

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

REGION V

Report No. 50-344/78-19

Docket No. 50-344 License No. NPF-1 Safeguards Group

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

Facility Name: Trojan

Inspection at: Rainier, Oregon

Inspection conducted: September 13-16, 1978

Inspectors: P. J. Morrill 28 September 1978
P. J. Morrill, Reactor Inspector Date Signed

John D. Carlson 28 September 1978
J. D. Carlson, Reactor Inspector Date Signed

P. J. Morrill for A. J. Horn 28 September 1978
A. J. Horn, Reactor Inspector Date Signed

Approved By: J. L. Crews 28 September 1978
J. L. Crews, Chief, Reactor Operations and Nuclear Support Branch Date Signed

Summary:

Inspection on September 13-16, 1978 (Report No. 50-344/78-19)
Areas Inspected: Routine announced inspection of design changes and modifications, quality assurance program, fire prevention/protection, cleanliness, licensee event reports, response to IE Bulletins and Circulars, independent inspection, and plant operations. The inspection involved 82 regular inspector-hours onsite by three NRC inspectors.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Principal Licensee Employees

- *F. Rogan; Generation Engineering, Chief Mechanical Engineer
- *H. Schmidt; Generation Engineering, Chief Electrical Engineer
- *F. Greenwood; Quality Assurance Supervisor, Projects
- *G. Zimmerman; Generation Engineering, Licensing and Analysis Engineer
- *S. Hoag; Generation Engineering, Mechanical Group Supervisor
- *R. Wehage; Generation Engineering, Mechanical Engineer
- **R. Schmitt; Plant Chief Nuclear Engineer
- **J. Reid; Plant Quality Assurance Engineer
- **R. Kohout; Plant Safety Coordinator
- R. Barkhurst; Plant Operations Supervisor

The inspectors also interviewed other licensee employees during the course of the inspection. They included reactor and auxiliary operators, shift supervisors, maintenance personnel, plant staff engineers and quality assurance personnel.

*Denotes those attending the exit interview on September 13, 1978 at the corporate offices.

**Denotes those attending the exit interview on September 14, 1978 at the Trojan Plant site.

2. Plant Operations

The inspectors conducted a tour of selected areas of the reactor control room; auxiliary, turbine and refueling buildings; and yard areas. The following observations were made:

- a. The reactor was in mode 5 at approximately 130° F with boron at approximately 1700 p.p.m. and RHR flow greater than 3000 GPM.
- b. Control room operators were knowledgeable of plant operating conditions and the reasons for off normal conditions as indicated by the plant annunciators. The control room was manned in accordance with the technical specifications.
- c. Radiation controls were established as required.
- d. Plant housekeeping was adequate.

- e. Plant equipment and systems appeared normal for the status of the plant.

No items of noncompliance or deviations were identified.

3. Quality Assurance Program - Annual Review

The inspector examined the licensee's changes to the Nuclear Projects Quality Assurance Program for Operations (Revision 4) and Nuclear Projects Quality Assurance Procedures (Revision 2) to verify the revisions had been made by August 1978 and that changes examined during inspection 50-344/78-12 (May 1978) were included in the current revisions.

No items of noncompliance or deviations were identified.

4. Design, Design Changes and Modifications

The inspectors examined the design change packages (DCPs) listed below and discussed the contents of these packages with licensee employees to verify compliance with technical specifications and 10 CFR 50.59 requirements:

RDC 76-115, Modify governor for auxiliary feed water pump turbine (superseded by RDC-76-241)

RDC 76-241, Replace original governor for auxiliary feed water pump turbine

RDC 76-275, Relocate and reset electrical equipment for RDC 76-241

RDC 76-114, Spent fuel pool (prefit of adapters, cups and new rack assemblies)

RDC 77-044, Installation of back-up air supply to the pressurizer power operated relief valves (overpressure mitigation system)

RDC 77-052, Replace safety-related hydraulic snubbers (50 kip or less) with mechanical snubbers

RDC 77-072, BIT-BABT cross-tie installation

RDC 76-095, Neutron streaming shielding

The inspectors were told by licensee representatives that although the work on these DCPs had been completed, these packages have not been fully reviewed by plant engineering and as-built packages have

not been completed. The inspectors pointed out that the maintenance requests for some of these packages had been completed several months ago (i.e., RDC 77-072(m) completed 5/78, RDC 77-052(m) completed 6/78 and RDC 76-095 completed 6/78) and asked licensee representatives if anything was being done by PGE to expedite the completion of engineering review and incorporation into as-built drawings. Licensee representatives showed the inspectors QA Audit Report T-8 conducted during the period June 12-16, 1978 which identified the timeliness of completion of DCPs as loop item 549. The inspectors were informed that the licensee's corrective action for this loop item was to establish a task group to investigate methods to speed the processing of DCPs and that this task should be finished in December 1978. This was discussed at the exit interview.

No items of noncompliance or deviations were identified.

5. Fire Prevention/Protection

The inspector completed the fire prevention/protection inspection that was started on March 6, 1978 (Inspection Report 50-344/78-06).

The inspector examined the following records/procedures, toured the cable spreading room, and inspected five (5) instrument cabinets in the control room:

- a. MP-T-6; Temporary Fire Barrier Seal Inspection
- b. MP-12-13 (draft copy); Permanent Fire Barrier Seal Inspection
- c. AO-9-5; Fire Protection Program
- d. Records of fire inspection performed by American Nuclear Insurers on April 6, 1978
- e. Records for July of periodic tests/inspections on fire pumps, extinguishers, and valve lineups
- f. Records of fire brigade training

The inspector verified the fire protection program is being conducted in accordance with technical specifications with the following exception: The fire brigade training required in Section 6.4.2 of the technical training had not been implemented in that fire drills have not been conducted in 1978. The fire protection program defined in AO-9-5 requires six (6) drills per year to be spaced such that all brigade members participate in the drills. The licensee had identified this problem during Audit 78-29 (QN-00-67) and reported the finding on July 14, 1978.

The corrective action portion of a copy of QN-00-67 indicated that "fire drills and their associated evaluations are presently being planned and will be commenced by November 1, 1978." This was discussed at the exit interview.

No items of noncompliance or deviations were identified.

6. Cleanliness

The inspector examined licensee administrative and maintenance procedures to verify the existence of requirements for adequate housekeeping, cleanliness, material accountability in critical clean areas, specification of cleanliness of components being installed in plant systems, and disposal/storage of excess equipment. The inspector also toured the plant to verify that the cleanliness program is being implemented by the licensee.

No items of noncompliance or deviations were identified.

7. Licensee Event Report

The inspector examined licensee actions concerning the following licensee event reports (LERs) to verify the events were reviewed and evaluated by the licensee as required by technical specifications, and that corrective action was taken as described in the LERs. The inspectors examined selected records and interviewed responsible personnel.

LER 78-14, Revision 1: Wall and ceiling penetrations were found deficient in their construction as a fire protection barrier and/or a water barrier. The revised LER stated that corrective actions would be completed by August 31, 1978. Licensee representatives stated that this date could not be met due to a "stop work" order on any work in the control structure, which was generated by the licensee as a result of the NRC's May 26, 1978 order. The inspectors were told that LER 78-14 would be resubmitted with a corrected completion date and the additional deficient penetrations identified when a completion date for this work could be determined. (Open)

LER 78-15, Revision 1: Failure of diesel driven fire pump to start due to valve failure in fuel line to diesel. The inspector pointed out that the third failure of the diesel was not documented by a LER until sixty days after this event. The responsible licensee employee stated that PGE had taken corrective actions to assure that all LERs would be issued in a timely manner. The inspector verified this by examining the appropriate plant review board meeting minutes. This was discussed at the exit interview. (Closed)

LER 78-20: A piping section in the auxiliary building was found to have calculated stress levels exceeding code allowable. By examination of piping and instrumentation drawings, piping isometric drawings and penetration schedule drawings, as well as discussions with licensee personnel, the inspector determined that some remedial action would be required for piping depicted on fourteen isometric drawings. For the piping shown on these drawings, twenty individual corrective actions appeared to be required due to the grouting of thirty wall penetrations. Twenty-seven of these penetrations were grouted in accordance with the penetration schedules, one was grouted contrary to the penetration schedule and two were grouted although there was no appropriate penetration schedule. Reportedly, the licensee's review involved approximately 700 isometric drawings (safety and non-safety related) and was nearly complete. To date new stress analyses had been completed for the piping depicted on fifty-one safety related isometric drawings with the resultant fourteen drawings whereon the piping would require some remedial action to meet ASME code requirements. The licensee had examined portions of nuclear class I piping inside containment (approximately 20%) and reviewed drawings of nuclear class II piping inside containment safety (safety injection accumulator discharge and closed cooling water to air coolers) to confirm that the same problems did not exist inside containment. This was discussed at the exit interview. (Open)

LER 78-21: Draining of condensate storage tank below technical specification lower limit due to operator error. The inspector observed that two other recent LERs (78-22 and 78-24) had been caused by operator error and asked licensee representatives what was being done on a generic basis to prevent future operator errors. The operations supervisor told the inspector that corrective actions to remedy the operator error problems were being taken. These actions consisted of briefing all shift supervisors and involved personnel regarding adequate shift turnovers and maintenance of operating conditions when in shutdown mode, requiring additional operator actions to control system operations while in "manual" versus "automatic" mode. (Closed)

LER 78-22: Water level in cooling tower basin was allowed to fall below lower technical specification limit due to operator error. (Closed)

LER 78-23: Procedure for testing the component cooling water pump was inadequate in that it failed to specify that the test was to be performed with only one pump running. The inspector verified the adequacy of the licensee's corrective actions, and verified that testing procedures for other similar systems did not have the same problem. (Closed)

LER 78-24: Boron concentration in one storage tank was found above the maximum value allowed by technical specifications and remaining storage tank volume was below the minimum inventory required by technical specifications. (Closed)

No items of noncompliance or deviations were identified.

8. IE Bulletin/Circular Followup

The inspectors followed up on licensee actions related to recent IE bulletins and circulars. The bulletins and circulars had been forwarded, reviewed, and responded to by cognizant members of the licensee's organization. Inspection findings related to IE bulletins and circulars reviewed during the inspection are as follows:

IE Bulletin 78-04, Environmental Qualification of Certain Stem Mounted Limit Switches Inside Reactor Containment: Licensee representatives informed the inspector that the limit switch on an isolation valve for the containment hydrogen vent system would be replaced with a qualified switch by September 22, 1978, and also that the licensee's response to the bulletin would be revised and resubmitted to the NRC by November 2, 1978. (Open)

IE Circular 78-08, Environmental Qualification of Safety-Related Electrical Equipment at Nuclear Power Plants: The inspector determined that the responsibility for reviewing the circular references was assigned to the licensee's chief electrical engineer and that a review program is being developed in conjunction with the licensee's architect-engineer (Bechtel) to compare the Trojan plant's electrical components to their environmental requirements. The program explained to the inspector is presently envisioned as follows:

1. Develop a table or listing of all Class IE equipment by procurement specification number and subdivide by equipment location and environmental service conditions.
2. Confirm that specification requirements meet or exceed the designed criteria/bases.
3. Confirm that the vendor documentation verifies that specification conditions were met.
4. Reference the source of qualification documentation.

The inspector examined the licensee's preliminary environmental service conditions. The inspector observed that these conditions did not appear to include the steam line break

environment, possible submergence of components, qualification of design life, and requirements for cumulative testing of components. Licensee representatives stated that these conditions/situations would be included in the review program and subsequent evaluations. Licensee representatives also stated that (1) the evaluations would be completed by the middle of March, 1978; (2) spot checks of electrical components in containment would be completed during the current outage (and possibly the next refueling outage) to verify that installed electrical equipment of concern meets design requirements; and (3) that corrective measures would be on a case-by-case basis if deficiencies are identified with appropriate schedules developed for remedial action. This circular will remain open pending completion of the licensee's review program. This was discussed at the exit interview. (Open)

No items of noncompliance or deviations were identified.

9. Safety Injection Reset/Block Switch

The inspector examined the licensee's procedures which require a reset/block of safety injection (SI) after an initial safety injection occurs. After reviewing the licensee's electrical drawings and discussing the reset/block function with members of the licensee's staff, the inspector determined that an automatic SI would be blocked following actuation of the SI reset/block switch. This could occur after a spurious SI, and in any case, after the 70 second time delay had taken place thereby allowing the operator to actuate the SI reset/block. The licensee's procedures did not caution the operator to manually actuate SI equipment if a subsequent SI actuation signal should occur. This was discussed at the exit interview.

No items of noncompliance or deviations were identified.

10. Exit Interview

The inspectors met with licensee representatives on September 13, 1978 at the corporate headquarters, and again at the plant site at the conclusion of the inspection on September 14, 1978. During the exit interviews, the inspectors summarized the scope and findings of the inspection, including the items discussed in Paragraphs 4, 5, 7, 8 and 9.

The licensee representatives made the following comments or commitments in response to the items discussed by the inspectors:

a. Regarding LER 78-20

- (1) Complete safety evaluations by the Plant Review Board and Nuclear Operations Board to verify that an unreviewed safety problem did not exist (defined by 10 CFR 50.59), or fix the potentially overstressed piping systems by November 15, 1978 or, in any case, prior to plant startup.
- (2) Complete the inhouse review of piping systems by October 2, 1978.
- (3) Based on an examination of approximately 20% of code class I piping and a review of code class II safety injection accumulator and containment air cooler piping, the licensee verified that safety related piping inside containment was not subject to the wall penetration grouting problem.
- (4) The subject LER 78-20 will be updated by October 6, 1978 to fully identify the scope of the piping problem and will be updated again by October 16, 1978 to describe the underlying causes of the discrepant pipe wall penetrations.

- b. Regarding IE Circular 78-08; the licensee's evaluation and review of environmental qualification of electrical components will be completed by mid-March 1979.
- c. Regarding fire brigade training; In a subsequent telephone conversation between the assistant plant superintendent and the inspectors on September 22, 1978, the inspectors were informed that fire drill training would commence the week of September 24, 1978 and that all lesson plans/procedures would be issued coincident with classroom training which is to be completed by February 1, 1979.
- d. Regarding the use of the SI reset/block switches; In subsequent conversations with the Trojan site NRC Resident Inspector, licensee representatives stated that the applicable emergency and off-normal procedures would be revised to add a precautionary note prior to entry of the plant into mode 3 or, in any case, within six weeks.