. B. Jones, Chief, Project Branch E, Division of Reactor Projects

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SUMMARY OF FINDINGS

IR05000397/2003005; 3/23/2003 - 7/5/2003; Columbia Generating Station. Integrated Inspection Report; Refueling and Other Outages, Surveillance Testing, Occupational Radiation Exposure, Problem Identification and Resolution, and Event Response.

The report covered a 15-week period of inspections by resident inspectors and announced inspections by a senior reactor inspector, a health physicist, and an emergency preparedness inspector. Three Green noncited violations and a Green finding were identified. The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using Manual Chapter 0609, "Significance Determination Process." Findings for which the Significance Determination Process does not apply may be Green or be assigned a severity level after NRC management review. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described in NUREG-1649, "Reactor Oversight Process," Revision 3, dated July 2000.

A. Inspector Identified Findings

Cornerstone: Initiating Events

- Green. A self-disclosing noncited violation of Technical Specification 5.4.1.a (Procedures), with two examples, was identified concerning two loss of shutdown cooling events. First, on May 21, 2003, electricians failed to follow plant procedures and pulled the wrong electrical lead during maintenance. Consequently, the shutdown cooling system pump suction valve closed and the pump tripped. Second, operators were performing containment isolation functional logic system testing when shutdown cooling auto-isolated. The plant procedure erroneously stated that no additional isolations were expected. The inspectors identified that Energy Northwest had missed a prior opportunity to correct the procedure.

  The findings had more than minor safety significance because it impacted the initiating events cornerstone objective, to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. Inspection Manual Chapter 0609, Significance Determination Process, Appendix G, Shutdown Operations, was utilized to assess the safety-significance of the two events. Table 1, BWR Refueling Operations with Reactor Coolant System Level greater than 23 feet and BWR Refueling Operations with time to boil greater than 2 hours and Reactor Coolant System Level less than 23 feet were used, respectively. The findings were of very low safety significance because decay heat removal was available for use quickly enough to meet its functional need and supporting systems were functional (Section 1R20).

- Green. The inspectors documented a self-disclosing finding for the failure to take appropriate corrective measures following a June 2000 plant trip. On June 30, 2003, the plant tripped for the same reason, degraded main transformer differential current relay wiring. Failure to take effective corrective measures for the 2000 event resulted in the June 30 plant trip. The problem was not subject to NRC enforcement because the affected equipment was not safety-related.

The findings had more than minor safety significance because it impacted the initiating events cornerstone objective, to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The issue was of very low safety significance because: (1) it did not contribute to the likelihood of a loss of coolant accident initiator; (2) it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available; and (3) it did not increase the likelihood of a fire or flood (Section 4AO3).

Cornerstone: Barriers

- Green. The inspectors identified a noncited violation of Technical Specification 5.5.6 for the failure to perform ASME Code required fail-safe closure tests on main steam isolation valves. Energy Northwest had stopped performing the tests in approximately 1989.

  The finding had more than minor safety significance because it impacted the barriers cornerstone and the inadequate testing methods placed into question the ability of the main steam isolation valves to perform their accident mitigating function. The finding was of very low safety significance because the finding did not represent an actual open pathway in the physical integrity of the reactor containment (Section 1R22).

Cornerstone: Occupational Radiation Safety

- Green. An NRC-identified noncited violation of Technical Specification 5.7.2 was identified because Energy Northwest failed to conspicuously post and barricade a high-high radiation area. Specifically, on May 14, 2003, the inspector identified that the entrance to the under vessel area of the drywell, a high radiation area greater than 1.0 Rem per hour was not conspicuously posted and barricaded.

  The failure to conspicuously post and barricade a Technical Specification required high-high radiation area is a performance deficiency. The finding was more than minor because it was associated with a cornerstone attribute (program and process) and affected the occupational radiation safety cornerstone objective (to ensure the adequate protection of the worker health and safety from exposure to radiation from radioactive material). The finding involved the failure to properly control radiological work in accordance with Technical Specification requirements. When processed through the Occupational Radiation Safety Significance Determination Process, the finding was found to have very low safety significance because it was not an ALARA issue, there was no overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised (Section 2OS1).

B. <u>Licensee Identified Violations</u>

None

REPORT DETAILS

Summary of Plant Status

At the start of the period, operators maintained the plant at 100 percent power. On May 3, 2003, operators initiated a plant shutdown in response to a significant condenser leak (see Section 1R14). Energy Northwest completed the shutdown and entered Forced Outage FO-03-02 on May 4. Operators maintained the plant in a shutdown condition and entered Refueling Outage 16 on May 10. Plant startup initiated on July 2, when operators placed the reactor mode switch in operational Mode 2. The plant refueling outage officially ended on June 27 when, at about 20 percent reactor power, operators synchronized the generator to the main power grid. Over the next few days operators increased plant power through the planned power assention profile. On June 30, while at 79 percent power, the main turbine tripped on a main transformer differential current signal. The turbine trip caused an automatic reactor scram. Energy Northwest effected repairs, including rewiring similar circuits on potentially vulnerable transformers, and operators placed the plant in Mode 2 on July 2. The following day, the operators synchronized the plant to the grid at about 24 percent power. Operators increased plant power to 78 percent, where it remained until the end of the inspection period on July 5, 2003. Energy Northwest restricted plant power to 78 percent until final installation of a repaired condensate booster pump.

1. REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, and Barrier Integrity

1R04 Equipment Alignments (71111.04)

a. Inspection Scope

The inspectors completed five partial system walkdowns and one complete walkdown of safety-related systems during the inspection period. The inspectors reviewed the system alignments and readiness during periods when redundant equipment was removed from service. The inspections included:

.1 Partial System Walkdowns (Quarterly)

- Reactor Core Isolation Cooling System: On April 2, 2003, the inspectors walked down the mechanical and electrical alignments of the reactor core isolation cooling system while the high pressure core spray system was inoperable for planned maintenance. The inspectors reviewed the alignment of critical system components using Drawing M-519, “Flow Diagram (RCIC) Reactor Core Isolation Cooling,” Revision 85, and Procedure SOP-RCIC-STBY, “Placing RCIC in Standby Lineup,” Revision 0.

- High Pressure Core Spray System: On April 23, 2003, the inspectors walked down the mechanical and electrical alignments of the high pressure core spray system while the reactor core isolation cooling system was out of service for planned maintenance. The inspectors reviewed the alignment of critical system components using Procedure SOP-HPCS-STBY, “Placing (HPCS) High Pressure Core Spray in Standby Status,” Revision 0, and Drawing M-520, “HPCS and (LPCS) Low Pressure Core Spray Flow Diagram,” Revision 89, during this inspection.

- Division I Equipment: On May 14, 2003, the inspectors walked down the mechanical and electrical alignments of all Division I equipment while the redundant Division II equipment was out of service during the refueling outage. The inspectors utilized the Technical Specifications and Final Safety Analysis Report during this inspection.

- Division I Emergency Diesel Generator: On May 19, 2003, the inspectors walked down the mechanical and electrical alignments of the Division I emergency diesel generator while the Division II unit was out of service for planned maintenance. The inspectors reviewed the alignment of critical system components using Procedure SOP-DG1-STBY, “Emergency Diesel Generator (Div I) Standby Lineup,” Revision 2, as criteria for this inspection.

- Division II Residual Heat Removal System: On June 19, 2003, the inspectors walked down the mechanical and electrical alignments of the Division II residual heat removal system while the Division I train was out of service for maintenance. The inspectors utilized Drawing M-521-2, “Residual Heat Removal System,” Revision 98, during this walkdown.

.2 Complete System Walkdown (Semiannual)

On June 4, 2003, the inspectors performed one complete system walkdown of the reactor core isolation cooling system to verify operational status and material condition of the system and its components. The inspectors verified the system lineup per Plant Drawing M-519, “Flow Diagram RCIC,” Revision 85. The inspectors also reviewed outstanding maintenance work orders and assessed operability and conformance with licensing requirements and commitments. The inspectors evaluated Energy Northwest’s corrective measures to address related conditions adverse to quality. The inspectors reviewed the following additional documents during the inspection:

- Final Safety Analysis Report
- Technical Specifications

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

a. Inspection Scope

The inspectors performed walkdowns of four fire protection areas to verify operational status and material condition of fire detection and mitigation systems, passive fire barriers and fire suppression equipment. The inspectors reviewed Energy Northwest's implementation of controls for combustible materials and ignition sources in selected fire protection zones. The inspectors compared observed plant conditions against descriptions and commitments described in the Final Safety Analysis Report, Section 9.5.1, "Fire Protection System," and "Fire Protection Evaluation," Appendix F. Specific fire areas inspected included:

- Drywell, Fire Area R2, May 13, 2003
- Division I emergency diesel generator room, Fire Area DG1, July 2, 2003
- Reactor core isolation cooling system pump room, Fire Area R6, July 2, 2003
- Division I residual heat removal pump room, Fire Area R5, July 2, 2003.

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors selected one area, the 522 ft. reactor building elevation, for this inspection. The inspectors reviewed Final Safety Analysis Report Sections 2.4, 3.4 and 9.3 and Calculations 5.51.058, "Flooding Safe Shutdown Analysis," Revision 4, 5.51.054 "Moderate Energy Systems Pipe Break Analysis," ME-02-02-02, "Calculation for Reactor Building Flooding Analysis," 05.51.55, "Flooding Analysis," and 5.51.55, "Pump Room/Stairwell Flooding Scenarios," Revision 4, to identify facility areas that may be affected by internal flooding. The inspectors' review included identification of the predicted flood levels for plant locations containing safety-related and risk-significant equipment. The inspectors verified the adequacy of Energy Northwest's analysis and that the plant configuration was consistent with the licensing basis and Energy Northwest's assumptions. The inspectors conducted walkdowns of these areas during May 2003.

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07A)

a. Inspection Scope

The inspectors reviewed one heat exchanger performance test for the high pressure core spray system room cooler. The inspectors considered whether Energy Northwest tested the heat exchanger in accordance with established industry guidelines, that test conditions were consistent with procedural requirements, and test acceptance criteria and results were consistent with the design basis values. The inspector conducted this inspection between May 5-23, 2003.

The inspectors reviewed the following documents during this inspection:

- Technical Memorandum TM-2111, "Thermal Performance Testing of the Air-to-Water Heat Exchangers in the WNP-2 SW Systems"
- Procedure TSP-SW-A101, "Service Water Loop A Cooling Coil Heat Load Capacity Test," Revision 0
- Procedure TSP-SW-A102, "Service Water Loop B Cooling Coil Heat Load Capacity Test," Revision 0
- Work Order 01027016, "Service Water Loop A Cooling Coil Heat Load Capacity Test"
- Work Order 01027015, "Service Water Loop B Cooling Coil Heat Load Capacity Test"
- Calculation ME-02-92-43, "High Pressure Core Spray Room Cooler Requirements," Revision 6
- Final Safety Analysis Report

b. Findings

No findings of significance were identified.

1R08 Inservice Inspection Activities (71111.08)

.1 Performance of Nondestructive Examination (NDE) Activities

a. Inspection Scope

The inspectors requested and reviewed the NDE records for work that was performed during the ongoing outage and verified that Energy Northwest performed the required inspections. The inspectors also observed the following visual, magnetic particle, and ultrasonic examinations:

System/Component	Examination Method
JP-10 VS-SS Vessel Side Set Screw	Visual (VT-3)
JP-10 SS-SS Shroud Side Set Screw	Visual (VT-3)
Flange to Head Circumferential Weld AG	Ultrasonic
Meridian Head Weld DM	Ultrasonic (PDI)

The inspectors reviewed one piping replacement to determine if it was performed in accordance with ASME Code requirements.

The inspectors reviewed Energy Northwest NDE and contractor personnel qualification and certification records to determine if NDE personnel were certified to perform the above examinations.

b. Findings

No findings of significance were identified.

.2 Problem Identification and Resolution

a. Inspection Scope

The inspectors performed a review of a sample of condition reports initiated within the past two years in the area of inservice inspection activities. The review was conducted to ascertain whether plant personnel were identifying performance issues within the inservice inspection program. This review assessed the effectiveness of cause determination and corrective actions, as well as the adequacy of Energy Northwest's efforts to identify transportability and generic issues. The review also assessed the effectiveness of Energy Northwest's efforts to identify and address programmatic issues within the inservice inspection program.

b. Findings

No findings of significance were identified.

1R12 Maintenance Effectiveness (71111.12)

a. Inspection Scope

The inspectors performed an in-office review of three Maintenance Rule related issues and independently evaluated Energy Northwest's maintenance effectiveness by reviewing the availability and reliability of risk-significant structures, systems and components.

- Reactor pressure vessel pressure indicator failure, Problem Evaluation Request 202-2599, dated September 16, 2002

- Main steam line pressure indicator failure, Problem Evaluation Request 202-2515, dated September 3, 2002

- Air compressor discharge check valve failure, Problem Evaluation Request 202-3330, dated December 3, 2002

The inspectors utilized the following documents as criteria for this inspection:

- Columbia Generating Station Maintenance Rule Program Status Report for January through June 2002

- Procedure TI 4.22, "Maintenance Rule Program," Revision 5

- Regulatory Guide 1.160, "Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2

- NUMARC 93-01, "Industry Guideline for Monitoring the Effectiveness of Maintenance at Nuclear Power Plants," Revision 2

- 10 CFR 50.65, "Maintenance Rule"

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

a. Inspection Scope

The inspectors reviewed five planned or emergent maintenance-risk assessments performed per 10 CFR 50.65(a)(4). The inspectors considered the accuracy and completeness of information in the licensee-risk assessments. The inspectors also used Procedure 1.5.14, "Risk Assessment and Management for Maintenance/Surveillance Activities," Revision 9, and Operations Instruction OI-49, "Protected Systems," Revision B, during the review. The inspection sample included:

- High pressure core spray system maintenance outage on April 2, 2003

- Reactor core isolation cooling system maintenance outage on April 21, 2003

- Division I standby service water system maintenance while the reactor core isolation cooling system was inoperable but available on April 22, 2003

- Reactor core isolation cooling system maintenance and Division I emergency diesel generator maintenance at different times on April 23, 2003

- Division I standby service water system piping replacement (emergent work) on April 28, 2003

b. Findings

No findings of significance were identified.

1R14 Nonroutine Events (71111.14)

.1 Condenser Leak and Forced Shutdown

a. Inspection Scope

On May 3, 2003, operators identified increasing reactor water conductivity levels and determined that the problem originated from a main condenser leak. Operators followed the actions required by procedure SWP-CHE-02, “Chemical Process Management and Control,” Revision 7 and when reactor sulfate levels increased above 100 parts per billion, operators took actions to shutdown the reactor. Normally, sulfate levels are less than 1 part per billion. Sulfate levels peaked at approximately 280 parts per billion during the event. Energy Northwest achieved plant shutdown early on Sunday, May 4, 2003. Energy Northwest maintained the plant in a shutdown condition until the beginning of Refueling Outage R16 on May 10. The inspectors reviewed the noted plant procedure, Technical Specifications, operators logs and problem evaluation requests while inspecting this event.

During subsequent condenser inspections Energy Northwest found that a steam baffle had failed, which permitted steam from the bypass valves to impinge directly on the condenser tubes. The damage from the direct steam impingement caused the condenser leak. As corrective measures, Energy Northwest repaired the steam baffle and inspected similar condenser components.

b. Findings

No findings of significance were identified.

.2 Digital Hydraulic Control System Induced Power Oscillations

a. Inspection Scope

On June 28, 2003, during power ascension (reactor power 24 percent), and shortly after synchronizing the main turbine onto the power grid, unexpected power oscillations occurred. The oscillations had a period of approximately 7 seconds and a magnitude of about 3 percent power peak to peak. Operators responded in accordance with Procedure ABN-Core, “Unplanned Core Operating Conditions,” Revision 3. The oscillations lasted for approximately 35 minutes. The inspectors responded to the control room to observe operator actions and verify procedural and Technical Specification compliance.

Energy Northwest subsequently determined that fluctuations in the digital hydraulic control system circuitry caused the anomaly. Pressure fluctuations, caused by cycling governor valves, affected core voiding which impacted reactivity. Energy Northwest also contacted the fuel vendor, who promptly performed a core stability analysis. Per the vendor, the core was in a very stable configuration. Further, the period of the oscillations suggested that the problem was not due to core instability. Operators changed the digital hydraulic control system from Loop A to B. Electricians then performed calibration and testing of the Loop A.

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed seven Energy Northwest operability evaluations for degraded equipment conditions. The inspectors reviewed the adequacy of Energy Northwest's technical evaluation and implementation of compensatory measures considering overall plant risk. The inspectors also compared each operability review against system requirements described in the Final Safety Analysis Report, plant Technical Specifications, and Technical Specification Basis documents. The inspectors reviewed the following plant operability evaluations:

- Deficiencies identified with standby service water support SW-938N, Problem Evaluation Request 203-1341, inspected April 25, 2003

- Failure of reactor core isolation cooling system pressure control Valve RCIC-PCV-15 (lube oil cooler line) to properly control pressure, Followup Assessment of Operability 203-1277, inspected April 24, 2003

- Division I standby service water system pipe thinning below ASME Code allowable, Problem Evaluation Request 203,1348, inspected April 26, 2003

- Degraded residual heat removal system heat Exchanger RHR-HX-1A, Problem Evaluation Request 203-1661, inspected May 19, 2003

- Fuel corrosion evaluation, Energy Northwest Evaluation EN2-RXFE-03-039, dated June 9, 2003, inspected June 10, 2003

- Division II emergency diesel generator pole short, Problem Evaluation Request 290-0533, inspected May 23, 2003

- Excessive leakage past low pressure core spray system pump discharge check valve, Problem Evaluation Request 203-1003, inspected March 31, 2003

b. Findings

No findings of significance were identified.

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

On April 21, 2003, the inspectors reviewed the plant tracking list summary of operator workarounds. The inspectors evaluated the potential affects of the workarounds on the operator's ability to implement abnormal or emergency operating procedures and the cumulative effects of workarounds on the reliability and availability of plant systems.

b. Findings

No findings of significance were identified.

1R19 Post Maintenance Testing (71111.19)

a. Inspection Scope

The inspectors witnessed or completed an in-office review of six post maintenance tests. The inspectors considered whether Energy Northwest properly implemented procedural controls, as applicable, and that each test adequately demonstrated equipment operability. The inspectors also considered whether Energy Northwest met Technical Specification and licensing basis requirements. The inspection sample included:

- Work Order 01050687, reactor core isolation cooling system pressure control Valve RCIC-PCV-15 replacement, documentation review on April 25, 2003

- Procedure TSP-DG2/LOCA-B501, “Standby Diesel Generator DG2 (LOCA) Loss of Coolant Accident Test,” Revision 7, observed on May 22, 2003

- Work Order 01061489, main transformer retests following current transformer wiring replacement, documentation review on July 2, 2003

- Procedure TSP-DG3 LOP-B501, “(HPCS) High Pressure Core Spray Diesel Generator DG3 Loss of Power Test,” Revision 5, observed on June 2, 2003

- Work Order 01032791, reactor core isolation cooling system turbine uncoupled overspeed test, observed on June 8, 2003
- Work Order 01032737, outside air to diesel generator Room 1 intake damper, performed on March 26, in-office review on April 2, 2003.

b. Findings

No findings of significance were identified.

1R20 Refueling and Other Outages (71111.20)

a. Inspection Scope

On May 4, 2003, Energy Northwest entered Forced Outage FO-03-02, when operators shut down the plant because of a significant condenser tube leak. Operators maintained the plant in a shutdown condition and transitioned into Refueling Outage 16 on May 10, 2003. Following the plant startup, an automatic plant trip occurred because of degraded main transformer differential current trip relay wiring. Energy Northwest entered into Forced Outage FO-03-03 on June 30, 2003, to correct the wiring issue.

The inspectors observed the following outage activities and verified that the activities were well controlled and accomplished in accordance with documents appropriate to the circumstances:

- Plant shutdown
- Post-trip operator actions
- Clearance activities
- Fuel movements
- Electric power configurations
- Tagout processing and clearance
- Shutdown cooling management and configuration
- Spent fuel cooling operations
- Inventory control
- Containment control
- Drywell activities
- Overtime controls
- Identification and resolution of problems
- Plant startup

The inspectors reviewed the following documents as part of this inspection:

- “Forced Outage F0-03-02 Shutdown Safety Plan,” Revision 0
- "R-16 Outage Shutdown Safety Plan," including all changes up to Revision 13
- “Forced Outage F0-03-03 Shutdown Safety Plan,” Revision 0
- Procedure 3.2.1, "Normal Shutdown to Cold Shutdown," Revision 46
- Procedure 3.1.2, “Reactor Plant Startup,” Revision 58
- Procedure 6.3.2, “Fuel Shuffling and/or Offloading and Reloading,” Revision 16

b. Findings

Introduction. A self-revealing noncited violation (Green) of Technical Specification 5.4.1 was identified concerning two separate loss of shutdown cooling events.

Description. During Refueling Outage 16, there were two inadvertent losses of shutdown cooling. The first event occurred as a result of an improperly performed maintenance activity and the second event occurred during a surveillance test were the plant response was not adequately understood or referenced in the procedure.

The first loss of shutdown cooling event occurred on May 21, 2003, when electricians disconnected the wrong electrical lead during maintenance. Per Work Order 01059072, plant electricians intended to determ contact B4 on Relay MS-RLY-K72A but determed contact B4 on Relay MS-RLY-K72 instead. When the wrong lead was pulled, shutdown cooling suction Valve RHR-V-9 auto closed, rendering shutdown cooling inoperable. At the time of the event, the Division I train of shutdown cooling was in service but the Division II unit was already inoperable for planned maintenance. The plant was in operational Mode 5 and reactor vessel level was greater than 22 feet above the top of the reactor vessel flange. Operators restored shutdown cooling to service approximately 30 minutes later. During this period, reactor vessel water temperature increased about 2°F.

Energy Northwest determined that the electricians had performed a peer review prior to taking the action but failed to question the difference between the work documentation and the relay markings. They mistakenly believed that MS-RLY-K72 and MS-RLY-K72A referred to the same relay.

The second loss of shutdown cooling event occurred on June 16, 2003, while operators were performing logic system function testing involving containment isolation circuits. In accordance with Procedure TSP-CONT/ISOL-B501, “Containment Isolation - Logic System Functional Test,” Revision 3, operators depressed nuclear steam shutoff supply system Logic B pushbutton. In response to the action, shutdown cooling suction Valve RHR-V-8 auto-closed, rendering both trains of shutdown cooling inoperable. The auto-isolation of shutdown cooling was unexpected by the operators, but the logic and plant had operated as designed. At the time of the event, the Division I train was in service and the Division II train was available. Operators were maintaining reactor vessel level within a band of +60 inches to +120 inches. Shutdown cooling was restored approximately 12 minutes later and reactor vessel temperature had increased by 1°F.

Energy Northwest determined that the procedure had provided inadequate instructions. The document normally specified which isolations to expect prior to each action. However, in this case, the procedure specified that no additional valve isolations should occur.

The inspectors additionally identified that Energy Northwest had missed at least one previous opportunity to correct the procedure. The same basic procedure had been used without incident during two previous refueling outages. The inspector reviewed operator logs and noted that, during those occurrences, operators had secured shutdown cooling prior to performing the same procedural step. The inspector discussed the actions with the operator who performed the procedure during the last outage. The operator stated that he had determined, in advance of performing the procedure, which isolations would occur. Prior to accomplishing the problematic section, the operator secured shutdown cooling to prevent the inadvertent system loss. However, the operator had failed to provide appropriate feedback to procedure writers so that corrections could be made.

Analysis. The inspectors determined that the findings had more than minor safety significance because the two loss of shutdown cooling events impacted the initiating events cornerstone objective - to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors utilized the Significance Determination Process, as described in NRC Inspection Manual Chapter 0609, to assess the safety significance of the finding. Per the Appendix G, Shutdown Operations, Table 1, the inspectors determined that the finding did not involve a loss of control. The inspectors also utilized Appendix G, Table 1, BWR Refueling with Reactor Coolant System (RCS) level greater that 23 feet and BWR Refueling Operations with time to boil greater than 2 hours and RCS level less than 23 feet. The findings were of very low safety significance because decay heat removal was available for use quickly enough to meet its functional need and supporting systems were functional.

Enforcement. The inspectors identified a violation, with two examples, of Technical Specification 5.4.1 for the loss of shutdown cooling events. Technical Specification 5.4.1.a states that, “Written procedures shall be established, implemented, and maintained covering the following activities:... a. The applicable procedures recommended in Regulatory Guide 1.33, Revision 2, Appendix A, February 1978.” Regulatory Guide 1.33, Revision 2, Appendix A, February 1978 specifies procedures in Paragraph 9.a, Maintenance that can affect the performance of safety-related equipment..., and Paragraph 8, Procedures for... surveillance tests...

Contrary to the above, on May 21, 2003, electricians failed to follow the procedure contained in Work Order 01059072 and lifted the wrong electrical lead. In addition, Energy Northwest’s system functional testing contained in Procedure TSP-CONT/ISOL-B501 provided inadequate direction.

Because the findings were of very low safety significance, and were entered into Energy Northwest's corrective action program (Problem Evaluation Requests 203-1861 and 203-2411), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy (NCV 50-397/03-05-01).

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors directly observed or performed in-office reviews to verify that nine surveillance tests met Technical Specification, Final Safety Analysis Report, and procedural requirements. The inspectors determined whether each surveillance test adequately demonstrated that systems were capable of performing their safety and design-basis functions. The inspectors specifically evaluated surveillance testing for preconditioning, adequate acceptance criteria, calibration of test equipment and proper equipment restoration. The surveillance activities included:

- Procedure OSP-ELEC-M701, "Diesel Generator 1-Monthly Operability Test," Revision 15, in-office review on April 2, 2003

- Surveillance OSP-ELEC-M701, "Diesel Generator 1 - Monthly Operability Test," Revision 16, performed on April 23, 2003

- Procedure 10.25.4, "Lubrication and Inspection of (MOV) Motor-Operated Valves," Revision 18, in-office review on May 15, 2003

- Fuel corrosion inspection results, inspected May 19 and June 10, 2003

- ASME Code required fail safe main steam isolation valve testing, inspected on June 10, 2003

- Procedure TSP-CRD-C101, "SCRAM Time Testing with Autoscramtimer System," Revision 5, observed on June 10 to 15, 2003

- Procedure OSP-RPV-R801, "Reactor Pressure Vessel Leakage Test," Revision 12, observed on June 11, 2003

- Procedure TSP-Cont-B801, "Drywell/Wetwell Bypass Leak Rate Test," Revision 1, observed on June 12, 2003

- Procedure 8.3.381, "Reactor Feedwater Turbine Uncoupled Overspeed Test," Revision 1, observed on June 16, 2003

b. Findings

Introduction. The inspectors identified a Green noncited violation of Technical Specification 5.5.6, for the failure to perform ASME Code required fail-safe tests on main steam isolation valves.

Description. The inspectors identified that, between approximately 1989 and the current refueling outage, Energy Northwest had not performed fail safe closure testing of the main steam isolation valves in accordance with the ASME Oma-1998 Code. The Code requires that Energy Northwest test the valves by observing the operation of the valve actuators upon loss of power (instrument air). Instead of performing the required tests, Energy Northwest followed guidance provided in General Electric Service Information Letter 482, “Main Steam Isolation Valve Closure Testing Requirement,” dated February 22, 1989. However, Energy Northwest was required to seek relief from the NRC prior to implementing the guidance.

The inspectors noted that the service information letter did not address all potential problems associated with the failure to perform the fail safe tests. For example, NRC Information Notice 85-84, “Inadequate Inservice Testing of Main Steam Isolation Valves,” dated October 30, 1985, was provided to alert recipients of a potentially significant problem concerning the possible failure of main steam isolation valves to close under low steam flow conditions and the testing of these valves with nonsafety-related motive power in place. The information notice cited an instance where a licensee had failed to perform fail safe testing of main steam isolation valves. In that case, the valves were unable to fully close without the use of nonsafety-related instrument air to aid in seating. The General Electric guidance focused on the potential difference in stroke times by using instrument air (versus accumulator air) and failed to fully address the ability of the valves to close without instrument air in all circumstances. It was unlikely that the alternate testing methods recommended in the guidance would have identified the valve closure problems noted in NRC Information Notice 85-84.

In response to the issue, Energy Northwest performed fail safe testing of all main steam isolation valves in accordance with the Code requirements prior to startup from Refueling Outage 16. However, prior to Refueling Outage 16, Energy Northwest had not demonstrated that the main steam line isolation valves were operable in accordance with the ASME Oma-1998 Code as implemented through their Inservice Testing program.

Analysis. The inspectors determined that the issue had more than minor safety significance because it impacted the barriers cornerstone and the inadequate testing potentially masked problems that could have affected the ability of the main steam isolation valves to perform their accident mitigating function. The inspectors utilized the Significance Determination Process, as described in NRC Manual Chapter 0609, to assess the safety significance of the issue. Per the Phase 1 screening criteria, Attachment A, containment barriers section, Item 3, the inspectors determined that the issue was of very low safety significance because the finding did not represent an actual open pathway in the physical integrity of the reactor containment.

Enforcement.

The failure to perform the required fail-safe tests constituted a violation of Technical Specification 5.5 which requires the implementation of the program specified in Technical Specification 5.5.6, Inservice Testing Program. Energy Northwest's Inservice Testing Program states that, "This Inservice Testing (IST) Program Plan complies with the requirements of 10 CFR Part 50.55a(b)(2) and Part 50.55a(f). The 1989 edition of Section XI was incorporated by reference into paragraph 50.55a(b)... The 1989 edition specifies that rules of the IST of pumps and valves are stated in the ASME/ANSI Operations and Maintenance (OM) Standards... Part 10, "Inservice Testing of Valves in Light-Water Reactor Power Plants." Revision date for ASME/ANSI Part 10- shall be Oma-1988 Addenda to the OM-1987 Edition." The ASME Code, Oma-1988 Addenda to the OM-1987 Edition of the Code, Part 10, Para. 4.2.1.6 "Fail-Safe Valves" states, in part: "Valves with fail-safe actuators shall be tested by observing the operation of the actuator upon loss of valve actuating power."

Contrary to the above, as of June 4, 2003, and since 1989, Energy Northwest had failed to perform fail-safe testing of main steam isolation valves (valves with fail-safe actuators) in accordance with the Inservice Testing Program and Oma-1988, Part 10, Para. 4.2.1.6.

Because the failure to accomplish main steam isolation valve fail-safe testing in accordance with the noted requirements was of very low safety significance, and has been entered into Energy Northwest's corrective action program (Problem Evaluation Request 203-2382), this violation is being treated as an NCV, consistent with Section VI.A of the NRC Enforcement Policy: (NCV 50-397/03-05-02).

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed four temporary plant modifications to determine their impact on the plant design basis and system success criteria. Temporary modifications could include jumpers, lifted leads, temporary systems, repairs, design modifications, and procedure changes that could introduce changes to plant design or operation. The inspectors verified that the temporary modifications were completed in accordance with 10 CFR 50.59, Final Safety Analysis Report, Technical Specifications and Procedure PPM 1.3.9 "Temporary Modifications", Revision 33. The following temporary modifications were reviewed:

- TMR 02-001, APRM B downscale annunciator disabled

- TMR 02-007, Move alarm function for TSW-RIS-5 to recorder PRM-RR-3

- TMR 01-026, Remove TG-TE-SMT1C2 turbine temperature thermocouple
- TMR 01-034, Feedwater Valves RFW-v-32A/B Position Indication

b. Findings

No findings of significance were identified.

Cornerstone: Emergency Preparedness

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

a. Inspection Scope

The inspector performed an in-office review of Revision 11 to Emergency Plan Implementing Procedure 13.1.1A, “Classifying the Emergency - Technical Bases,” submitted May 2, 2003. This revision clarified Emergency Action Level 8.1.U.3 to state that the integrity of the protected area surrounding the independent spent fuel storage facility should be considered when evaluating a security event for classification. This revision was compared to its previous revision, to the criteria of NEI 99-01, “Methodology for Development of Emergency Action Levels,” Revision 2, and to the requirements of 10 CFR 50.47(b) and 50.54(q) to determine if the revision decreased the effectiveness of the emergency plan.

b. Findings

No findings of significance were identified.

2. RADIATION SAFETY

Cornerstone: Occupational Radiation Safety

2OS1 Access Control to Radiologically Significant Areas (71121.01)

a. Inspection Scope

To review and assess Energy Northwest's performance in implementing physical and administrative controls for airborne radioactivity areas, radiation areas, high radiation areas, and locked high radiation areas, the inspector interviewed radiation workers and radiation protection personnel involved in high dose rate and high exposure jobs. The inspector discussed changes to the access control program with the radiation protection manager. The inspector also conducted plant walkdowns within the radiologically controlled area and conducted independent radiation surveys of selected work areas. The following items were reviewed and compared with regulatory requirements:

- Area postings and other access controls for airborne radioactivity areas, radiation areas, high-high radiation areas, and very high radiation areas
- Access controls, radiation work permits, and radiological surveys involving airborne radioactivity areas and high radiation areas
- Key controls for locked high radiation areas
- Internal dose assessment for exposures exceeding 50 millirem committed effective dose equivalent (No opportunities for review were identified.)
- Setting, use, and response of electronic personal dosimeter alarms
- Conduct of work by radiation protection technicians and radiation workers in areas with the potential for high radiation dose
- Dosimetry placement when work involved a significant dose gradient
- Controls involved with the storage of highly radioactive items in the spent fuel pool
- Quality assurance surveillance reports
- A summary of access controls and high radiation area work practice related corrective action documents (problem evaluation requests) written since June 2002 and selected specific examples

b. Findings

1. Introduction: A Green noncited violation was identified for Energy Northwest's failure to conspicuously post and barricade a high radiation area with dose rates greater than 1.0 Rem per hour, as required by Technical Specification 5.7.2.

   Description: On May 14, 2003, during a tour of the drywell, the inspector identified that the entrance to the under vessel area was not conspicuously posted and barricaded. The entrance to the under vessel area is an opening approximately four feet wide, through the primary shield wall. The high radiation area that was greater than 1.0 Rem per hour was controlled by the use of flashing lights, a barricade, and posting. A swing arm on a stanchion was positioned forward of the opening of the entrance. The swing arm had a high-high radiation area posting attached to the arm; however, the posting was placed approximately six inches behind a shield cask, making the posting inconspicious. In addition, there was an approximate two-foot unobstructed opening between the stanchion and the right side of the shield wall which would have allowed an individual to pass through the opening without crossing a barricade or seeing the posting. After notifying radiation protection personnel, the swing arm was immediately moved back into the opening of the under vessel entrance which allowed the posting to be conspicuous and eliminated the opening between the stanchion and the wall. Dose rates in the area were as high as 1.5 Rem per hour, which required posting as a high-high radiation area.

Analysis. Not providing a conspicuously posted barricade to a high-high radiation area is a performance deficiency. This NRC-identified finding was greater than minor because it was associated with the radiation safety cornerstone objective (to ensure adequate protection of the worker health and safety to radiation from radioactive material) and affected the associated cornerstone attribute (exposure control and monitoring). Because the finding involved a workers potential for unplanned or unintended dose that was contrary to Technical Specifications the finding was processed through the Occupational Radiation Safety Significance Determination Process. The finding is of very low safety significance (Green) because it was not an ALARA finding, there was no overexposure or substantial potential for an overexposure, and the ability to assess dose was not compromised.

Enforcement. Technical Specification 5.7.2 requires that each high radiation area with dose rates greater than 1.0 rem per hour be conspicuously posted as a high radiation area and be provided with a locked or continuously guarded door or gate that prevents unauthorized entry. However, if such an individual area is within a larger area where no enclosure exists for the purposes of locking and where no enclosure can reasonably be constructed around the individual area, the individual area shall be barricaded, conspicuously posted, and have a clearly visible flashing light activated at the area as a warning device. Procedure SWP-RPP-01, "Radiation Protection Program," Revision 4, defines "Barricade" as a rope, gate, or other suitable unlocked barrier which is used to obstruct access by confronting, altering, or hindering an individual's reasonable access to the area. Because the failure to barricade and conspicuously post a high radiation area greater than 1.0 Rem per hour was of very low safety significance and Energy Northwest entered the violation into the corrective action program as Problem Evaluation Request 203-1683, this violation is being treated as a noncited violation, consistent with Section VI.A of the NRC Enforcement Policy (NCV 50-397/03-05-03).

4. OTHER ACTIVITIES

4OA1 Performance Indicator Verification (71151)

.1 Reactor Safety Performance Indicators

a. Inspection Scope

The inspectors assessed the accuracy of two sets of Energy Northwest submitted performance indicator data the past four calender quarters. The inspectors compared the data with operator logs, maintenance records, and corrective action documents. The inspectors verified that Energy Northwest calculated performance indicators in accordance with NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 2. The inspectors' sample included the following performance indicators:

- Scrams with loss of normal heat removal
- Safety system functional failures

b. Findings

No findings of significance were identified.

.2 Occupational Exposure Control Effectiveness

a. Inspection Scope

The inspector reviewed corrective action program records involving high-high radiation areas (as defined in Technical Specification 5.7.2), very high radiation areas (as defined in 10 CFR 20.1003), and unplanned exposure occurrences (as defined in NEI 99-02) for the past 12 months to confirm that these occurrences were properly recorded as performance indicators. Radiologically controlled area entries with exposures greater than 100 millirem within the past 12 months were reviewed, and selected examples were examined to determine whether they were within the dose projections of the governing radiation work permits. Whole-body counts or dose estimates were reviewed if the radiation worker received a committed effective dose equivalent of more than 100 millirem. Where applicable, the inspector reviewed the summation of unintended deep dose equivalent and committed effective dose equivalent to verify that the total effective dose equivalent did not surpass the performance indicator threshold without being reported.

b. Findings

No findings of significance were identified.

.3 Radiological Effluent Technical Specification/Offsite Dose Calculation Manual Radiological Effluent Occurrences

a. Inspection Scope

The inspector reviewed radiological effluent release program corrective action records, licensee event reports, and annual effluent release reports documented during the past four quarters to determine if any doses resulting from effluent releases exceeded the performance indicator thresholds (as defined in NEI 99-02).

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

.1 Main Steam Line Local Leak Rate Testing

a. Inspection Scope

The inspectors reviewed one plant issue to verify that equipment, human performance, and programmatic issues were being identified by Energy Northwest at an appropriate threshold and were being entered in Energy Northwest's corrective action program. In addition, the inspectors verified that Energy Northwest's corrective actions were commensurate with the significance of the issue. The issue evaluated during this inspection period was:

- Use of nonsafety-related instrument air to help close and seat main steam isolation valves during local leak rate testing, Problem Evaluation Request 203-1789, resolution dated May 26, 2003. Energy Northwest concluded that the Technical Specifications and 10 CFR Part 50, Appendix J, permitted the use of nonsafety related instrument air during the tests.

b. Findings and Observations

Introduction. The inspectors identified an unresolved item regarding Energy Northwest's implementation of Technical Specifications Surveillance Requirement 3.6.1.3.11. Specifically Energy Northwest had performed main steam isolation valve local leak rate testing since initial plant startup utilizing nonsafety-related instrument air to help close and seat the valves. The instrument air system provides substantially more seating pressure than the safety-related air accumulators.

Description. The inspectors identified that, since initial plant startup, Energy Northwest had interpreted 10 CFR Part 50, Appendix J requirements, to permit main steam isolation valve local leak rate testing using instrumentation to close and seat the valves. Technical Specifications Surveillance Requirement 3.6.1.3.11 requires, in part, that local leak rate tests be performed in accordance with Energy Northwest's Appendix J testing program, which states, in part, each valve to be tested shall be closed by normal operation and without any preliminary exercising or adjustments (e.g., no tightening of valve after closure by valve motor).

Energy Northwest interpreted the passage as to permit valve closure (and seating) utilizing nonsafety-related instrument air because operators typically close the valves with the instrument air system in-service. Energy Northwest acknowledged that the instrument air system is not safety-related and it is assumed to be unavailable for design basis accidents. Although the valves are equipped with safety-related air accumulators to help with valve closure for accident mitigation purposes, the accumulators only provide 55 to 65 psig for valve seating, versus the 108 psig supplied by the instrument air system. The inspectors noted that Energy Northwest's use of the instrument air system during these tests could have a similar affect on the results as the "tightening of a motor-operated valve after closure with the valve motor," which is specifically cited as a prohibited practice.

In response to the issue, Energy Northwest performed an engineering analysis and additional local leak rate testing on one valve to establish a correlation between seating pressure and leak rate performance. Energy Northwest concluded that each valve would have passed the local leak rate test and considered all main steam isolation valves operable.

The inspectors checked with resident inspectors at five other boiling water reactor plants to determine whether other licensees had also interpreted local leak rate test requirements to permit closing and seating the main steam isolation valves with the nonsafety-related air system. It appeared as though each of the five licensees had similarly interpreted the 10 CFR Part 50, Appendix J, requirements as Energy Northwest. The NRC is reviewing this issue as having potential generic applicability to the industry.

Analysis. The inspectors determined that the issue had more than minor safety significance because it impacted the barriers cornerstone and the potentially inadequate testing could have masked problems that affected the ability of the main steam isolation valves to perform their accident mitigating function. The inspectors utilized the Significance Determination Process, as described in NRC Manual Chapter 0609, to assess the safety significance of the issue. Per the Phase 1 screening criteria, Attachment A, Containment Barriers Section, Item 3, the inspectors determined that the issue was of very low safety significance because the finding did not represent an actual open pathway in the physical integrity of the reactor containment.

Enforcement.

The inspectors identified an unresolved item involving Energy Northwest's implementation of Technical Specification Surveillance Requirement 3.6.1.3.11, local leak rate testing. The NRC is evaluating whether the main steam isolation valve testing was adequate based on Energy Northwest's utilizing nonsafety-related instrument air to help seat the valves during local leak rate tests. This is Unresolved Item 50-397/03-05-04, Technical Specification Surveillance Requirement 3.6.1.3.11, local leak rate test implementation (URI 50-397/03-05-04).

.2 Cross-References to PI&R Findings Documented Elsewhere

Section 4OA3 of the report documents a corrective action issue for Energy Northwest not addressing degraded wiring that resulted in a main generator trip and reactor scram.

4OA3 Event Followup (71153)

a. Inspection Scope

On June 30, 2003, the plant experienced a main turbine trip and associated automatic reactor scram due to a differential current relay trip actuation on main transformer Number 2. The differential current relay trip was caused by an associated current transformer electrical lead which was chaffed and grounded against the conduit. The inspectors reviewed control room logs, plant parameter trend recorders, interviewed reactor operators, and evaluated control room board equipment status to determine if the plant and operators had responded appropriately to the plant transient. The inspectors reviewed plant procedures to ensure that operator actions were consistent with required actions. Additionally, the inspectors interviewed a system engineer, reviewed plant management's repair plan, and reviewed the postmaintenance test plans associated with the faulted current transformer, which caused the plant trip, to determine the adequacy of Energy Northwest's recovery efforts. The inspectors also reviewed Energy Northwest's event report, which had been submitted per 10 CFR 50.72, to ensure that the reported information was accurate.

b. Findings

Introduction. A Green finding was identified for the failure to take effective corrective measures in response to a similar event in June 2000. The finding was not subject to enforcement actions because it involved nonsafety-related equipment.

Discussion. Prior to the June 30 event, Energy Northwest had experienced a similar type of event on June 26, 2000. Energy Northwest documented the previous event in Problem Evaluation Request 200-1043. The difference between the two events was that the first event originated in Main Transformer 3 circuitry while the recent event initiated in Main Transformer 2 circuitry.

Subsequent to the June 2000 event, Energy Northwest made repairs to the affected wire. Energy Northwest failed to properly consider the extent of condition and did not specify similar repairs to other wires vulnerable to the same failure mechanism. The failure to perform additional corrective measures contributed to this initiating event.

In response to the recent plant trip, Energy Northwest replaced all remaining vulnerable wiring (associated with differential current trip circuits). Energy Northwest captured this event in Problem Evaluation Request 203-2578.

Analysis. The inspectors determined that the finding had more than minor safety significance because it impacted the initiating events cornerstone objective - to limit the likelihood of those events that upset plant stability and challenge critical safety functions during shutdown as well as power operations. The inspectors utilized the Significance Determination Process, as described in NRC Manual Chapter 0609, to assess the safety significance of the finding. Per Appendix A, Phase 1, initiating event section, the inspectors determined that the finding was of very low safety significance because: (1) it did not contribute to the likelihood of a loss of coolant accident initiator; (2) it did not contribute to both the likelihood of a reactor trip and the likelihood that mitigating equipment or functions would not be available; and (3) it did not increase the likelihood of a fire or flood.

Enforcement. While Energy Northwest's failure to take appropriate corrective measures contributed to the initiating event, the finding was not subject to enforcement actions. The circuits involved were not safety-related and no violations of regulatory requirements occurred (FIN 50-397/03-05-05).

4OA4 Crosscutting Aspects of Findings

Section 1R20 of the report documents two events with human performance cross-cutting aspects. On two separate occasions shutdown cooling was lost because of human performance issues. The first event occurred during a maintenance activity and the second event during an operations surveillance activity.

4OA5 Review of Open Items (81001)

(Closed) URI 50-397/0105-01: Indeterminate Gaseous Effluent Monitor Plateout Factors

On December 6, 2001, an unresolved item was identified after Energy Northwest failed to update plateout correction factors for effluent release monitors after sample lines had been modified in 1996. These newly calculated plateout factors did not use design-bases data (e.g., particle size) because the original calculations and supporting data had been lost. Based on the data used, the newly calculated plateout factors would have increased by a factor of 13 times higher. The failure to update the plateout correction factors caused the calculations to underestimate the doses to the public. Until Energy Northwest determined actual particle size of the gaseous particulate material released from the three effluent release points (reactor building, turbine building, and radwaste building) and performed calculations to determine the actual plateout correction factors, this issue remained open as an unresolved item.

On March 25, 2003, Energy Northwest completed Engineering Calculation NE-02-02-19, "In-Line Sample Particulate Plateout Evaluation for Air Effluent Ducts." From review of this calculation and discussions with Energy Northwest staff, the inspector determined that the updated plateout correction factors had not increased as previously calculated and, in fact, had decreased from original sample line modifications. Therefore, all reported doses to the public were conservatively reported. This URI is closed.

4OA6 Management Meetings

Exit Meetings

Regional and resident inspectors conducted four exit meetings with members of Energy Northwest management during the inspection period. The exit meetings included:

- On May 15, 2003, a health physics inspector presented the occupational radiation safety inspection results to Mr. R. Webring, Vice President, Nuclear and Regulatory Programs and other members of Energy Northwest's staff.

- On May 22, 2003, a senior reactor inspector presented the inservice inspection results to Mr. D. Coleman, Manager, Performance Assessment and Regulatory Programs and other members of Energy Northwest's staff.

- On June 10, 2003, an emergency preparedness inspector presented the emergency preparedness inspection results to Mr. J. Pierce, Supervisor, Emergency Planning and Regulatory Programs and other members of Energy Northwest's staff.

- On July 1, 2003, the acting resident inspector provided the remaining inspection results to Mr. D. Atkinson. Vice President, Technical Service and other members of Energy Northwest's staff.

Energy Northwest acknowledged the inspection results during each meeting. Following the meetings, the inspectors asked Energy Northwest whether any materials examined during the inspection should be considered proprietary. During the July 1, 2003 meeting, Energy Northwest identified some proprietary information that was provided to the inspectors. However, none of that information was included in this report. Energy Northwest identified no other proprietary information.

ATTACHMENT: SUPPLEMENTAL INFORMATION

ATTACHMENT

Supplemental Information

KEY POINTS OF CONTACT

Licensee

J. Parrish, Chief Executive Officer
P. Ankrum, Licensing Engineer
D. Atkinson, Vice President, Technical Services
D. Coleman, Manager, Performance Assessment and Regulatory Programs
D. Feldman, Manager, Operations
W. Oxenford, Plant General Manager
C. Perino, Manager, Licensing
J. Peters, Manager, Radiation Services
J. Pierce, Supervisor, Emergency Planning
R. Webring, Vice President, Nuclear Generation
S. Scammon, Manager, Resource Protection

LIST OF ITEMS OPENED AND CLOSED

Items Opened, Closed, and Discussed During this Inspection

Opened

None

Opened and Closed

50-397/03-05-01	NCV	Procedures violation for two loss of shutdown cooling events (Section 1R20)
50-397/03-05-02	NCV	Failure to perform fail-safe testing of main steam isolation valves (Section 1R22)
50-397/03-05-03	NCV	Failure to properly post and barricade a high-high radiation area (Section 2OS1)
50-397/03-05-04	URI	Technical Specification Surveillance Requirement 3.6.1.3.11, local leak rate test implementation (Section 40A2)
50-397/03-05-05	FIN	Failure to take effective corrective actions resulted in main turbine trip (Section 4OA3)

Previous Items Closed

50-397/01005-01	URI	Indeterminate Gaseous Effluent Monitor Plateout Factors

PARTIAL LIST OF DOCUMENTS REVIEWED

Procedures:

Number	Title	Revision
GE-UT-300	Procedure for Manual Examination of Reactor Vessel Assembly Welds	4
GE-UT-300	Procedure for Manual Examination of Reactor Vessel Assembly Welds in Accordance with PDI	6
QCI 7-5	Invessel Visual Inspection of the RPV Internals (IVVI)	1
PDI-UT-1	PDI Generic Procedure for the Ultrasonic Examination of Ferritic Pipe Welds	C

Miscellaneous:

Number	Title	Revision
WOT 01047989	Prefab Piping Spool SW-V-12A	01
WP 2-1789	ASME Section XI Plan to Replace 18" Service Water (SW) Loop A Pipe Downstream of Valve SW-V-12A	0
WPS ASME-P1-GTAW/SMAW-1	Welding Procedure Specification for Gas Tungsten Arc Welding and Shielded Metal Arc Welding (GTAM/SMAW) of Carbon Steel	3
Generic Letter 90-05	Guidance for Performing Temporary Non-Code Repair of ASME Code Class 1, 2, and 3 Piping, dated June 15, 1990	
Final Safety Analysis Report, Section 9.4.7	Emergency Diesel Generator Building	

Problem Evaluation Requests

203-0008	202-0640	203-0229	203-0017	202-3471	203-0199