

U.S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-397/84-26
Docket No. 50-397 License No. NPF-21
Licensee: Washington Public Power Supply System
P. O. Box 968
Richland, WA 99352
Facility Name: Washington Nuclear Project No. 2 (WNP-2)
Inspection at: WNP-2 Site near Richland, Washington

Inspectors: *P.H. Johnson* 11/1/84
for A. D. Toth, Senior Resident Inspector Date Signed

P.H. Johnson 11/1/84
for R. S. Waite, Resident Inspector Date Signed

P.H. Johnson 11/1/84
for A. D. Johnson, Enforcement Officer Date Signed
(September 10-21, 1984)

Approved by : *P.H. Johnson* 11/1/84
P. H. Johnson, Chief, Reactor Projects Section 3 Date Signed

Summary:

Inspection on September 1-30, 1984 (Report No. 50-397/84-26)

Areas Inspected: Routine, unannounced inspection by the resident inspectors of control room operations, engineered safety feature status, surveillance program, maintenance program, power ascension test program, licensee event reports, special inspection topics, and licensee action on previous inspection findings.

The inspection involved 269 inspector-hours onsite by two resident inspectors and a regional office inspector, including 40 hours during backshift work activities.

Results: No violations or deviations were identified.

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DETAILS

1. Persons Contacted

Washington Public Power Supply System

R. Corcoran, Operations Manager
K. Cowen, Technical Manager
J. Landon, Maintenance Manager
J. Martin, Plant Manager
J. Peters, Administrative Manager
P. Powell, Licensing Manager
C. Powers, Assistant Plant Manager
J. Shannon, Director of Power Generation
D. Walker, Plant Quality Assurance Manager
S. Washington, Acting Reactor Engineering Supervisor

The inspectors also interviewed various control room operators, shift supervisors, shift managers, and engineering, quality assurance, and management personnel relative to activities in progress and records examined.

2. General

The Senior resident inspector and/or the resident inspector were onsite September 4-7, 9-13, 17-21, and 23-28. Backshift inspections were conducted routinely during this period, with emphasis on the 5:00 to 7:00 a.m. shift transition period. Several regional office inspectors visited the site this month for routine inspection activities. Their activities were documented in other separate inspection reports. These included:

Regional office inspectors (D. Willett, and R. Kanow) were on site September 10-14 to perform routine inspections of plant records.

A regional office inspection supervisor (J. Crews) and a consultant from Livermore Laboratories (Long Shieh) were on site September 10-13 to review licensee actions related to reactor feedwater piping damage.

3. Plant Status

Test Condition #3 testing has been under way at power levels up to 75%.

4. Operations Verifications

The resident inspectors reviewed the control room operator and shift manager log books on a daily basis for this report period. Reviews were also made of the Jumper/Lifted Lead Log and Nonconformance Report Log to verify that there were no conflicts with Technical Specifications and that the licensee was actively pursuing corrections to conditions listed in either log. Events involving unusual conditions of equipment were discussed with the control room personnel available at the time of the review and evaluated for potential safety significance. The licensee adherence to LCO's, particularly those dealing with engineered safety

features (ESF) and ESF electrical alignment, were observed. The inspectors routinely took note of activated annunciators on the control panels and ascertained that the control room licensed personnel on duty at the time were familiar with the reason for each annunciator and its significance. The inspectors observed access control, control room manning, operability of nuclear instruments, and availability of onsite and offsite electrical power. The inspectors also made regular tours of accessible areas of the facility to assess equipment conditions, radiological controls, security, safety and adherence to regulatory requirements.

During walkdown inspection of the control room ventilation system the inspectors identified a blocked-open isolation valve (WOA-V-52B), in one remote air intake line. The valve had apparently failed in the open position as required, and had been deenergized and blocked open pending repairs by the vendor. A control room log entry by the Assistant Plant Manager declared that the valve was operable. The inspectors interviewed plant management and the engineering staff relative to analyzed radiological and chlorine events, and requested that the license document the engineering basis, including an assessment relative to 10 CFR 50.59. This was completed in a technical memorandum dated September 21, 1981. The analysis addressed the applicability of technical specifications Section 4.7.2.e.2, Section 4.3.7, Table 3.3.7.1-1 (Action 70 Note a), and Section 3.3.7.8 (Action a). The basis concluded that the failed open position was preferable for this valve, an unreviewed safety question was not involved, and there was no threat to public safety. It did identify a conflict in the intent of the specification, with respect to definition of isolation valves relative to chlorine monitor actions; the licensee committed to submit a clarification by December 1, 1984. The analysis supported the control room log entry.

No violations or deviations were identified.

5. Engineered Safety Feature Verification

The inspector verified the operability of the Standby Service Water System by performing a walkdown of the accessible portions of the system, including valves, instrument racks and electrical switchgear and motor control centers. Valve positions were compared to positions prescribed by valve lineup lists and as shown on the P&ID's. Instrument rack instrument operability was noted, including positions of instrument isolation valves. Electrical power supply was confirmed for valve motors by checking positions of breakers in motor control centers.

During the walkdown the inspectors noted several discrepancies between the actual plant conditions and the licensee procedures:

- a. Procedure 2.4.5, "Standby Service Water System" (Revision 4, dated 5/23/84), provides detailed instructions for system operations. System valve lineup and power supply checklists are provided and are required to be completed as part of the prerequisites. The inspectors identified four items in the power supply checklist which are listed as having the wrong power supply:

- (1) Valve SW-V-34 listed MC-7B, actual MC-8A
- (2) Valve SW-V-90 listed MC-4A, actual MC-7A-A
- (3) Heater PRA-EUH-4A, listed MC-7A-A, actual: unidentified
- (4) Heater PRA-EUH-4B, listed MC-8A-A, actual: unidentified

The above discrepancies were identified at the end of the report period. One item (regarding valve SW-V-34) was identified to an operator, who promptly initiated action to write a procedure deviation to correct it. The remaining items were identified to licensee management on September 28, at which time a commitment was made to review the matter. (Procedure deviations were issued and subsequently approved by the plant operations committee on October 4).

At the exit meeting on September 28, the inspector discussed this matter with respect to previous similar inspection findings, and the previously identified concern that such findings indicate that all procedure authors or reviewers were not walking down procedures prior to final approval, and all users of the procedures were not identifying the discrepancies existing in the approved procedures. This matter will be further addressed with respect to the NRC letter to the licensee dated August 7, 1984 (prior open item 84-18-03).

- b. The procedure PPM-7.4.1.1.1 required that certain manually operated flow control valves be wired and sealed. The inspectors noted several room cooler flow control valves which currently had the seals broken or absent (e.g., SW-V-66A). These conditions may have occurred during or after required flow adjustments. The licensee committed to review this matter. Future inspections will assess flow rates for valves with tampered seals, relative to any inability of annunciators or routine instrument checks to detect degraded system capability. (Followup Item 84-26-01).

6. Surveillance Program Implementation

The inspectors ascertained that surveillance of safety-related systems or components was being conducted in accordance with license requirements. In addition to observation of, and sometimes witnessing and verifying daily control panel instrument checks, the inspectors observed portions of several surveillance tests by operators and instrument and control technicians.

a. High Drywell Pressure - Channel Functional Test CFT

The inspector observed performance of approved surveillance procedure 7.4.3.3.1.42, "High Drywell Pressure RCIC, LPCI(B&C) and ADS(B) Systems - CFT". The inspector verified that proper administrative approval was obtained prior to commencement of work, that appropriate health physics procedures were adhered to, that instrumentation was calibrated, and that the procedure was followed. The inspector also observed the performance of portions of approved

surveillance procedure 7.4.3.1.1.54, "RPS Primary Containment Pressure - High B, D - CFT". The inspector noted that even though administrative approval was obtained to perform both surveillances simultaneously, the I&C technicians performed them sequentially in order to prevent possible errors due to the small area in which both procedures were to be performed.

No violations or deviations were identified.

b. RWCU High Flow - CFT

The inspector observed the performance of approved surveillance procedure 7.4.3.3.1.42, "RWCU High Flow - CFT". The inspector verified that proper administrative approvals were obtained prior to the start of work and that instrumentation was calibrated. During performance of this test, jumper installation is required by the procedure. This jumper was obtained from the Shift Manager, however, the procedure did not specify where to obtain it. The procedure did not specify that redundant verification was required, however, the two (2) I&C technicians appeared to provide redundant verification of the installation and removal. The Shift Manager was not notified prior to removal of the jumper. The inspector independently verified removal of the jumpers installed. This item is considered followup action to noncompliance item 84-18-03.

No violations or deviations were identified.

7. Monthly Maintenance Observation

Portions of selected safety-related maintenance activities were observed. By direct observation and review of records the inspector determined whether these activities were violating LCOs, that the proper administrative controls and tagout procedures were followed, and that equipment was properly tested before return to service; and independently verified that the equipment was returned to service. The inspector also reviewed the outstanding job orders to determine if the licensee was giving priority to safety-related maintenance and that backlogs which might affect system performance were not developing. A special inspection was conducted by a regional inspector relative to use of information in vendor manuals, and control of that information (Paragraph 10).

No violations or deviations were identified.

8. Power Ascension Test Program

The inspectors examined equipment, interviewed personnel, and reviewed records and procedures related to conduct of the power ascension program described in Chapter 14 of the FSAR.

a. Recirculation Pump Trip Test

The inspector witnessed the recirculation system loop-A one pump trip test on September 10. This test was performed at 60% power,

(rather than 75%) due to last minute questions raised by a site General Electric Company representative. During the test the second pump tripped as flow was reduced from the first pump trip.

The inspector witnessed the first attempt to conduct the two pump trip test on September 10. However, the instrument technician had misinterpreted the installation drawing in the test procedure, and incorrectly connected the test initiation test-box. When the key was turned, the reactor protection system overloaded four fuses which tripped the reactor, terminating the test. The installation was prescribed accurately by the procedure drawing, but both the technician and the independent verification individual (prescribed within the procedure) misinterpreted the notations.

The inspector witnessed the recirculation system loop-B one pump trip test on September 25. This test was performed at 75% power, after clarification of the General Electric requirements. Reactor power changed smoothly along the power-flow map with reactor level swell well within bounds to avoid a reactor trip.

The inspector witnessed the recirculation system two-pump trip test on September 26. Reactor power changed smoothly along the power-flow map with reactor level swell well within bounds to avoid a reactor trip. A 20% reduction in reactor pressure, 36% power reduction, and 11-inch reactor level increase characterized the transient. Preliminary results indicated that the pump inertia was sufficient to yield a flow coastdown time constant at least as great as the 5-second Level I criterion defined by the FSAR figure H.6.2-1. However, the flow coastdown appeared to be longer than established in the 6-second time constant Level I criterion of the test procedure. There appeared to be unexpected instrumentation time constant contributions to the coastdown measurements, which were still under analysis by the licensee at the end of this report period. Resolution of this matter was evaluated by the licensee as not prerequisite to performance of the turbine trip test from 75% power. However, resolution of this matter prior to entry into the next test condition will be ascertained in accordance with Section 14 of the FSAR. (Followup item 84-26-02)

For the above tests, the inspector ascertained that sufficient operations crew and support personnel were present and briefed prior to the test, test prerequisites were addressed faithfully by the test coordinators (Shift Technical Advisors), and procedures were adequate to control the test and not significantly amended to alter conclusions of prior NRC review. The inspector independently verified instrument readings during the tests, and examined data as it was printed out during and after the test. The inspector independently verified whether the acceptance criteria were met or not met during the test.

No violations or deviations were identified.

b. Core Performance Tests

The inspector ascertained that core performance data were obtained from the process computer system prior to and after power ascension tests this period. The inspector also observed operations and engineering staff conduct of portions of the traversing in-core probe (TIP) calibrations, particularly center hole correlation measurements. When a minor problem resulted in an irregularity of data for one traverse, the computer engineer confirmed that all prior data for that calibration would not be accepted by the process computer, and that the in-core traverses would be repeated.

No violations or deviations were identified.

c. Primary Containment Integrated Leak Rate Test

The leak test was conducted February 8, 1984. During the test, suppression pool water was found flowing through the HPCS pump suction valve, the pump, and a partially open test valve to the condensate storage tank. The licensee closed the suction valve, which is the containment isolation valve for HPCS. A subsequent licensee engineering review of preoperational test results indicated that such isolation of the HPCS may not be desirable under certain LOCA conditions, and introduced the question of leak tightness verification requirements for the test line valve. The licensee staff issued nonconformance report NCR-284-202 March 15, 1984 to obtain additional engineering evaluation and corrective action, if required. As of the end of this report period (September 30), an approved disposition of this matter had not yet been defined. The licensee's final action on this matter will be reviewed during a future inspection. (followup item 84-26-03)

d. Corrective Actions

During the power ascension testing program activities, various plant problems occurred which required corrective actions. The licensee conducted investigations and tests to resolve the items. The licensee organization applied its own staff and brought outside consultants to assist in addressing the problems:

- (1) Turbine Generator Digital Electro Hydraulic Control Instability: Some flow control instability affected the reactor water level control in a cyclic manner. The licensee brought Westinghouse and General Electric consultants to investigate the problem, and deferred the power ascension until the problem was resolved. Power level was restricted during this time.
- (2) Reactor Feedwater System Pipe Support Damage: Pipe supports outside the reactor building were damaged due to slow thermal transient effects. The licensee consulted Burns and Roe and Bechtel engineering personnel to oversee the licensee's engineering efforts to resolve the problem. The plant was shut down until repairs were completed. This matter was examined in

a Region V special inspection conducted during this report period.

9. Licensee Event Reports

The inspector reviewed each of the LER's issued during the current report period. Each of these is considered to be closed unless noted otherwise below. The inspector verified that reporting requirements had been met, causes had been identified, corrective actions appeared appropriate, generic applicability had been considered, and the LER forms were complete. Additionally, for those reports identified by asterisk, a more detailed review was performed to verify that the licensee had reviewed the event, corrective action had been taken, no unreviewed safety questions were involved, and violations of regulations or Technical Specification conditions had been identified.

LER-84-084 * Unusual Event Due To Offsite Fire

LER-84-091 * RHR Isolation and Reactor Low Water Level Trip

LER-84-095 * Reactor Scram Initiated by Incorrect Test Connection

LER-84-096 * Unusual Event Declared During Reported Fire

*items which were examined on site and which are closed.

The following items were examined on site by the resident inspectors:

(Closed, 84-084): The inspector witnessed the prairie grass fire and the fire fighting efforts of the Department of Energy during the evening of August 12, and examined the vicinity of the WNP-2 plant the following day. There appeared to be no consequence to the plant. However, subsequent dust storms appeared to carry more particulates. The licensee has a documented surveillance program for assessing spray pond sediment buildup (PPM-7.4.7.1.3). The records for June 1984 indicated essentially no buildup for the prior 3 month period. The September 1984 record showed an average of 3-inches buildup for the prior 3-month period. Sediment buildup had not reached the 6-inch action level, and the surveillance frequency appeared appropriate to assure identification and correction of excessive buildup prior to unacceptable reduction in spray pond water inventory.

(Closed, 84-091): The inspectors examined equipment, procedures and drawings and interviewed personnel relative to the unnoticed RHR pump suction valve isolation. Operators apparently did not notice the isolation due to their attention to other transient plant parameters, such as the vessel temperatures prescribed by the procedure. This isolation allowed the RHR heat exchanger to partially drain through a low flowrate line, creating a void in the system. Reactor vessel water drained into this void when the isolation valve was later reopened. The operating procedure (PPM-2.4.2) had been revised several times such that the current revision 4 no longer used the valve E12-007 for filling the RHR suction line (as described in FSAR Sections 5.4.7.2.6 and Q-211.026). However, the opening of valve RHR-V-8 prior to pump start appeared to

meet the intent to prefill the line. Closure of the valve upon high flow rate into the unfilled line apparently was not anticipated.

The Procedure Revision Form (1/28/84) indicated that the revision did not constitute a change to procedures as described in the FSAR. This appeared to be based upon the intent to prefill the suction pipe. The inspector requested the licensee to reconsider the need for correction of the FSAR details.

(Closed, 84-095): The inspectors examined the test device, test procedure PPM-8.2.30B and the included test switch connection diagram, and interviewed the technician and shift technical advisor (STA) relative to the inadvertent scram which occurred upon initiation of the recirculation system two-pump trip test. The test procedure adequately specified independent verification of proper installation, and the STA initialled this step and stated that he had performed the verification. The connection drawing included reference numbers which keyed to secondary identification numbers in a footnote. Apparently both personnel had not examined the connection drawing carefully to recognize the implications of the footnote.

(Closed, 84-096): The inspectors examined equipment and interviewed personnel relative to a fire which had occurred in the fire pump diesel house (outside the plant). The inspectors especially looked for possible damage to electrical or control cable in raceways, and found no problems.

No violations or deviations were identified.

10. Regional Office Meeting

On September 24, 1984, the Supply System Managing Director, Director of Power Generation, WNP-2 Plant Manager and other staff members visited the Region V office in Walnut Creek, California, to present plant status data. This included a summary of their perception of the plant and staff performance, and a summary of their approach to and results of analysis of the feedwater system pipe support damage on September 11. No directives, action items, or commitments were developed at this meeting.

The inspector examined (on site) the reports of performance trends discussed by the Plant Manager at the regional meeting. These had been compiled by the licensee's plant and corporate staffs for senior management review. The documents appeared to provide useful profiles for management consideration. They included matters such as numbers of outstanding items of various types and aging data for such items. They included performance standards in some, but not all, areas.

No violations or deviations were identified.

11. Special Inspection Topics - Use of Vendor Supplied Information

The inspector examined procedures and records, interviewed personnel, and examined equipment relative to application of information provided by suppliers of plant safety-related equipment.

a. Plant Procedures:

The licensee's controls require that all safety-related work be accomplished pursuant to written instructions or procedures as permitted and authorized by section 6.8 of the facility technical specifications.

The preparation, approval and use of the safety-related maintenance procedures available at the plant were discussed with the supervisors of the mechanical, electrical, and instrument and control maintenance groups. According to those individuals, in all three areas of maintenance, the developed procedures were based in whole or in part on the information contained in the documents supplied by the equipment vendors.

The inspector selected 16 mechanical, 14 instrument and control, and 8 electrical safety-related maintenance procedures for examination and comparison with vendor information to determine whether or not the plant procedures were consistent with the related vendor recommendations. Vendor recommendations compared included lubricants, torque values, tolerances, disassembly and reassembly sequences, cleaning solvents, gasket materials, voltages, currents, and frequencies. The inspector found that the plant procedures were consistent with the vendor information.

b. Certification of Vendor Information (CVI)

The licensee has established a procedure (1.6.3) to provide a uniform method for reviewing and controlling vendor operating and maintenance (O&M) manuals and revisions thereto. The procedure requires that all vendor information be evaluated by responsible designees in operations, engineering and maintenance prior to use of the information. A vendor manual review control form is used to document the reviews and acceptance and approval by the operating plant staff.

The inspector examined the vendor information records and file. The file contained about 900 vendor manuals. According to the licensee representatives, during a recent surveillance of the files, about 90 update items were identified for certification. This update effort was expected to be completed by the end of 1984. The inspector also examined 30 vendor manuals in the files and found the status of the manuals to be appropriately identified. In addition, about 90 records, certifying information obtained with items purchased subsequent to construction completion, were examined and found to be in order.

c. Inspector Observations:

The following observations were made by the inspector during the course of the inspection:

- (1) All licensee personnel contacted by the inspector were aware that vendor manuals and related materials were required to be

filed with the records group and that only certified information was to be used in connection with safety-related work.

- (2) Discrepancies in vendor information discovered during a recent valve repair were properly documented on a plant deficiency/nonconformance report. However, the procedure for handling nonconformances did not specifically address impact on certified vendor documents. The licensee committed to revise the nonconformance control procedure to address this.
- (3) A substantial number of vendor manuals located in the maintenance shops had not yet been certified. Those not certified were identified and instructions posted that prior to use the documents must be compared to certified ones (located in the upstairs records center). The licensee has assigned additional clerical resources to expedite the certifications to reduce the need for individuals to verify status of working documents with record copies prior to each use.
- (4) Information received by the licensee in the form of supplemental information, deficiency reports, INPO reports, NRC notices, etc., are reviewed for impact on plant safety-related procedures, but have not specifically been evaluated for impact on the certified vendor documents. The licensee committed to revise procedure 1.10.4 to address this area.
- (5) A licensee quality assurance surveillance, conducted during May 1984, identified the need for upgrading measures to assure proper handling, control, and use of vendor supplied information. The plant staff was found to be aggressively pursuing action to upgrade the control system as recommended by the quality assurance staff.

No violations or deviations were identified.

12. Licensee Actions on Previous NRC Inspection Findings

- a. The licensee had submitted replies to NRC citations which in some cases were not totally accurate. Particularly, statements of completed actions were not supported by the status of actions at the time of the reply, and thereafter. The licensee corrected these errors in correspondence to NRC dated September 20, 1984. Additionally, the inspector examined an internal memorandum from the plant manager to his senior staff, emphasizing the seriousness of the need for accuracy in interactions with NRC. The inspector observed that senior managers appear to have accepted this seriously.

- b. Current inspection findings related to a previous item:

(Open) Violation (84-22-02): Additional examples of minor procedure inaccuracies were identified during routine inspections, as discussed in paragraph 5 of this report.

13. Management Meeting

On September 28, the inspectors met with the plant manager and his staff to discuss a summary of the inspection findings for this period. Attendees at this meeting are identified in paragraph 1. Additionally, the inspector met with the Plant Manager approximately weekly to review the status of inspection findings, and weekly with the department managers to define data and information needs relevant to the inspections in progress.