

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-344/87-02

Docket No. 50-344

License No. NPF-1

Licensee: Portland General Electric Company
121 S. W. Salmon Street
Portland, Oregon 97204

Facility Name: Trojan Nuclear Plant

Inspection at: Rainier, Oregon

Inspection Conducted: February 2-6, 1987

Inspector:

David B. Pereira
D. B. Pereira, Reactor Inspector

2/11/87
Date Signed

M. M. Mendonca
M. M. Mendonca, Chief
Reactor Project Section 1

2/11/87
Date Signed

Summary:

Inspection During the Period of February 2-6, 1987 (Report No. 50-344/87-02)

Areas Inspected: Routine, unannounced inspection of the calibration program, operational safety verification, monthly surveillance observation, and the monthly maintenance observation. Inspection procedures 30703, 56700, 61726, 62703, and 71707 were used as guidance during the conduct of the inspection.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

*David Cockfield, Vice President, Nuclear
*C. A. Olmstead, General Manager
*R. P. Schmitt, Manager, Operations and Maintenance
*R. Jarman, Manager, Quality Assurance Department
*D. Keuter, Manager, Technical Services
*J. D. Reid, Manager, Plant Services
D. L. Bennett, Supervisor, Control and Electrical
R. Reinart, Supervisor, Instrument and Control
D. W. Swan, Supervisor, Maintenance
*C. H. Brown, Operations Branch Manager, Quality Assurance
*B. Kershul, Engineer, Nuclear Safety and Regulation Department
H. F. Moomey, Trojan Resident, Oregon Department of Energy

*Denotes attendance at exit interview conducted at Trojan Nuclear Plant on February 6, 1987.

2. Calibration Program

The purpose of this inspection was to determine whether the licensee has developed and implemented a program for the calibration of plant instrumentation that is in conformance with licensee requirements, Technical Specifications and licensee commitments.

The inspector reviewed licensee records to verify that the frequency of calibration as specified in the Technical Specifications had been met for the following systems:

A. Reactor Protection System

Periodic Instrument and Control Test (PICT) 10-1, Reactor Protection System. Review of records indicated correct frequency of calibration, namely monthly while in modes 1, 2, 3, and 4. Trains A and B checked and reviewed by the licensee and verified by the inspector.

B. Plant Auxiliary Systems

- (1) PICTs 7-1, 7-2, 7-3, and 7-4. Pressurizer Pressure, Protection Sets I through VI, Channels No. 455 through 458. Records review indicated correct frequency of calibration.
- (2) PICTs 4-1, 4-2, and 4-3. Pressurizer Level, Protection Sets 1 through 3, Channels No. 459 through 461. Records review indicated correct frequency of calibration.
- (3) PICTs 3-1 and 3-2. Steam Flow-Feedwater Flow, Steamline Pressure and Turbine First-Stage Pressure, Protection Sets 1 and 2. Records review indicated correct frequency of calibration.

- (4) PICTs 5-1, 5-2, 5-3, and 5-4. Steam Generator Level, Protection Sets 1 through 4. Records review indicated correct frequency of calibration.

C. Reactor Coolant Systems

- (1) PICTs 2-1, 2-2, and 2-3. Reactor Coolant Flow, Protection Sets 1 through 3. Records review indicated correct frequency of calibration.
- (2) PICTs 6-1, 6-2, 6-3, and 6-4. Reactor Delta Temperature and Average Temperature, Protection Sets 1 through 4. Records review indicated correct frequency of calibration.

D. Containment Systems

- (1) PICTs 9-1, 9-2, 9-3, and 9-4. Containment Pressure, Protection Sets 1 through 4. Records review indicated correct frequency of calibration.
- (2) PICT 9-5. Containment Pressure Transmitters. Records review indicated correct frequency of calibration.

E. Electrical Distribution Systems

- (1) PICTs 20-1 and 20-2. Under Voltage Channel Test for 6KV Bus A-1 and A-2. Records review indicated correct frequency of calibration.

The inspector reviewed the above completed test records to ensure that the test documentation was complete, and that the acceptance criteria was met. In addition, the inspector verified that the proper, approved test procedures were used and that the personnel performing the procedures were properly qualified. The inspector was able to verify that the post-test and calibration reviews were conducted and the return to normal valve and switch lineups completed and as-left conditions recorded.

The inspector examined the technical content of several procedures to assure that the following criteria were met:

- ° Initial conditions for operation or prerequisites were specified and met during performance of the procedure.
- ° Precautions and limitations were specified, e.g., reduced trip logics were indicated.
- ° Test instruments used referenced by serial number in data sheets.
- ° Signal insertion and readout points were specified.
- ° Proper control on removing and returning a component to service.
- ° Calibration conducted at selected cardinal points over the full operational range of the component.

- ° System returned to normal operation and verified by a verification sheet.
- ° Procedure data reviewed and approved by a supervisor.

No discrepancies were discovered during the procedure review for technical content.

The inspector witnessed performance of PICT 3-1, Steam Flow-Feedwater Flow, steam line pressure and turbine first-stage pressure, Protection Set 1, which tests the alarm functions and trip setpoint settings of the various instruments. The PICT used had been reviewed and approved and the inspector witnessed that the I&C Technicians conducted PICT 3-1 in a thorough and professional manner.

The licensee's calibration program activities appear to be conducted in accordance with the licensee approved procedures and instructions. The calibration program appears to meet the requirements of regulatory guides, industry codes, and the Technical Specifications.

No violations or deviations were identified in this area.

3. Operational Safety Verification

During this inspection period, the inspector observed and examined activities to verify the operational safety of the licensee's facility. The observations and examinations of those activities were conducted on a daily basis.

On a daily basis, the inspector observed control room activities to verify the licensee's adherence to limiting conditions for operation as prescribed in the facility Technical Specifications. Logs, instrumentation, recorder traces, and other operational records were examined to obtain information on plant conditions, trends, and compliance with regulations. During this week, the inspector toured the accessible areas of the facility to observe the following items:

- A. General plant and equipment conditions.
- B. Maintenance requests and repairs.
- C. Fire hazards and fire fighting equipment.
- D. Ignition sources and flammable material control.
- E. Conduct of activities in accordance with the licensee's administrative controls and approved procedures.
- F. Interiors of electrical and control panels.
- G. Plant housekeeping and cleanliness.

The licensee's equipment clearance control was examined daily by the inspector to determine that the licensee complied with Technical

Specification limiting conditions for operation with respect to removal of equipment from service. Active clearances were spot-checked to ensure that their issuance was consistent with plant status and maintenance evolutions. Logs of jumpers, bypasses, caution, and test tags were examined by the inspector.

During this week, the inspector conversed with operators in the control room, and with other plant personnel. The discussions centered on pertinent topics relating to general plant conditions, procedures, security, training, and other topics aligned with the work activities involved.

No violations or deviations were identified.

4. Maintenance

During this inspection period, the inspector witnessed troubleshooting and corrective maintenance on the rod control system. An urgent failure alarm and condition would exist periodically on shutdown banks C&D during performance of Periodic Operating Test (POT) 15-1, Control Rod Drive System. This test is performed concurrently with reactor startup and monthly thereafter. The test verifies that the control rods are moveable. The licensee management decided to perform troubleshooting on shutdown rod banks C&D to correct the periodic problem. Supplemental instructions were issued to perform troubleshooting of the C&D shutdown banks during which the inspector made the following observations:

- A. The maintenance request (MR) supplemental instructions contained appropriate warnings and precautions that dropping rods will cause the plant to trip and minimizing personnel risk.
- B. Control room personnel and I&C Technicians were in constant communication during this process.
- C. The procedure called for step-by-step troubleshooting, replacement of relays, replacement of electronic cards, and oscilloscope tracing of various wave forms of the stationary and lift current coils.
- D. Extensive troubleshooting by the I&C personnel, and engineering staff failed to discover the cause of the periodic urgent failure alarm. Eventually the alarm cleared itself without a clear reason justifying it.
- E. Control operators verified operability by performing POT 5-1.

No violations or deviations were identified.

5. Surveillance

The surveillance testing of the rod control system was witnessed by the inspector. After substantial troubleshooting by I&C and engineering staff personnel, the shutdown banks C&D were verified operable by performing POT 5-1, Revision 9, satisfactorily. The test inserted shutdown banks C&D at least 10 steps but not more than 15 steps and then withdrew the shutdown

bank to 228 steps. No clear definable reason could be determined why the urgent failure alarm cleared. A Westinghouse engineer arrived on February 6, 1987 and extensive movement of shutdown banks C&D failed to produce an urgent failure alarm.

No violations or deviations were identified.

6. Exit Interview

The inspector met with the licensee representatives denoted in paragraph 1 on February 6, 1987, and summarized the scope and findings of the inspection activities.