UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
611 RYAN PLAZA DRIVE, SUITE 400
ARLINGTON, TEXAS 76011-8064

January 18, 2002

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

SUBJECT: COLUMBIA GENERATING STATION - INSPECTION REPORT NO. 50-397/01-05

Dear Mr. Parrish:

On December 31, 2001, NRC completed an inspection at your Columbia Generating Station. The enclosed integrated inspection report documents the inspection findings, which were discussed on December 6, 2001, December 13, 2001, and January 10, 2002, with Mr. G. Smith 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. Within these areas, the inspectors examined a selection of procedures and representative records, observed activities, and conducted interviews with personnel.

Based on the results of this inspection, no findings of significance were identified.

Immediately following the terrorist attacks on the World Trade Center and the Pentagon, the NRC issued an advisory recommending that nuclear power plant licensees go to the highest level of security, and all promptly did so. With continued uncertainty about the possibility of additional terrorist activities, the Nation's nuclear power plants remain at the highest level of security and the NRC continues to monitor the situation. This advisory was followed by additional advisories, and although the specific actions are not releasable to the public, they generally include increased patrols, augmented security forces and capabilities, additional security posts, heightened coordination with law enforcement and military authorities, and more limited access of personnel and vehicles to the sites. The NRC has conducted various audits of your responses to these advisories and your ability to respond to terrorist attacks with the capabilities of the current design basis threat (DBT). From these audits, the NRC has concluded that your security program is adequate at this time.

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.nrc.gov/reading-rm/adams.html (the Public Electronic Reading Room).

Should you have any questions concerning this inspection, we will be pleased to discuss them with you.

Sincerely,

/RA/

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

Docket No: 50-397
License No: NPF-21

Enclosure:
NRC Inspection Report
50-397/01-05

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket:	50-397
License:	NPF-21
Report:	50-397/01-05
Licensee:	Energy Northwest
Facility:	Columbia Generating Station
Location:	Richland, Washington
Dates:	September 23 through December 31, 2001
Inspectors:	G. D. Replogle, Senior Resident Inspector, Project Branch E, DRP M. S. Peck, Resident Inspector, Project Branch E, DRP D. R. Carter, Health Physicist, Plant Support Branch M. F. Runyan, Senior Reactor Inspector, Engineering and Maintenance Branch C. A. Clark, Reactor Inspector, Engineering and Maintenance Branch V. J. Everett, Senior Radiation Specialist, Fuel Cycle and Decommissioning Branch
Approved By:	W. B. Jones, Chief, Project Branch E, Division of Reactor Projects

ATTACHMENT: Supplemental Information

SUMMARY OF FINDINGS

IR 05000397-01-05, Energy Northwest, Columbia Generating Station, on 09/23 through 12/31/01, routine integrated report. No findings identified.

The report covered a 13-week period of resident inspection; heat sink performance; radioactive gaseous and liquid effluent treatment and monitoring systems; and onsite fabrication of components and construction of an Independent Spent Fuel Storage Installation (ISFSI). The significance of most findings is indicated by their color (Green, White, Yellow, or Red) using IMC 609 "Significance Determination Process" (SDP). Findings for which the SDP does not apply are indicated by "No Color" or by the severity level of the applicable violation. The NRC's program for overseeing the safe operation of commercial nuclear power reactors is described at the Reactor Oversight Process website at http://www.nrc.gov/NRR/OVERSIGHT/index.html.

A. Inspector Identified Findings

No findings of significance were identified.

Report Details

Summary of Plant Status:

Columbia Generating Station was operating at full power at the beginning of the inspection period. Energy Northwest continued full power operations until unplanned feedwater heater control problems forced a reactor power reduction to 80 percent on December 21, 2001. The licensee restored feedwater heating and raised the reactor back to full power on December 22. The licensee operated the facility at full power for the remainder of the inspection period.

1. REACTOR SAFETY

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

1R01 Adverse Weather (71111.01)

a. Inspection Scope

The inspectors reviewed design features and procedures associated with the condensate storage and standby service water systems to ensure adequate adverse weather (extreme cold) protection for mitigating systems.

The inspectors reviewed the following documents during this inspection:

- Final Safety Analysis Report (FSAR)
- Procedure 2.10.1, "Reactor Building Ventilation," Revision 26
- Procedure 3.1.9, "Cold Weather Operations," Revision 5
- Procedure 2.4.5, "Standby Service Water System," Revision 42
- Procedure 2.10.4, "Diesel Generator and Cable Cooling HVAC (heating ventilation and air conditioning)," Revision 21
- NRC Inspection and Enforcement Bulletin 79-24, "Frozen Lines," September 27, 1979
- NRC Information Notice 96-36, "Degradation of Cooling Water Systems due to Icing," June 12, 1996
- NRC Engineering Evaluation Report AEOD/E97-03, "Nuclear Power Plant Cold Weather Problems and Protective Measures," December 1997

b. Findings

No findings of significance were identified.

1R04 Equipment Alignments (71111.04)

a. Inspection Scope

The inspectors performed partial system walkdowns of safety-significant equipment to verify proper alignment and readiness while the redundant systems were removed from service. The inspectors reviewed the following system alignments during the quarter:

- Division II Containment Atmosphere Control System: On October 10, 2001, the inspectors walked down and observed the mechanical and electrical alignment of Division II containment atmosphere control system while the Division I containment atmosphere control system was out of service for corrective maintenance. The inspectors reviewed critical system component alignment against Procedure 2.3.3B, "Containment Atmosphere Control (DIV 2)," Revision 11, and Drawing M554, Flow Diagram, Containment Atmosphere Control System, Revision 56.

- Division II Low Pressure Coolant Injection: On October 12, 2001, the inspectors walked down and observed the mechanical and electrical alignment of the Division II low pressure coolant injection system while the Division I low pressure coolant injection system was out of service for scheduled testing. The inspectors reviewed critical system component alignment against Procedure 2.4.2, "Residual Heat Removal System," Revision 47, and Drawings M521-1, Flow Diagram Residual Heat Removal System, Revision 94, and M521-2, Flow Diagram Residual Heat Removal System, Revision 96.

b. Findings

No findings of significance were identified.

1R05 Fire Protection (71111.05)

.1 Annual Inspection

a. Inspection Scope

The inspectors evaluated the results of a unannounced fire protection drill conducted on November 25, 2001. The inspectors considered whether the drill scenario properly demonstrated the use of fire fighting equipment and that the subsequent drill critique was self-critical. The following documents were reviewed as part of this inspection.

- Drill Scenario

- Attribute Checklists

- Critique Notes

- Training Attendance Records

- Quality Assurance Audit Report - "Fire Protection Program Annual/Biennial Audit, AU-FPB-01," dated May 10, 2001

b. Findings

No findings of significance were identified.

.2 Quarterly Fire Protection Walkdowns

a. Inspection Scope

Between November 5 and December 17, 2001, the inspectors performed walkdowns to verify operational status and material condition of fire detection and mitigation systems, passive fire barriers and fire suppression equipment. The inspectors reviewed the implementation of licensee's controls for combustible materials and ignition sources in selected fire protection zones. The inspectors compared and observed plant conditions against descriptions and commitments described in the Final Safety Analysis Report, Section 9.5.1, "Fire Protection System," and Appendix F, "Fire Protection Evaluation." Specific fire areas inspected included:

- Fire Area R-4, reactor building, Elevation 422, Residual Heat Removal (RHR) B pump room
- Fire Area R-5, reactor building, Elevation 422, RHR A pump room
- Fire Area R-6, reactor building, Elevation 422, Reactor Core Isolation Cooling (RCIC) pump room
- Fire Area DG-1, Division III emergency diesel generator room
- Fire Area DG-2, Division I emergency diesel generator room
- Fire Area DG-1, Division II emergency diesel generator room

b. Findings

No findings of significance were identified.

1R06 Flood Protection Measures (71111.06)

a. Inspection Scope

The inspectors completed a flood protection walkdown of the 422 foot reactor building emergency core cooling and control rod drive pump rooms. The inspectors assessed whether the licensee properly sealed equipment below the flood line, including electrical conduits and wall penetrations, confirmed the integrity of watertight doors separating flood areas and inspected flexible piping expansion joints and fire protection system

sprinklers. The inspectors reviewed sump pumps and level alarm circuits operabilty. The inspectors also reviewed the plant configuration for potential sources of flooding that may not have been included in the flooding analysis. The following documents were reviewed as part of this inspection.

- FSAR Sections 2.4, 3.4 and 9.3
- Calculation 5.51.058, “Flooding Safe Shutdown Analysis,” Revision 3
- Calculation 5.51.55, “Pump Room/Stairwell Flooding Scenarios,” Revision 4
- PER 201-2714, Unable to Remove RHR A Floor Plugs, December 4, 2001
- PER 201-2699, Determination of Functional Impact on ECCS Equipment When Flood Barrier Plugs AR, December 3, 2001
- PER 201-2096, Various Flood Barriers of RB 501', 522' and 548' have Unsealed Floor Penetrations and Nonwatertight Curbs, October 4, 2001

b. Findings

No findings of significance were identified.

1R07 Heat Sink Performance (71111.07)

Introduction

The inspectors conducted biennial and annual reviews to verify: (1) that any potential heat exchanger deficiencies which could mask degraded performance were identified; (2) that any potential common cause heat sink performance problems that had the potential to increase risk at the facility were identified; and (3) that the licensee had adequately identified and resolved heat sink performance problems that could result in initiating events or affect multiple heat exchangers in mitigating systems and, thereby, increase risk. The inspectors used the plant risk assessment to select the three components listed below for review:

- Residual heat removal system heat exchangers
- Reactor building safety-related room coolers required for safe shutdown activities
- Ultimate heat sink

.1 Performance of Testing, Maintenance, and Inspection Activities - Biennial Review

a. Inspection Scope

The inspectors reviewed the inspection, maintenance, and test methodologies for the selected components.

The inspectors considered the extrapolation of test conditions to design conditions, the use of appropriate test instrumentation, and the appropriate consideration of instrument inaccuracies. Additionally, the inspectors considered whether the licensee appropriately trended these inspection and test results, assessed the causes of the trends, and took necessary actions for any notable trends.

The inspectors also considered whether the chemical treatments and methods used to control biological growth and minimize corrosion for the service water system were sufficient to ensure effective heat exchanger and heat sink performance.

b. Findings

No findings of significance were identified.

.2 Verification of Conditions and Operations Consistent with Design-Bases - Biennial Review

a. Inspection Scope

For the selected components, the inspectors considered whether the licensee-established component material condition, operation, and test criteria remained consistent with the design assumptions. Specifically, the inspectors reviewed the applicable test calculations to ensure that the thermal performance test acceptance criteria for the selected components were being applied consistently throughout the calculations. The inspectors also considered that the appropriate acceptance values for fouling and tube plugging for the heat exchangers and room coolers remained consistent with the values used in the design-basis calculations. Finally, the inspectors considered that the parameters measured during the thermal performance and flow balance tests for the selected systems were consistent with those assumed in the design-bases.

b. Findings

No findings of significance were identified.

.3 Identification and Resolution of Problems

a. Inspection Scope

The inspectors examined the corrective action program for significant problems with the selected components over the past 2 years. The inspectors reviewed seven problem evaluation reports.

The inspectors used Inspection Procedure 71152, "Identification and Resolution of Problems," as additional guidance for reviewing these issues and verifying that the licensee took appropriate actions to prevent recurrence of the identified problems.

b. Findings

No findings of significance were identified.

.4 Annual Review

a. Inspection Scope

The inspectors reviewed the RHR heat exchanger (HX) performance test completed on August 6, 2001. The inspectors reviewed whether the test methodology was consistent with Electric Power Research Institute (EPRI) NP 7552, "Heat Exchanger Performance Monitoring Guidelines," December 1991, test conditions were consistent with the selected methodology and procedural requirements and test acceptance criteria and results were consistent with the design-basis values. The inspectors reviewed Work Package 01014488, Thermal Performance of RHR Heat Exchanges, completed September 23, 2001, and Operating and Engineering Test Procedure 8.4.42, "Thermal Performance Monitoring of RHR-HX-1A and RHR-HX-1B," Revision 5, completed August 16, 2001.

b. Findings

No findings of significance were identified.

1R11 Licensed Operator Requalification Program (71111.11)

a. Inspection Scope

On November 28 and December 4, 2001, the inspectors observed licensed operator simulator exercises. The inspectors evaluated licensed operator crew performance in terms of formality of communication, prioritizing actions, interpreting and verifying alarms, correct use and implementation of procedures, timely control board operation and manipulation, including high-risk operator actions. The inspectors also compared simulator board configurations with actual control room board configurations.

b. Findings

No findings of significance were identified.

1R12 Maintenance Rule Implementation (71111.12)

a. Inspection Scope

The inspectors independently reviewed the implementation of the Maintenance Rule for selected plant equipment. The inspectors reviewed licensee Maintenance Rule scoping and characterization against the 10 CFR Part 50.65 criteria. The inspectors also reviewed licensee documentation of safety significance classifications, performance criteria and performance goals. The review included:

- Problem Evaluation Request (PER) 201-1171, Loss of shutdown cooling, June 8, 2001
- PER 201-2624, Local power range monitor inoperable, November 24, 2001
- PER 201-2490, Valve FDR-V-222 failed stoke time test, November 8, 2001

The inspectors utilized the following documents during this inspection:

- Procedure TI 4.22, “Maintenance Rule Program,” Revision 4
- 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
- Columbia Generating Station Maintenance Rule Program Status Reports

b. Findings

No findings of significance were identified.

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

a. Inspection Scope

The inspectors reviewed licensee plant risk assessments related to planned and emergent maintenance activities as required by 10 CFR Part 50.65(a)(4) to verify the accuracy and completeness of information considered in licensee risk assessments and the use of the SENTINEL computer program. The inspectors reviewed risk management activities and controls associated with rendering the following equipment inoperable:

- Division I containment atmospheric control and standby liquid control systems out of service concurrently, October 30, 2001
- Division II standby service water system work following system failure, November 20, 2001
- Division III emergency diesel generator, November 14, 2001

The following documents were reviewed and utilized during this inspection:

- Regulatory Guide 1.182, "Assessing and Managing Risk Before Maintenance Activities at Nuclear Power Plants," May 2000
- NUMARC 93-01, Section 11, "Assessment of Risk Resulting from Performance of Maintenance Activities," February 22, 2000
- Procedure 1.5.14, "Risk Assessment and Management for Maintenance and Surveillance Activities," Revision 1

b. Findings

No findings of significance were identified.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following operability evaluations for technical adequacy to verify that the licensee properly considered degraded equipment conditions, compensatory measures and overall plant risk:

- Followup Assessment of Operability (FAO), 201-1950, "Valve FDR-V-222 Exceeded Action High Stroke Time," September 13 and November 15, 2001
- FAO 201-1879, "Valve RCIC-V-90 Did Not Meet Leakage Acceptance Criteria of OSP-RCIR/IST-Q701," September 6, 2001
- PER 201-2799, "CRD Flow Controller CRD-FC-600 Apparently Failed Resulting in Low CRD System Flow and Several High Temperature CRDMS," December 12, 2001
- PER 200-1958, "Action Pack Temperature Transmitters Provide Inadequate Isolation for Grounded Thermocouples," November 8, 2000
- PER 201-2246, Affect of failed reactor building siding on secondary containment, October 19, 2001

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

- Updated Final Safety Analysis Report (UFSAR)
- Technical Specifications
- Generic Letter 91-18, “Information to Licensees Regarding the NRC Inspection Manual Section on Resolution of Degraded and Nonconforming Conditions and on Operability,” Revision 1
- Calculation NE-02-85-26, "Heat Trace Design for H2O2 Analyzer Suction and Discharge Tubing," November 8, 1985
- Design Change Package 84-1162-0C, "H2/02 Analyzer Heat Trace"

b. Findings

No findings of significance were identified.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors reviewed postmaintenance tests to verify that plant personnel properly implemented procedural controls, postmaintenance tests adequately demonstrated equipment operability, and that applicable Technical Specification/licensing basis requirements were met. This inspection included the following postmaintenance testing activities:

- Work Order 01025439, "RHR-RLY-K55, Time Delay Relay, completed August 28, 2001, and Maintenance Programs and Procedures 10.25.7, “Testing and Setting Time Delay Relays,” Revision 14
- Work Order 01035210, "SW-POS-52S/P/1B, Replace MOC Switch," completed November 21, 2001
- Work Order 01035014, "Post-Maintenance Testing for Valve FDR-V-222 Actuator Replacement," completed December 20, 2001

b. Findings

No findings of significance were identified.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors witnessed surveillance tests, reviewed test data and/or procedures to verify that surveillance tests for selected risk-significant systems and component met Technical Specification, FSAR, and procedural requirements. The inspectors considered whether surveillance tests demonstrated that systems were capable of performing their intended safety and design-basis functions. The inspectors specifically evaluated surveillance tests for preconditioning, adequate acceptance criteria, proper calibration of test equipment and equipment restoration. The inspectors reviewed the following surveillance activities:

- Procedure OPS-ELEC-S703, “HPCS Diesel Generator Semi-Annual Operability Test,” Revision 14, observed on September 18, 2001
- Surveillance Produce OSP-RHR/IST-Q704, "RHR Loop C Operability Test,” Revision 9, completed September 4, 2001
- Surveillance Procedure ISP-RHR-Q905, “RHR B & C Discharge Pressure - ADS Trip System B Permissive (K10B Relay),” Revision 5, completed September 20, 2001
- Surveillance Procedure ISP-RHR-Q906, “RHR B & C Discharge Pressure - ADS Trip System B Permissive (K9B Relay),” Revision 5, completed September 20, 2001

b. Findings

No findings of significance were identified.

1EP6 Drill Evaluation (71114.06)

a. Inspection Scope

The inspectors observed an operations drill in the simulator on October 30, 2001, in order to evaluate the critique process, drill conduct, and drill performance. The inspectors reviewed the drill scenario and the Columbia Generating Station Emergency Plan, Revision 30, as part of this inspection.

b. Findings

No findings of significance were identified.

2PS1 Radioactive Gaseous and Liquid Effluent Treatment and Monitoring Systems (71122.01)

a. Inspection Scope

During the week of December 3-6, 2001, the inspectors interviewed cognizant personnel and walked down the major components of the gaseous and liquid effluent release systems to observe ongoing activities, equipment material condition, and system configuration, as compared to the description in the UFSAR. The inspectors reviewed and compared the following items with regulatory requirements to determine whether the licensee had ensured adequate protection of public health and safety from exposure to radioactive material released into the public domain:

- 1999 and 2000 Radiological Effluent Release Reports
- Anomalous results, if any, reported in the Radiological Effluent Release Reports
- Changes to the Offsite Dose Calculation Manual and to the radioactive waste system design and operation
- Effluent radiological occurrence performance indicator incidents, if applicable
- Sample collection and analysis of gaseous effluents
- Selected radioactive liquid and gaseous waste effluent releases and associated projected doses to members of the public
- Compensatory sampling and radiological analyses conducted when effluent monitors were declared out of service
- Monthly, quarterly, and annual dose calculations
- Air cleaning system surveillance test results
- Surveillance test results for the stack and vent flow rates
- Records of instrument calibrations performed since the last inspection of selected discharge effluent radiation monitor and flow measurement devices
- Effluent radiation monitor alarm setpoint values
- Calibration and quality control records of counting room instrumentation associated with effluent monitoring and release activities
- Quality Assurance Audit AU-CH-00 related to the radioactive effluent treatment and monitoring program

- Corrective action documents related to the radioactive effluent treatment and monitoring program (299-1824, 200-0315, 200-0465, 200-1563, 200-1564, 200-2069, 201-0073, 201-0074, 201-2295, and 201-2567)

b. Findings

The licensee identified during Chemistry Department Self-Assessment SA-01-082, "Radiological Effluent Dose Calculation Program," that a corrective action associated with PER 298-0251 had not been performed. The PER identified that modifications were made to the reactor building gaseous effluent sample lines in 1996 and that plateout correction factors had not been revised. Plateout factors are used in calculations to determine doses to the public. The corrective actions associated with PER 298-0251 were as follows:

1. Perform engineering calculations to determine the reactor building radiation monitor plateout correction factors using updated ANSI N13.1, "Guide to Sampling Airborne Radioactive Material in Nuclear Facilities," dated 1999

2. Review the turbine and radwaste building radiation monitor sample lines for particulate plateout correction factors

3. Incorporate the results of Corrective Actions 1 and 2 into Procedure PPM 12.11.1A, "Radiological Effluent Monitoring Gaseous"

The newly calculated plateout factor for the reactor building radiation monitor was determined to be a factor of two higher (less conservative) than previously calculated. This new plateout factor was updated in Procedure PPM12.11.1A. The newly calculated plateout factors for the turbine building and radwaste building radiation monitors had increased by factors of approximately 4 and 13, respectively. However, Corrective Action No. 3 was closed before the new turbine and radwaste building plateout correction factors were incorporated into Procedure PPM 12.11.1A. The failure to update the plateout correction factors caused the calculations to underestimate the doses to the public. Therefore, the radiation monitors could not accurately monitor (survey) radioactive materials in the gaseous effluents released to the environment. The licensee initiated PER 201-1974 to address this issue.

The licensee calculated the new plateout correction factors using the 1999 updated revision of ANSI N13.1; however, the licensee is not committed to this revision. When the licensee attempted to research and recalculate the plateout factors using ANSI N13.1, 1969, the revision used in the design-bases calculations, it could not provide the original calculations which contained information needed to perform the necessary recalculations.

10 CFR 20.1302 requires that licensees shall make or cause to be made surveys of radioactive materials in effluents released to the unrestricted and controlled areas to demonstrate compliance with the dose limits for individual members of the public. If the plateout correction factors are determined to be nonconservative, the effluent radiation monitors could not accurately survey radioactive materials in the gaseous effluents

released to the environment. The failure to perform an adequate survey would be a violation of 10 CFR Part 20. Until the licensee determines actual particle size of the gaseous particulate material released from the three effluent release points (reactor building, turbine building, and radwaste building) and performs calculations to determine the actual plateout correction factors, this issue is considered unresolved (Unresolved Item 50-397/0105-01).

4OA1 Performance Indicator Verification (71151)

a. Inspection Scope

For reactor specific performance indicators, the inspectors utilized NEI 99-02, "Regulatory Assessment Performance Indicator Guideline," Revision 0, and independently reviewed the following performance indicator data by reviewing operator logs and corrective action documents.

- High pressure core spray system unavailability
- Emergency AC power unavailability

b. Findings

No findings of significance were identified.

4OA2 Identification and Resolution of Problems (71152)

a. Inspection Scope The inspectors reviewed three surveillance reports (SA-01-57, SA-01-63, and SA-01-82) and associated corrective action documents related to the radioactive effluent treatment and monitoring program.

b. Findings

The licensee identified that Corrective Action No. 3 associated with PER 298-0251 was closed prior to corrective actions being completed (see Section 2PS1).

4OA5 Onsite Fabrication of Components and Construction of an ISFSI (60853)

a. Inspection Scope

The inspectors observed the concrete pouring of the first of five planned pads for the ISFSI. The inspectors also reviewed the following documents and work activities as part of this inspection:

- Holtech Report Hi-2002397 "WNP-2 ISFSI Cast Storage Pad and Site Grading Construction Specifications for Energy Northwest," Revision 4

- American Concrete Institute (ACI) certifications for the Energy Northwest quality control (QC) inspectors assigned to the job

- Design criteria for the reinforcing steel placement, concrete strength, slump tests, temperature limitations during pouring, and percent air in the concrete
- Field observation of the reinforcing steel placement and adequacy of forms
- Field observation of QC personnel performing the required tests to verify compliance with the design criteria during concrete pouring
- Discussions and field observations with the engineering staff concerning subsoil preparations for both the pad area and the roadway leading to the pad
- Concrete Cylinder Test Reports: Work Order 210978, Sample Number 21726-Set 4, 21727-Set 5, 21728-Set 6, 21729-Set 7, 21730-Set 3, 21732-Set 1, 21733-Set 2 and 21734-Set 8

b. Findings

No findings of significance were identified.

4OA6 Management Meetings

Exit Meetings Summaries

Regional and resident inspectors conducted several exit meetings with Mr. G. Smith, Vice President, Generation, and other members of licensee management staff during the inspection period. These exit meetings included:

- December 6, 2001, discussion of radioactive gaseous and liquid effluent treatment and monitoring systems inspection results
- December 13, 2001, discussion of the biannual heat sink performance inspection results
- January 10, 2002, discussion of the resident inspectors inspection results

. The inspectors asked the licensee whether any materials examined during the inspection should be considered proprietary. No proprietary information was identified by the licensee.

ATTACHMENT

Supplemental Information

PARTIAL LIST OF PERSONS CONTACTED

Licensee

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I. Borland, Manager, Radiation Protection
R. Brownlee, Licensing
D. Coleman, Manager, Performance Assessment and Regulatory Programs
D. Feldman, Manager, Operations
D. Gregory, Design Engineering
V. Harris, Maintenance Manager
P. Inserra, Manager, Technical Services
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W. Laframboise, Supervisor, Design Engineering
D. Maley, Procedures Lead
T. Messersmith, Corporate Emergency Preparedness, Safety and Health Officer
C. Moore, Project Manager, Engineering
L. Noble, Project Engineer, Independent Spent Fuel Storage Installation
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J. Peters, Manager, Radiation Services
T. Powell, Licensing
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S. Scammon, Independent Spent Fuel Storage Installation Project Manager
R. Sherman, Manager, Licensing
G. Smith, Vice President, Generation
C. Townsend, Corrective Action Program Manager
R. Webring, Vice President, Operation Support
S. Wood, Manager, Chemistry
J. Wyrick, Manager, Resource Protection

ITEMS OPENED AND CLOSED

Items Opened, Closed, and Discussed During this Inspection

Opened

50-397/0105-01	URI	Indeterminate Gaseous Effluent Monitor Plateout Factors (Section 2PS1)

DOCUMENTS REVIEWED

The following documents were selected and reviewed by the inspectors to accomplish the objectives and scope of the heat sink performance inspection.

PROBLEM EVALUATION REPORTS

200-1692
200-2158
201-2149
201-2176
201-2226
201-2794
299-2345

TECHNICAL MEMORANDA

NUMBER	DESCRIPTION	REVISION
TM-2111	Thermal Performance Testing of Air-to-Water Heat Exchangers in the WNP-2 SW System	0

PROCEDURES

NUMBER	DESCRIPTION	REVISION
ABN-ASH	Ash Fall	2
ABN-Cr-EVAL	Control Room Evacuation and Remote Cooldown	0
ABN-FAZ	FAZ	3
ABN-HVAC	HVAC Trouble	2
ABN-SECURITY	Site Security Event	3
ABN-SW	Service Water Trouble	2
ABN-WIND	Tornado/High Wind	4
4.RBHV.A	RBHV.A Annunciator Panel Alarms	6
4.601.A1	601.A1 Annuniciator Panel Alarms	14
4.601.A4	601.A4 Annunciator Panel Alarms	20

PROCEDURES

NUMBER	DESCRIPTION	REVISION
4.800.C1	800.C1 Annunciator Panel Alarms	12
4.820.B1	820.B1 Annunciator Panel Alarms	14
4.840.A5	840.A5 Annunciator Panel Alarms	15
5.0.10	Flowchart Training Manual	6

CALCULATIONS

NUMBER	DESCRIPTION	REVISION
ME-02-92-41	Ultimate Heat Sink Analysis	5
ME-02-01-30	Determination of RCIC Availability without Standby Service Water	0
ME-02-93-21	RHR Heat Exchanger Tube Side Temperature Evaluation	0
ME-02-92-245	RHR Heat Exchanger Tube Side Flowrate and Inlet Temperature Evaluation	0
CMR-97-0010 to Calculation ME-02-92-245	Evaluate the RHR-HX-1B Test Results from the Performance of PPM 8.4.42 on 03/03/95	0
ME-02-92-43	Room Temperature Calculation for DG Building, Reactor Building, Radwaste Building, and Service Water Pumphouse Under Design Basis Accident Conditions	6
ME-02-95-25	Evaluation of Standby Service Water Capability	0
ME-02-93-004	Examine the Effect of the Balance of Flows in the Standby Service Water System when the FPC-HX is Valved into the System	0
ME-02-93-05	RHR Heat Exchanger Tube Side Flowrate Evaluation during SW Cooling of the Fuel Pool	0

CALCULATIONS

NUMBER	DESCRIPTION	REVISION
CMR-95-0656 to Calculation ME-02-93-05	Provide Basis for Response to NRC Operability Concern	0
ME-02-92-52	Spray Pond Temperature During a Design Basis Accident with Four Spray Risers Disabled	1

QUARTERLY SYSTEM HEALTH REPORTS

SYSTEM	DATES
Residual Heat Removal (RHR) System	3rd Quarter 2001 2nd Quarter 2001 1st Quarter 2001 4th Quarter 2000 3rd Quarter 2000 2nd Quarter 2000 1st Quarter 2000
Service Water (SW) System	3rd Quarter 2001 2nd Quarter 2001 1st Quarter 2001 4th Quarter 2000 3rd Quarter 2000 2nd Quarter 2000 1st Quarter 2000

SURVEILLANCE TESTS

NUMBER	DESCRIPTION	DATES PERFORMED
OSP-RHR/IST-Q702	RHR Loop A Operability Test	October 8, 2001 November 8, 2000 December 13, 1999
OSP-RHR/IST-Q703	RHR Loop B Operability Test	November 22, 2001 November 24, 2000 December 22, 1999

SURVEILLANCE TESTS

NUMBER	DESCRIPTION	DATES PERFORMED
OSP-SW-M101	Standby Service Water Loop A Valve Position Verification	June 8, 2001 June 15, 2000 October 7, 1999
OSP-SW-M102	Standby Service Water Loop B Valve Position Verification	June 1, 2001 May 3, 2000
OSP-SW-M103	HPCS Service Water Valve Position Verification	June 20, 2001 April 14, 2000
PMPRQ 10437 01	RRA-CC-1, Inspect/Clean Cooling Coil	July 1, 2001 July 8, 2000
PMPRQ 10447 01	RRA-CC-2, Inspect/Clean Cooling Coil	April 25, 2001 May 23, 2000
PMPRQ 10449 01	RRA-CC-3, Inspect/Clean Cooling Coil	August 16, 2001 July 5, 2000
PMPRQ 10450 01	RRA-CC-4, Inspect/Clean Cooling Coil	July 1, 2001 July 8, 2000
PMPRQ 10451 01	RRA-CC-5, Inspect/Clean Cooling Coil	June 29, 2001 July 6, 2000
PMPRQ 10452 01	RRA-CC-6, Inspect/Clean Cooling Coil	June 28, 2001
PMPRQ 10159 01	RHR-HX-1A, Open/Clean/Inspect/Eddy Current Test	June 12, 2001
PMPRQ 10160 01	RHR-HX-1B, Open/Clean/Inspect/Eddy Current Test	September 29, 1999
TSP-SW-A101	Service Water Loop A Cooling Coil Heat Load Capacity Test	April 14, 2000
TSP-SW-A102	Service Water Loop B Cooling Coil Heat Load Capacity Test	July 19, 2000

SURVEILLANCE TESTS

NUMBER	DESCRIPTION	DATES PERFORMED
8.3.171	A Loop Service Water Heat Exchanger Performance Data Collection	August 1, 1990
8.3.172	B Loop Service Water Heat Exchanger Performance Data Collection	June 25, 1990

MISCELLANEOUS DOCUMENTS

NUMBER	DESCRIPTION	REVISION
8.4.42	Thermal Performance Test of RHR-HX-1A/1B	May 19, 2001
Letter G02-89-205	Nuclear Plant No. 2, Operating License NPF-21, Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment	November 9, 1989
Letter G02-90-17	Nuclear Plant No. 2, Operating License NPF-21, Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment	February 5, 1990
Letter G02-90-041	Nuclear Plant No. 2, Operating License NPF-21, Response to Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment	March 28, 1991
Letter G12-91-093	Evaluation of Response to NRC Generic Letter 89-13, Service Water System Problems Affecting Safety-Related Equipment (TAC No. 74086)	April 26, 1991