



UNITED STATES
NUCLEAR REGULATORY COMMISSION
REGION IV
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September 22, 2000

Mr. J. V. Parrish (Mail Drop 1023)
Chief Executive Officer
Energy Northwest
P.O. Box 968
Richland, Washington 99352-0968

SUBJECT: WNP-2 INSPECTION REPORT NO. 50-397/00-12

Dear Mr. Parrish:

From July 9, 2000 through August 26, 2000, the NRC completed a safety inspection at the WNP-2 facility. The enclosed report presents the results of this inspection. The results of this inspection were discussed on August 22, 2000, with Mr. G. O. Smith and other members of your staff.

The inspectors examined activities conducted under your license as they relate to safety and to 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, there were no significant findings identified in this inspection period.

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/NRC/ADAMS/index.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/

Linda Joy Smith, Chief
Project Branch E
Division of Reactor Projects

Energy Northwest

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

Enclosure:
NRC Inspection Report No.
50-397/00-12

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ENCLOSURE

U.S. NUCLEAR REGULATORY COMMISSION
REGION IV

Docket No.: 50-397
License No.: NPF-21
Report No.: 50-397/00-12
Licensee: Energy Northwest
Facility: WNP-2
Location: Richland, Washington
Dates: July 9 through August 26, 2000
Inspectors: G. D. Replogle, Senior Resident Inspector, Project Branch E, DRP
J. P. Rodriguez, Resident Inspector, Project Branch E, DRP
J. F. Melfi, Project Engineer, Project Branch E, DRP
Accompanying
Personnel: Michel Peck, Reactor Engineer, DRP
Approved By: Linda Joy Smith, Chief, Project Branch E, Division of Reactor Projects

ATTACHMENTS:

Attachment 1: Supplemental Information
Attachment 2: NRC's Revised Reactor Oversight Program

SUMMARY OF FINDINGS

IR 05000397-00-12; on 07/09-08/26/2000; Energy Northwest; WNP-2 facility. Resident Report. No findings identified.

The inspection was conducted by resident inspectors and a regional project engineer during a 7-week period from July 8 to August 26, 2000. There were no significant findings identified during this reporting period.

Report Details

Summary of Plant Status

At the start of the inspection period, the plant was operating at 100 percent power. On August 12, 2000, Recirculation Pump A experienced an upper seal failure. As part of the recovery plan, on August 18, operators reduced core flow and reactor power down to approximately 56 percent and secured Recirculation Pump A. Operators began controlling reactor power in single loop with the Recirculation Pump B. After adjusting for reactivity changes following the downpower, operators stabilized power at approximately 60 percent power and remained at that power level for the rest of the inspection period.

1 REACTOR SAFETY

Cornerstones: Initiating Events, Mitigating Systems, Barrier Integrity

1R04 Equipment Alignments (71111.04)

a. Inspection Scope

The inspectors performed a partial equipment alignment verification for the following systems while the redundant train was out of service. The inspectors verified proper equipment alignments for the plant conditions.

- Compressed air system, Trains A and B
- Standby gas treatment system, Division I
- Containment atmospheric control system, Division I
- Control room air conditioning system, Division II

b. Issues and Findings

There were no findings identified during this inspection.

1R05 Fire Protection

.1 Quarterly Inspection (71111.05Q)

a. Inspection Scope

The inspectors performed the routine quarterly fire protection inspection. The inspectors observed the functionality and material condition of the fire protection equipment, detection systems and passive protection features. The inspectors also verified proper controls for combustible materials and ignition sources. The inspection included the following areas:

- Reactor building elevation 522

- Reactor building elevation 572
- Fire area M-27, Instrument Rack E-IR-H22/P027 enclosure
- Fire area M-73, Instrument Rack E-IR-73 enclosure
- Division I standby service water pump house

b. Issues and Findings

There were no findings identified during this inspection.

.2 Annual Inspection (71111.05A)

a. Inspection Scope

On August 1, the inspectors performed the routine annual fire protection program drill inspection. The inspectors observed the fire brigade's equipment material condition and verified that the fire brigade fought and managed the fire in accordance with approved procedures and codes.

b. Issues and Findings

The inspectors identified a potential problem with the licensee established fire brigade drill periodicity. The licensee modified their implementation of the requirements stipulated in the license conditions by reducing the number of fire brigade drills per year.

Background: WNP-2 License Condition 2.C(14) states, in part:

The licensee shall implement and maintain in effect all provision of the approved fire protection program as described . . . in the Final Safety Analysis Report . . . for the facility thru Amendment #39 . . . subject to the following provision:

The licensee may make changes to the approved fire protection program without prior approval of the Commission only if those changes would not adversely affect the ability to achieve and maintain safe shutdown in the event of a fire.

The Final Safety Analysis Report, Appendix F, "Fire Protection Evaluation," contained the WNP-2 fire protection program, where the licensee committed to most aspects of NRC Branch Technical Position 9.5-1, "Fire Protection for Nuclear Power Plants." The version that the NRC approved included a commitment to Branch Technical Position 9.5-1, Appendix A, Section B.5.b, which states, in part:

In order for a fire brigade to operate effectively, it must operate as a team. All members must know what their individual duties are . . . Such training can only be accomplished by conducting drills several times a year (at

least quarterly) so that all members of the fire brigade have had the opportunity to train as a team, testing itself in the major areas of the plant . . .

Furthermore, Branch Technical Position 9.5-1, Section C.3.d(1)(k)(7)(b), states, in part:

Drills should be performed at regular intervals not to exceed 3 months for each shift fire brigade. Each fire brigade member should participate in each drill, but must participate in at least two drills per year.

Fire Brigade Drills: The inspectors noted that, in 1996, the licensee changed the fire protection program to eliminate the requirement for quarterly shift fire brigade drills. The program currently states, in part:

Each Fire Brigade member will be required to participate in at least two drills per year on a semi-annual basis.

The licensee justified the change, in part, with the following:

- a. The intent of quarterly shift training is so that all members of the fire brigade have had the opportunity to train as a team, testing itself in the major areas of the plant. Where there were many new fire brigade members (i.e., a high turnover rate), there would be a need for frequent drills. However, on average, WNP-2 Fire Brigade Members have over 6 years experience. With this level of fire brigade experience and plant knowledge, performance of semi-annual fire drills still meets the intent of the NRC guidance . . .
NOTE: There is no reason to believe that the WNP-2 Fire Brigade experience average will lower. In fact, it would be expected that the experience average would continue to increase. Thus this conclusion needs no limitation to monitor future experience averages.
- b. NFPA 600-1992 provides the most recognized guidance on fire brigade requirements. NFPA 600 specifies a semi-annual drill periodicity for Advanced Exterior Fire Fighters and Interior Structural Fire Fighters. Thus, the semi-annual WNP-2 brigade drill periodicity is in compliance with NFPA.

NRC Assessment: The inspectors questioned the justification for changing the fire brigade drill frequency, without NRC approval, based on the following:

- a. The fire protection program no longer requires fire brigade members to drill in specific, defined (shift-based) teams. The program only requires fire brigade members to participate in two drills annually and the team composition may be different each time. This appears to conflict with Branch Technical Position 9.5-1, Appendix A, Section B.5.b.

- b. The licensee did not have a basis to judge the intent of the NRC's regulation with respect to drill periodicity. Specifically, the NRC did not stipulate that more experienced fire brigades require less frequent training than that specified in the Branch Technical Position. NRC specified that frequent drills are necessary and quarterly drills constitute the minimum acceptable periodicity.
- c. The fire protection program change may be in place for the life of the plant and the licensee made no provisions to ensure that all shift fire brigades were composed of very experienced members (6 years on average).

The inspectors did not have the specific fire protection expertise to determine if the change to the fire protection program required NRC review and approval. The inspectors consulted with a fire protection expert in the NRC Office of Nuclear Reactor Regulation (NRR) on this issue. The fire protection expert asked the inspectors to submit the licensee analysis to NRR for further evaluation. This issue is an unresolved item pending the completion of the NRR review (URI 50-397/00012-01).

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

a. Inspection Scope

The inspectors reviewed the following work prioritization, risk evaluation, and control activities to evaluate the effectiveness of licensee risk management efforts:

- Emergent Train C compressed air system work (risk significant component)
- Planned Division II standby gas treatment system and Division II containment atmospheric control system work (systems out of service concurrently)
- Planned Division III standby service water system maintenance (risk significant work)

b. Issues and Findings

There were no findings identified during this inspection.

1R15 Operability Evaluations (71111.15)

a. Inspection Scope

The inspectors reviewed the following operability evaluations affecting mitigating systems and barrier integrity. These reviews ensured that the licensee properly justified operability and components/systems remained available, such that no unrecognized increase in risk had occurred:

- Operability concerning the generic implications of the Division I service water pump breaker failure (Problem Evaluation Request 200-1121)

- Operability evaluation associated with the repair of the Division III service water letdown line valve yoke
- Inverter 3 unexpected transfer to alternate ac power (Problem Evaluation Request 200-1421)
- Operability of the degraded Reactor Recirculation Pump A seal package (one of two seals failed)

In addition to the problem evaluation requests, the inspectors reviewed the following documents as part of this inspection:

- Instructions for Porcel-line Type DHP Magnetic Air Circuit Breakers (vendor manual)
- Risk impact of reactor recirculation pump (RRC-P-1A) upper seal degradation (licensee risk assessment)

b. Issues and Findings

Standby Service Water Pump Breaker Failure: On July 4, the breaker for the Division I standby service water pump failed to close, rendering the system inoperable, which was a significant condition adverse to quality. The licensee determined that residue on the antipump relay contacts resulted in approximately 1000 ohms of resistance across the contacts. The inspectors noted that the antipump relay prevents harmful repetitive breaker cycling. The closing circuitry did not properly function with this condition and the breaker failed to close.

The licensee identified that WNP-2 did not implement an industry recommended maintenance check. Specifically, the Electrical Power Research Institute recommended checking the contact resistance for the antipump relays periodically (nominally every 4 years). Contact resistance greater than .1 ohm generally requires maintenance. The licensee had never performed this check on the breaker antipump relays. The plant utilizes approximately 56 of these breakers, with 20 used in safety-related applications.

The inspectors found that the vendor did not provide specific maintenance guidance for the antipump relays but recommended that users follow the relay supplier's recommendations. The licensee had intended to follow recommendations provided by the Electrical Power Research Institute for the antipump relays.

The licensee determined that, under worst case undervoltage conditions, that antipump relay contacts could experience as much as 5 ohms of resistance without challenging breaker operability. The licensee checked the contact resistance on six antipump relays and found one unit degraded but operable (about 1 ohm). Based on the sample, the licensee determined that the balance of breakers remained operable.

NRC Assessment: The inspectors identified that the licensee did not have a technical basis for limiting the breaker sample size to six breakers (about 10 percent of the

population). Considering that one of the sampled antipump relays was degraded, the licensee had not properly assured that the remainder of the breaker population would not fail in a similar manner. 10 CFR Part 50, Appendix B, Criterion XVI, requires that corrective action be taken to preclude repetition of significant conditions adverse to quality. In response to the inspector's concerns, the licensee agreed to consider additional actions to demonstrate that other breakers are not affected by the same failure mechanism. In addition, concerning the failure to follow the industry recommendations for the antipump relay checks, the inspectors required several pieces of additional information before completing the regulatory assessment. This is considered an unresolved item pending further NRC review of these two issues (URI 50-397/00012-02).

1R16 Operator Workarounds (71111.16)

a. Inspection Scope

The inspectors reviewed the list of operator workarounds and operations plant enhancements. The inspectors reviewed certain operator workarounds to assess the cumulative effects of the workarounds on the plant equipment.

b. Issues and Findings

There were no findings identified during this inspection.

1R19 Postmaintenance Testing (71111.19)

a. Inspection Scope

The inspectors evaluated the following postmaintenance test activity to determine whether the test confirmed equipment operability:

- Standby Service Water Pump 1A breaker test to verify antipumping relay resistance

b. Issues and Findings

There were no findings identified during this inspection.

1R22 Surveillance Testing (71111.22)

a. Inspection Scope

The inspectors observed the following surveillance testing to verify that the testing adequately demonstrated system/component capability:

- OSP-SW/IST-Q701, "Standby Service Water Loop A Operability," Revision 6

- OSP-ELEC-M703, "High Pressure Core Spray Diesel Generator Monthly Operability Test," Revision 10
- OSP-HPCS/IST-Q701, "HPCS [High Pressure Core Spray] System Operability Test," Revision 9
- OSP-ELEC-W102, "Electrical Distributions Subsystem Breaker Alignment and Power Availability Verification," Revision 5

b. Issues and Findings

There were no findings identified during this inspection.

1R23 Temporary Plant Modifications (71111.23)

a. Inspection Scope

The inspectors reviewed the following plant temporary modification with respect to design bases documentation, approvals, and tracking. The inspectors also walked down the modifications to assure that the tags remained in place.

- Temporary Modification Request 99-039, "Replace Suppression Pool Temperature Monitor (SPTM) Temperature Element (TE) 1A (SPTM-TE-1A) with SPTM-TE-8A due to failure of SPTM-TE-1A"

b. Issues and Findings

There were no findings identified during this inspection.

4. OTHER ACTIVITIES

4OA5 Other

- .1 (Closed) Licensee Event Report 50-397/2000-002-00 and 01: Potential for water hammer condition in reactor core isolation cooling system. NRC Inspection Report 50-397/00-11, Section 4OA5 previously addressed this issue.
- .2 (Closed) Licensee Event Report 50-397/2000-003-00: Unit trip and reactor scram due to protective relay control circuit failure. NRC Inspection Report 50-397/00-10, Section 1R14.1 previously addressed this issue.
- .3 (Closed) Licensee Event Report 50-397/2000-004-00: Failure to reset an isolation signal caused an emergency safety features signal to be generated that resulted in the closure of all eight main steam isolation valves. NRC Inspection Report 50-397/00-11, Section 1R14.2 previously addressed this issue.
- .4 (Closed) Licensee Event Report 50-397/2000-005-00: Failure to completely bypass the low condenser vacuum trip caused an emergency safety features signal to be generated

that resulted in the closure of all main steam isolation valves while the plant was shutdown. NRC Inspection Report 50-397/00-11, Section 1R14.2 previously addressed this issue.

40A6 Meetings

Exit Meeting Summary: The NRC resident inspectors presented the inspection results to Mr. G. O. Smith and other members of licensee management on August 29, 2000. Following the meeting, the inspectors asked the licensee whether or not any materials examined during the inspection should be considered proprietary. No proprietary information was identified. The licensee acknowledged the findings presented during the meeting.

ATTACHMENT 1

Supplemental Information

PARTIAL LIST OF PERSONS CONTACTED

Licensee

J. Parrish, Chief Executive Officer
D. Atkinson, Manager, Engineering
I. Borland, Radiation Protection Manager
S. Boynton, Quality Assurance Manager
R. Brownlee, Engineer, Licensing
P. Inserra, Manager, Licensing
D. Martin, Security Manager
S. Oxenford, Operations Manager
J. Peters, Manager, Radiological Services
D. Poirier, Maintenance Manager
T. Powell, Engineer, Licensing
G. Smith, Vice President - Generation/Nuclear Plant General Manager
R. Webring, Vice President - Operation Support
S. Wood, Manager, Chemistry

ITEMS OPENED AND CLOSED

Opened During this Inspection

50-397/00012-01	URI	Fire Brigade membership drill training not consistent with the NRC approved program (Section 1R05.2).
50-397/00012-02	URI	Potentially inadequate corrective actions for safety-related breakers (Section 1R15).

Previous Items Closed

50-397/2000-002-00 and -01	LER	Potential for water hammer condition in reactor core isolation cooling system (Section 4OA5).
50-397/2000-003-00	LER	Unit trip and reactor scram due to protective relay control circuit failure (Section 4OA5).
50-397/2000-004-00:	LER	Failure to reset an isolation signal caused an emergency safety features signal to be generated that resulted in the closure of all eight main steam isolation valves (Section 4OA5).
50-397/2000-005-00	LER	Failure to completely bypass the low condenser vacuum trip caused an emergency safety features signal to be generated that resulted in the closure of all main steam isolation valves while the plant was shutdown (Section 4OA5).

LIST OF ACRONYMS USED

CFR	Code of Federal Regulations
LER	Licensee Event Report
NCV	noncited violation
NFPA	National Fire Protection Association
NRC	Nuclear Regulatory Commission
URI	unresolved item

ATTACHMENT 2

NRC's REVISED REACTOR OVERSIGHT PROCESS

The federal Nuclear Regulatory Commission (NRC) recently revamped its inspection, assessment, and enforcement programs for commercial nuclear power plants. The new process takes into account improvements in the performance of the nuclear industry over the past 25 years and improved approaches of inspecting and assessing safety performance at NRC licensed plants.

The new process monitors licensee performance in three broad areas (called strategic performance areas): reactor safety (avoiding accidents and reducing the consequences of accidents if they occur), radiation safety (protecting plant employees and the public during routine operations), and safeguards (protecting the plant against sabotage or other security threats). The process focuses on licensee performance within each of seven cornerstones of safety in the three areas:

Reactor Safety	Radiation Safety	Safeguards
<ul style="list-style-type: none">● Initiating Events● Mitigating Systems● Barrier Integrity● Emergency Preparedness	<ul style="list-style-type: none">● Occupational● Public	<ul style="list-style-type: none">● Physical Protection

To monitor these seven cornerstones of safety, the NRC uses two processes that generate information about the safety significance of plant operations: inspections and performance indicators. Inspection findings will be evaluated according to their potential significance for safety, using the Significance Determination Process, and assigned colors of GREEN, WHITE, YELLOW or RED. GREEN findings are indicative of issues that, while they may not be desirable, represent very low safety significance. WHITE findings indicate issues that are of low to moderate safety significance. YELLOW findings are issues that are of substantial safety significance. RED findings represent issues that are of high safety significance with a significant reduction in safety margin.

Performance indicator data will be compared to established criteria for measuring licensee performance in terms of potential safety. Based on prescribed thresholds, the indicators will be classified by color representing varying levels of performance and incremental degradation in safety: GREEN, WHITE, YELLOW, or RED. GREEN indicators represent performance at a level requiring no additional NRC oversight beyond the baseline inspections. WHITE corresponds to performance that may result in increased NRC oversight. YELLOW represents performance that minimally reduces safety margin and requires even more NRC oversight. And RED indicates performance that represents a significant reduction in safety margin but still provides adequate protection to public health and safety.

The assessment process integrates performance indicators and inspection so the agency can reach objective conclusions regarding overall plant performance. The agency will use an Action Matrix to determine in a systematic, predictable manner which regulatory actions should be taken based on a licensee's performance. The NRC's actions in response to the significance (as represented by the color) of issues will be the same for performance indicators as for inspection findings. As a licensee's safety performance degrades, the NRC will take more and increasingly significant action, which can include shutting down a plant, as described in the Action Matrix.

More information can be found at: <http://www.nrc.gov/NRR/OVERSIGHT/index.html>.