U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No: 50-344/85-17

Docket No: 50-344

License No. NPF-1

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

Facility Name: Trojan

Inspection at: Rainier, Oregon

Inspection conducted: June 3 - 7, 1985

Inspector: R T Dodds for 6/25/85
M. L. Padovan, Regional Inspector Date Signed

R T Dodds 6/25/85
R. T. Dodds, Chief, Reactor Projects Section 1 Date Signed

Summary:

Inspection from June 3 - 7, 1985 (Report 50-344/85-17)

Areas Inspected: Routine inspection of Inservice Inspection (ultrasonic examination) of the reactor pressure vessel. The inspection involved 58 inspector-hours by the NRC Regional Inspector.

Results: No violations or deviations were identified.

DETAILS

1. Persons Contacted

A. Wogen, NPE/ISI Engineer
S. Bauer, Licensing
*R. Schmitt, Manager, Operations and Maintenance
*A. Cohlmeyer, Engineering Supervisor
*M. Snook, Acting QA Supervisor
*G. Kent, Plant Engineer
*S. Richards, NRC Senior Resident Inspector

*Denotes those attending the exit interview.

2. Reactor Vessel Inservice Inspection (ISI)

a. General

10 CFR 50.55 a (g) "Inservice Inspection Requirements" specifies that ISI be performed on the American Society of Mechanical Engineers (ASME) Code Class 1 reactor pressure vessel in accordance with Section XI of the ASME Boiler and Pressure Vessel Code, and applicable addenda, as practical. For the Trojan facility, ISI of the reactor vessel was to be conducted in accordance with the Summer 1975 addenda to Section XI of the Code. ISI of the reactor vessel was based upon Portland General Electric (PGE) Topical Report PGE-1032 "Trojan Nuclear Plant Inservice Inspection Program for the First 10-Year Interval" (hereafter referred to as the ISI Program). Relief from certain ASME Code requirements, granted by the Nuclear Regulatory Commission (NRC), were described in Section 3.3 of this document.

Commencement of the Trojan ISI Program began on the date of commercial operation, May 20, 1976. The 10-year interval is divided into three periods of forty months each. Required reactor vessel examinations for each forty month interval are specified in the ISI Program. Examinations which were performed on the reactor vessel were for the third forty month period ("end of 10 years" interval), and included the following:

- longitudinal and circumferential welds in both the core region and the remainder of the reactor vessel
- closure head segment welds
- lower head segment welds
- closure head to flange weld
- vessel to flange weld
- inlet nozzle (including safe-end) welds

- outlet nozzle (including safe-end) welds
- closure head studs and nuts
- vessel flange ligaments
- closure head cladding
- control rod drive housings

The reactor vessel ultrasonic examination was performed by Westinghouse (W) personnel in accordance with W examination procedure ISI-154 POR "Inservice Inspection of Reactor Vessels," Revision 0, dated April 1, 1985. This document described the equipment, calibration sequence, examination techniques, and recording requirements for ISI of the reactor vessel with a remotely computer operated inspection tool. Specific calibration and examination requirements (such as areas selected for examination, extent of examination, search unit sizes, search unit angles, calibration standards, and water path distances) were defined in the "Trojan Reactor Vessel Examination Program Plan, Revision 0, dated April 1, 1985 (hereafter referred to as the "Program Plan"). The examinations were performed using pulse-echo and occasional, supplementary transmit-receive (pitch and catch) ultrasonic techniques with immersion water path coupling.

The NRC Inspector's evaluation of the licensee's third forty month ISI consisted of 1) a review of the previously mentioned ISI programs and procedures, and 2) a partial review of examination data and records.

b. Inservice Inspection Procedure Review

ISI-154 POR and the Program Plan were reviewed by a certified ASME Level III nondestructive examination examiner, the Trojan Plant Review Board, and were approved for use by PGE's General Manager. The personnel requirement section of ISI-154 POR stipulated that ultrasonic test operators were to be certified ASME Level II or Level III examiners, in accordance with American Society for Nondestructive Testing SNT-TC-1A-1968. Consistant with ASME Section XI Subarticle IWB-2500, the ISI Program specified examination categories, examination methods for each specified component weld, and the extent of examination for each subject weld. The inspector verified that ISI-154 POR and the Program Plan contained the following requirements:

- type of apparatus used
- frequency, size, and identification of transducers
- linearity (screen height and amplitude control)
- signal attenuation accuracy

- beam angles, scanning surface, scanning rate and direction
- calibration requirements (including calibration block geometry and material, and location and size of calibration reflectors)
- verification of penetration
- transducer mount angles
- scanning sensitivity level
- electronic distance - amplitude correction (DAC) provisions
- defined reference level for monitoring discontinuities
- specified levels for evaluation and recording of indications
- method of recording valid indications
- reporting requirements

The requirements specified in ISI-154 POR and the Program Plan were determined to be in accordance with Appendix I "Ultrasonic Examination" of ASME Section XI. Additionally, the inspector verified that adequate procedural requirements for recordkeeping were established, and licensee commitments described in the Trojan Technical Specifications and Updated Final Safety Analysis Report were found to be properly reflected in the ISI procedures.

c. Preliminary Data Review

The licensee's ISI Program specifies that a summary ISI report will be filed with the NRC 90 days after completion of ISI (final system pressure tests). Since final system pressure testing was scheduled to be completed by about June 19, 1985, the report is due to be submitted by the end of September 1985. This report will contain the following information:

- test procedure
- description of the test system
- calibration records
- identification, location and extent of areas examined
- record of all indications recorded
- record of all evaluations of indications
- personnel certifications
- dates and times of examinations

- basic calibration block identification
- couplant
- surface condition and surfaces from which examinations were performed

Examination data provided in the summary ISI report will be reviewed by the inspector, and documented in a routine Trojan NRC Inspection Report. The licensee has informed the inspector that no valid indications are present in the reactor vessel at this time (previous forty month interval ISIs also did not identify any valid indications). Any indications found which were 20% of DAC or greater were evaluated by the licensee to determine if the indication was valid. Indications of 50% of DAC or greater were required to be recorded. As no indications of 50% of DAC or greater were encountered during the ISI, no recordings are available for review by the NRC. Indications falling between the 20% and 50% DAC values were dispositioned by the licensee to be invalid indications (such as scanning noise and spurious noise from electrical sources). No deviations from program or procedural documents were recorded by the licensee. The licensee was not able to provide documentation on reactor coolant system water temperature. Section 7.1.6 of ISI-154 POR specifies that refueling water temperature be recorded every two days, to assure that the water temperature is within plus or minus 25 degrees F of that used during calibration. However, the licensee believes that this information was recorded in the ISI equipment operator's log book, and will be included in the summary ISI report. The inspector will review the summary report, once issued, for inclusion of this information. This is an unresolved item (85-17-01).

No violations or deviations were identified.

3. Unresolved Items

An unresolved item is a matter about which more information is required in order to ascertain whether it is an acceptable item, an open item, a deviation, or a violation.

4. Exit

On June 7, 1985, an exit meeting was conducted with the licensee's representatives identified in paragraph 1. The inspector summarized the scope and findings of the inspection as described in this report.