

U. S. NUCLEAR REGULATORY COMMISSION  
REGION V

Report No. 50-397/84-15

Docket No. 50-397

License No. NPF-21

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

Facility Name: WNP-2

Inspection at: WNP-2 Site, Benton County, Washington

Inspection Conducted: May 29 - June 8, 1984

Inspectors:

R. T. Dodds  
D. J. Willett, Reactor Inspector

7/29/84  
Date Signed

R. T. Dodds  
A. D. Johnson, Enforcement Officer

7/29/84  
Date Signed

R. T. Dodds  
R. Waite, Resident Inspector, WNP-2

7/29/84  
Date Signed

R. T. Dodds  
D. Carpenter, Resident Inspector, South Texas

7/29/84  
Date Signed

Other Accompanying  
Personnel:

R. T. Dodds  
D. Hill, Consultant, EG&G Idaho, Inc. (EG&G)

7/29/84  
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Approved By:

R. T. Dodds  
R. T. Dodds, Chief  
Reactor Projects Section 1

7/29/84  
Date Signed

Summary:

Inspection on May 29 - June 8, 1984 (Report No. 50-397/84-15)

Areas Inspected: Special team inspection of the operating crews, information turnover/exchange between crews, awareness of plant/system status, limiting conditions of operation and technical specification compliance, adherence to procedures and administrative controls, removal and restoration of systems/components from/to service during maintenance and surveillance activities. The organizational integration and utilization of technical advisors (STA's) on shift and management's involvement and awareness of plant status and problems were also inspected.

This inspection involved 278 inspection hours (including 200 hours devoted to routine inspection program activities) by four NRC personnel and 68 inspection hours by one NRC consultant.

Findings: Of the seven areas inspected no violations were identified. The team found the operating staff's performance to be adequate. However, the following specific weaknesses (Follow-up Item 84-15-01) were identified for management consideration:

- a. Inconsistency in the implementation of walk-down and checklist turnovers at shift change, including failure to inform relief of an existing limiting condition for operation (paragraphs 3.a and d).
- b. An operator was not at-the-controls as defined by plant procedures for a brief period of time when the reactor was in mode 4 (shutdown) (paragraph 3.c.).
- c. Lack of awareness of plant status annunciators (paragraph 3.b).
- d. Independent verification not performed on diesel-generator emergency bypass switch position (paragraph 3.c).
- e. Lack of visibility of senior management in the control room (paragraph 5).
- f. Some shift details and events were not routinely being recorded in either the control operator's or shift manager's logs (paragraph 6).
- g. Work practices were not consistent with reliable and prudent operation (paragraph 7).

## DETAILS

### 1. Persons Contacted

- x\*D. W. Mazur, Managing Director
- x A. Squire, Assistant Managing Director
- x\*J. W. Shannon, Director
- x\*R. B. Glasscock, Director Licensing and Assurance
- + \*J. D. Martin, WNP-2 Plant Manager
- + \*G. K. Afflerbach, Assistant Plant Manager
- \*M. M. Monopoli, Manager Operational Assurance Programs
- + D. H. Walker, Quality Assurance Supervisor
- \*R. G. Graybeal, Manager Health Physics and Chemistry
- + \*R. L. Corcoran, Manager Plant Operations
- R. L. Beardsley, Shift Manager
- M. G. Kappl, Shift Manager
- W. D. Shaeffer, Shift Manager
- G. J. Kozcik, Shift Manager
- R. W. Conserriere, Shift Supervisor
- A. A. Langdon, Shift Supervisor
- S. L. McKay, Shift Supervisor
- H. D. Rockey, Shift Supervisor
- J. Wyrick, Shift Supervisor
- D. W. Mehar, Shift Supervisor
- R. J. Talbert, Shift Technical Advisor
- A. K. Wood, Shift Technical Advisor
- D. L. Gano, Shift Technical Advisor
- W. C. Manning, Equipment Operator
- \*W. Chin, BPA

The inspectors also held discussions with and observed the performance of other licensee and contract personnel during these inspections. These included licensed and non-licensed operators, plant staff engineers, technicians, administrative assistants and quality assurance personnel.

+Denotes those personnel present during the management meeting on June 4, 1984.

xDenotes those personnel present during the management meeting on June 7, 1984.

\*Denotes those personnel present during the exit interview on June 8, 1984.

### 2. Operating Assessment

#### General

This special team inspection was carried out by members of the Region V staff, a Resident Inspector of the Region IV staff and a NRC consultant from EG&G Idaho, Inc. (EG&G). Currently, this consultant also provides

contract assistance to the NRC staff in the conduct of operator license examinations for BWR facilities

To assess the performance of the operating crews, members of the inspection team were assigned to round-the-clock shift coverage commencing on May 30, 1984, when the plant was at approximately 20% power preparing for Reactor Core Isolation Cooling (RCIC) testing. The inspection teams shifts overlapped the plant crews shifts. Except for the period, Saturday mid-shift on June 2, the teams coverage was essentially continuous until the afternoon of June 7, 1984.

The above pattern of inspection permitted members of the inspection team to observe operating crew performance and turnover/information exchange, STA activities, and management involvement as well as the conduct of portions of the power ascension test program.

Operating crew performance was assessed based upon the team's observation of the conduct of routine plant evolutions during power ascension testing, the crew's response to unplanned events including turbine trips, reactor trips, and unscheduled shutdowns, and through discussions with individual operating crew members. Particular emphasis was given to the integration and involvement of the STA's and their role on shift.

The overall performance of the operating crews was considered by the special team to be average in plant knowledge and in the conduct of operating duties (including the use of and adherence to operating procedures) when compared to operators of similar size power plant facilities during initial operations early in the plant's life.

### 3. Operating Crews

#### a. Information Turnover/Exchange

The turnover of information regarding the status of systems, equipment and operational activities during shift changes was observed on a routine basis. Individual one-to-one turnover by shift managers and the control operators is administratively controlled by administrative procedure - PPM 1.3.6 "Shift Turnover". This procedure requires oncoming and off-going control room personnel to walk-down control boards/consols to verify checklist items and exchange other pertinent information.

The inspectors observed that, between the operating crews, there was inconsistency in the implementation of walk-down and checklist turnovers at the shift manager, control room operator and auxiliary operator levels. On several occasions, during this period, shift turnovers were completed entirely at a desk.

Besides the need for increased adherence to and more complete implementation of the shift turnover requirements, the team noted, that during turnovers, the large numbers of personnel in the control area, during the day and swing shift turnover, precipitated a noisy and distracting atmosphere for the control operators.

b. Awareness of Plant/System Status

Operator response to alarms appeared casual in many instances, very seldom were operators observed referencing the alarm response procedures. An inspector questioned the shift supervisor as to the reason that a fire alarm on the turbine deck was sealed in (there was no information tag on the alarm). The shift supervisor responded that there was something wrong with the system. The shift supervisor pursued the matter and later that day (approximately 7 hours) the alarm cleared when the system engineer cleaned the ionization detector.

An operator was questioned as to the reason for the LPCS pump discharge pressure high/low alarm, (alarms at greater than 450 psig or less than 40 psig). The operator said alarm must be low because pump was not running. The alarm response procedure says: 1. verify pressure  $\geq 450$  and  $\leq 40$  as read on LPCS-PI-57 on P612 and 3. if low, verify water leg pump is running and fill and vent system per PPM 2.4.3. Low pressure core spray. Pressure gauge LPCS-PI-57 does not exist in the control room on panel PG12. No procedure deviation form had been originated to correct the procedure. The inspector checked the pressure on the instrument rack E21-R002 (LPCS-P1-2) read 90 lbs and E21-R001 (LPCS-P15-1) read 80 lbs. The operator generated a maintenance work request based on the inspector's observations.

A team member questioned the shift supervisor as to the reason for the RCIC suction pressure high alarm. The supervisor responded that it was a result of water trapped in the suction lines expanding. The inspector noted that the control room panel RCIC suction pressure gauge was off scale high. This gauge only reads to 85 psig while the alarm comes in at  $\geq 91$  psig. The shift supervisor originated a problem report.

The lack of awareness of plant status annunciators was considered to be a weakness in plant operations.

c. Adherence to Procedures and Controls

The inspectors reviewed select procedures. This review included: operating, alarm response, surveillance and administrative procedures. The licensed operators were observed using these procedures during startup, paralleling the generator to the grid, controlled shutdown, control room surveillance observations and tests, and reactor trip recovery.

On June 1, the inspectors, during an operability check of the No. 2 diesel generator, found that the emergency bypass switch (bypasses minor diesel trip inputs during ESF actuation) was in the off position during standby instead of on as required by its line-up procedure (PPM 2.7.2.5B) and surveillance procedure (PPM 7.4.8.1.1.2.11). It appears that independent verification has not been fully implemented.



On June 5, the inspectors observed, that for a brief period, there were no operators "at the controls" as required in plant administrative procedure PPM 1.3.2 Shift Compliment and Functions. PPM 1.3.2 part 5A states: "At least one licensed operator shall be "at the controls in the control room when fuel is in the reactor." "At the controls" is defined and outlined, as a sketch, in Attachment I to PPM 1.3.2. The team did note, during this period, that the shift supervisor was with the shift manager in his office. The administrative procedure sketch of "at the controls" differs from the FSAR in that the FSAR includes the shift manager's office while the PPM excludes the shift manager's office. The regulatory position (Regulatory Guide 1.114 - Guidance On Being Operator At The Controls Of A Nuclear Power Plant) is that: "The operator at the controls should not under any circumstances leave the surveillance area defined by Regulatory Position 3 for any nonemergency reason without a qualified relief at the controls." Regulatory position 3 (see Reg. Guide) states: "Administrative procedures should be established to define and outline (preferably with sketches) specific areas within the control room where the operator at the controls should remain. The Supply System has committed to this position during the operational phase (FSAR Appendix C.3). The failure to comply with the licensee's own procedures, even though more restrictive than the FSAR, is considered a weakness in adherence to management control.

d. Limiting Conditions of Operation (LCO's) and Technical Specification Compliance

The team observed appropriate staffing levels and adherence to technical specifications applicable to the plants mode.

An inspector observed that, during a shift turnover (11 a.m.), the off-going shift manager did not identify to his relief that a limiting condition of operation (LCO) existed because the reactor building ventilation system was not maintaining a 0.25 inch H<sub>2</sub>O vacuum. The LCO existed because the reactor building supply fans were both out of service (as of 9:05 a.m.). The inspector informed the oncoming shift manager ( 12:00 p.m.) that the secondary containment pressure was at 0 and that he believed the plant was in an action statement, (tech spec 3.6.5.1-a. restore secondary containment integrity within 4 hours or be in at least hot shutdown within the next 12 hours...).

The shift manager placed the standby gas treatment system into operation, (both trains were required because of equipment configurations) to maintain secondary containment integrity (0.25 inch H<sub>2</sub>O vacuum).

4. Integration and Utilization of Shift Technical Advisors (STA's)

The inspectors observed the interface and interaction of the STA's with the operating crews while the plant was being started-up, at steady state power, during controlled shutdowns, a reactor trip and operational testing of the Reactor Core Isolation Cooling (RCIC) system. The STA's were actively involved in all aspects of shift activities. In preparation for the RCIC cold quick-start ascension test, on June 2, the STA conducted a briefing for all control room personnel participating in

the test. This briefing included a detailed discussion of: (1) the limitations of the system; (2) necessary precautions to be observed during the test; and (3) expected systems response. During the test the STA coordinated the test activities in the control room and the remote shutdown panel. During a reactor trip, on June 1, the STA was observed to be actively monitoring the reactor parameters and providing general assistance to the operating crew including preparation of portions of the reactor trip reports. Generally the licensee's policies for utilization of the STA's has resulted in a positive and effective use of technical resources and an added asset for the operating crews.

5. Management Involvement

The shift managers were observed to be actively involved and knowledgeable of events and activities occurring during their respective shifts. Operations department supervisors were observed reviewing surveillances, maintenance and shift manager's logs. Upper level site management was briefed on the activities and events of the previous swing and mid-shifts at the plan-of-the-day meetings every week day morning. Upper level managers were seldom observed in the control room and only on the day shift and not during off-hours and week ends. Senior corporate management and their managers were not observed in the control room during the inspection period. Involvement by upper level management appeared to be primarily limited to written instructions and telephone conversations.

6. Log Entries

The inspectors observed that some shift details and events were not being routinely recorded in either the control operators or shift manager's logs. The following are examples of items that need to be recorded.

On May 31 the inspectors could not determine, from the logs or operations crew, at what time rod movement ended during ascension to a steady state power of 20%. Steady state power was estimated, by the operations crew, to have been achieved about three hours earlier. The process computer was of no assistance since its clock was off from 1 to 3 hours and not a reliable source of information.

On June 2, during a walkdown of the control room panels, the inspector discovered that the chart recorder R-622 power was off (detects valve steam leakage for the RCIC room and reactor water clean up rooms no. 2, 3 and 4). This recorder provides alarms on the main control panel when pre-set limits are exceeded and as such, with power off, its record, trends and warning function were lost.

As previously discussed, incorrect position of the diesel trip bypass switch and recorder (R-622) turned off, were not entered in the logs. The team expressed the concern that without a complete account of activities and problems, management cannot obtain an accurate picture of operations towards which corrective actions and resources can be directed. This has added importance since management's time in the plant is limited.

## 7. Work Practices

Besides providing a base to evaluate increasing proficiency and performance standards, the team used this inspection to reinforce and convey to management, those concepts that are consistent with and necessary for reliable and safe plant operation. The team believes that their observations accurately reflect activities on a day to day basis.

The team expressed the concerns that some work practices were not consistent with reliable and prudent operation. The team observed:

- ° On two instances, that operators either stood on or knelt on the main control panel (by the turbine controls) to access the alarm cards for the main annunciator windows.
- ° Operations with constant alarms and off-scale indications for extended periods.
- ° A control operator not "at the controls" (as defined by Plant Administrative Procedure 1.3.2).
- ° During entry and exit of the main condenser, for tube leak inspections by control room operations personnel, radiation work permit (RWP) requirements were not fully adhered to. While the contamination levels were extremely low, these operations personnel were not setting a correct example or exhibiting an appropriate level of caution for less experienced workers.
- ° Administrative Procedure 1.3.7 - "Maintenance Work Request" requires the use of tags, (called problem ID, MWR ID on identification tags - depending on where you read), on equipment for which a maintenance work request (MWR) has been written, to preclude issuing a duplicate MWR for the same problem. These tags were also observed being used for out-of-service and out-of-commission. Some rudimentary equipment (such as radiation monitor TSC RE-2) had no information tags.
- ° Information tags on the alarm and control panels were obscuring some operational information (lights and switch positions). Sometimes information on these tags was out dated - one instrument information tag said information was not reliable although, on checking further, the equipment had been repaired. Some alarms/indications (long duration) did not have information, MWR, or problem status tags.

## 8. Exit Interview

The inspectors met with plant and corporate management representatives (denoted in paragraph 1) during and at the conclusion of the inspection on June 4, 7 and 8, 1984. The scope and findings of this inspection, which were discussed during the exit interviews, are summarized in paragraph 1 through 7 of this report.