

U.S. NUCLEAR REGULATORY COMMISSION
OFFICE OF INSPECTION AND ENFORCEMENT

REGION V

Report No. 50-397/84-06

Licensee: Washington Public Supply System
P. O. Box 968
Richland, Washington 99352

Facility Name: Washington Nuclear Project No. 2 (WNP-2)

Docket No. 50-397

License No. NPF-21

Inspection at WNP-2 Site near Richland, Washington

Inspectors:	<u><i>A. D. Toth</i></u>	<u>4/30/84</u>
	A. D. Toth, Senior Resident Inspector	Date Signed
	<u><i>R. S. Waite</i></u>	<u>4/30/84</u>
	R. S. Waite, Resident Inspector	Date Signed
Approved by:	<u><i>R. T. Dodds</i></u>	<u>4/30/84</u>
	R. T. Dodds, Chief Reactor Projects Section 1	Date Signed

Summary:

Inspection on March 1-30, 1984

Areas Inspected:

Routine, unannounced inspection by the resident inspectors of control room operations, preparations for heatup phase of the power ascension test program, licensee event reports, and licensee action on previous inspection findings. The inspection involved 125 inspector-hours onsite by two resident inspectors, including 13 hours during backshift work activities.

Results:

No items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

Washington Public Power Supply System

G. Afflerbach, Assistant Plant Manager
P. Beers, Startup Engineer
R. Corcoran, Operations Manager
K. Cowen, Technical Manager
A. Jones, Fire Protection Engineer
J. Landon, Maintenance Manager
J. Martin, Plant Manager
J. Peters, Administrative Manager
P. Powell, Licensing Manager
C. Powers, Reactor Engineering Supervisor
J. Shannon, Director of Power Generation
D. Walker, Plant Quality Assurance Manager

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

2. General

The Senior resident inspector and/or the resident inspector were onsite March 1-2, 13-15, 19-24, and 26-30. Backshift inspections were conducted March 19, 20, 24, 26 and 28.

Several regional office inspectors visited the site this month for routine inspection activities. Their activities were documented in other separate inspection reports. These included:

A regional office operations inspector (D. Willett) was onsite March 1-2 to review power ascension test procedures and NUREG-0737 action items.

A regional office inspector (L. Ivey) was onsite March 19 to review the emergency response program and the telecommunications equipment. He was accompanied by D. Astley, U. S. Dept. of Interior, Boise Interagency Fire Center.

Regional office inspectors (D. Willett, D. Hollenbach and J. Ball) were on site March 19-23 to review quality assurance program implementation.

A regional office radiation specialist (G. Yuhas) was on site March 19-23 to review status of preoperational tests of radiation monitoring systems and status of resolution of license conditions.

A regional office inspection supervisor (R. Dodds) was onsite March 13-14.

Two operator licensing inspectors (R. Pate) from the regional office and (L. Wiens) from headquarters were on site March 20-21 to conduct reactor operator examinations.

Management and staff of NRC Division of Nuclear Reactor Regulation (H. Denton, W. Russell and D. Wheeler, R. Auluck, and D. Houston) were onsite March 1 to review the plant status and status of several items under consideration in the full power license process.

An NRC Commissioner (F. Bernthal) was onsite March 2; he also attended a local Chamber of Commerce luncheon as guest speaker.

An NRC Commissioner (J. Asselstine) was onsite March 14; he was accompanied by NRC managers and staff (R. Minogue, J. Austin and S. Droggitis).

The NRC Chairman (N. Palladino) was onsite March 28, accompanied by his technical assistant (J. Garner).

The Regional Administrator (J. Martin) was onsite March 28.

3. Plant Status

The reactor has been cold shutdown since completion of open vessel critical tests in January. Completion of preoperational tests and preparations for heatup were in progress in March. On March 30 the NRC Commissioners voted to allow the NRC staff to lift the 5% power license condition.

4. (71707) 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's adherence to LCO's, particularly those dealing with 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.

5. Licensee Event Reports

During reviews of the control room logs or meetings with plant staff the inspectors examined circumstances of events which had been reported to NRC by the licensee under 10 CFR 50.72, including the following:

a. ADS Solenoid Valve Internal Electrical Grounds

During preoperational tests and preparation for initial operations there were seven instances of 125 VDC electrical grounds in the solenoids on the valves which control air to the air actuators of the Automatic Depressurization System (ADS) Safety Relief Valves. These solenoid valves are manufactured by Crosby Valve and Gage Co. (model number 66274) and were supplied by GE. The grounding was apparently caused by nicks in the internal wiring which runs over a sharp edge within the solenoid valve. The licensee has performed a 500 volt megger test recommended by GE and determined that 11 of 61 solenoid valves tested were defective. The licensee performed additional testing in which each ADS solenoid valve was cycled 10 times and then retested. One additional valve developed a ground during this test. GE was notified and the failed valve was returned for further investigation as to the mode of failure. The licensee has replaced the defective valves which were installed in the plant with new solenoid valves tested as being acceptable.

When a ground occurs in the ADS solenoid valve it is detected on the ground indication lights on the 125 volt bus which supplies control power to the solenoid. Depending on the severity of the ground, a second ground could be unnoticed on these ground indication lights. A single ground in the solenoid unit may not cause activation of the solenoid or prevent the solenoid from activating if required; however, a second ground in the same circuitry could disable the solenoid unit and prevent its actuation. Two redundant solenoid valves and logic channels exist for each ADS valve, therefore failure of one solenoid valve would not inhibit ADS actuation if required. Plant procedural controls for investigation and action on electrical grounds will be further examined. (Followup Item 50-397/84-06-01).

b. Standby Diesel Generator Fast Starts (LER-009 & 023)

The issue of technical specifications provided with the operating license included a text change which indicated that diesel generator starts from ambient conditions shall be preceded by an engine prelube period and/or other warmup procedures recommended by the manufacturer to minimize mechanical stress and wear on the engine. The installed diesels do not have control capability to permit running at slow speeds to accomplish such prelubrication. The licensee reported this inconsistency to NRC and documented this by LER-9 and 23. The inspector participated in telephone conversations with the NRC technical specification reviewer who confirmed that the intent of the wording was not to mandate slow starts without exception, but rather to relieve the licensee from implied requirements for fast start of the diesel for every surveillance test. The licensee has submitted a request to change the technical specifications to clarify the wording, and also to obtain

engineering design for a modification to eventually allow optional operation of the diesels at speeds below synchronous speed. This matter remains open pending NRC final action on the proposed technical specification change. (Open Item 397/84-06-02)

c. Excess Flow Check Valves (LER-010)

In 1979 the onsite installation contractor had returned sixteen excess flow check valves (for small diameter sample lines) to the supplier for modification. This was done under engineering direction, to allow use of the valves for gas service. The modification involved changing of a spring in the actuator. The supplier identified the modified valves with a small "A" on the valve bodies, and identified the modified valves by serial number in his data reports. Subsequent installation in the field utilized a part number designation from design drawings, and apparently did not recognize the significance of individual serial numbers; this and the identical exterior appearance of the valves apparently resulted in installation of some of the air valves in water service, and water valves into air service. The licensee has tagged the installed valves for air service, and initiated modifications to drawings and maintenance procedures to highlight the differences and instruct maintenance personnel in the application of the different springs.

d. Failure of Scram Relay Contactors (LER-011)

Auxiliary contacts mount on the side of a General Electric relay in the reactor trip system. A small spot weld failed, which held a $\frac{1}{4}$ " by $1\frac{1}{2}$ " metal contactor arm to its anchorage; the arm fell into the assembly in such a manner as to create a continuous closed state of the electrical circuit. In this case, the result was a constant 1/2 scram. The licensee has initiated action to install new model replacement auxiliary contacts into the K14 reactor trip relays. This matter is the subject of an existing GE Service Information Letter.

e. Inadvertant Start of Diesel Generator (LER-005)

LER-005 reported inadvertent start of the HPCS diesel generator. This occurred due to the maintenance electrician withdrawing a fuse block from an incorrect cabinet, not that prescribed by the work request. Aside from this electrician error, the inspector identified that the control room operator had not placed the diesel engine into maintenance lockout; it could have auto started while the electrician worked on the generator called for by subsequent steps of the work order. The system engineering authors of the work order stated that such precautions are consciously omitted from the work orders, since the responsibility for considering integrated plant precautions rests with the operations staff. In response to the inspector's concern that some valuable advance planning may be discouraged, the licensee described efforts to generate additional, generic type, maintenance instructions which would address such items. These procedures will be considered during further

inspections of maintenance work activities. (Followup item 397/84-06-03).

f. GTE Sylvania Relay Type PM 7205 Catalog 5U8

On March 19 the motor relay for fan WMA-AR-32B failed to open when de-energized. The inspector witnessed onsite disassembly and testing to ascertain possible presence of the shaft notch effect as described for series 5U12 relays in NRC Circular 79-20. Such notching was not observed, nor was a cause identified for failure of this relay. The licensee identified 14 similar relays installed in the plant, in response to the NRC Circular, and issued a maintenance work request (MWR-AY-2376) to inspect and replace as necessary, including a program for future inspection scheduling.

6. (92706) Plant Tour Followup Matters

The following matter was identified during a inspection of general plant conditions:

a. Gouge in Reactor Water Cleanup Piping

The inspector noted a gouge in a section of Reactor Water Cleanup (RWCU) piping at support RWCU-42, located on the 471' elevation of the reactor building. This item was not identified on existing quality records (i.e., Reverification System Report for RWCU Piping (4.1), weld history record Form NF-6A, Rev. 2 dated 8/9/79, Hanger Inspection Checklist for Isometric #699-5.7 (Rev. 8), Bechtel QC Inspection Record Log No. LP 1.10-1549 (Bechtel record of walkdown of this portion of the system to examine the piping for gouges, undercuts, and arc strikes). The inspector and one of the licensee QC inspectors measured the gouge and found it to be borderline, but acceptable, under the criteria of the ASME Code (1971), Section III, NC-4000 which allows acceptance of indications of a depth less than 1/32 inch (per NB-4424). The licensee QC inspector and a mechanical engineer also performed ultrasonic measurement of the wall thickness in the vicinity of the gouge which proved that the gouge did not encroach on the minimum design wall thickness. The licensee QC department and the resident inspector found the gouge acceptable and the engineer agreed to document this evaluation in the work package for the piping or hanger.

No items of noncompliance or deviations were identified.

7. Licensee Actions on Previous NRC Inspection Findings

The inspectors reviewed records, examined plant conditions, and interviewed personnel regarding the licensee actions in response to the following previously reported NRC observations and findings:

- a. (Closed) Open Item (397/83-50-04) - Unlagged redundant cable panels on systems required for safe shutdown.

The inspector observed cable and electrical panel protection in the form of thermal lagging on the Division 2 distribution boxes which had been previously unlagged. These distribution boxes are specifically TB-R301 located on elevation 471' and TB-R313 located on elevation 501'. The redundant cable panels TB-R300 on elevation 471' and TB-R322 on elevation 522' are Division 1 panels and remain unlagged. The licensee has met the requirements of Section III.G, Appendix R, 10 CFR 50 with respect to these panels. This item is considered closed.

- b. (Open) Noncompliance (397/83-60-01) - Failure to complete maintenance corrective actions.

The inspector reviewed status of licensee actions described in the WPPSS March 22, 1984 reply letter to NRC, as relate to assurance that previously identified discrepancies have been fully corrected as needed prior to commencement of initial reactor heatup.

The maintenance manager and staff have completed a review of 492 MWR's previously closed between December 23, 1983 and February 6, 1984 to identify any with uncompleted work. The quality assurance department has completed a review of identified MWR's closed in the period April 1, 1983 to December 23, 1983. The maintenance manager stated that several documentation finalization problems were identified, but no cases of significant hardware incomplete. The engineering department had not completed its review of the MWR's questioned by Quality Assurance at the end of this report period, but agreed to assure that all deficiencies were evaluated prior to start of plant heatup. The quality assurance department also identified some MWR's which could not be located in the files of originals, but which further review may locate in carbon copy duplicate files onsite. This matter remains open pending completion of the reviews and evaluations.

8. Heatup Phase of Power Ascension Program

The licensee's program for testing of pipe supports and restraint systems during the heatup phase of the power ascension program was reviewed by the inspector. This review included examination of component support data sheets and ambient inspection of several installed supports and restraints. The licensee's training program for the licensee inspectors assigned to this test function was also reviewed. The inspector reviewed licensee procedure 8.2.17, "Piping System Expansion and Vibration Tests" for technical adequacy and proper acceptance criteria. The inspector determined that the licensee's program and plant procedure 8.2.17 appeared acceptable and consistent with FSAR commitments.

No items of noncompliance were identified.

9. NRC Inspection Staff Availability to Plant Staff

The resident inspector requested the licensee assistance in establishing several measures to assure that all plant staff are aware of the presence and availability of the NRC inspection staff. The licensee has erected a

large identifying sign on the office building which houses the NRC Resident Inspector office, which includes the office telephone number; posted the location and telephone numbers of the NRC inspectors in the several permanent bulletin boards on the site, and established an NRC enclosed bulletin board in the service building lobby with photographs and telephone numbers of the resident inspection staff. The plant telephone directory also includes the names and numbers for the resident inspectors. The inspector acknowledged the licensee's cooperation in this matter.

10. Management Meeting

On April 5, 1984 the inspectors met with the plant manager to discuss a summary of the inspection findings for this period. Inspectors from the regional office attended this meeting (R. Kanow and T. Polich).