

U. S. NUCLEAR REGULATORY COMMISSION

REGION V

Report No. 50-344/82-25

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: August 16-20, 1982

Inspectors: M. Cillis Sept 7, 1982  
M. Cillis, Radiation Specialist Date Signed

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Date Signed

Approved by: F. A. Wenslawski 9/9/82  
F. A. Wenslawski, Chief, Reactor Radiation Protection Section Date Signed

Approved by: H. E. Book 9/9/82  
H. E. Book, Chief, Radiological Safety Branch Date Signed

Summary:

Inspection on August 16-20, 1982 (Report No. 50-344/82-25)

Areas Inspected: Routine unannounced inspection by a regionally based inspector of licensee activities associated with Technical Specification environmental surveillance programs, including organization and staffing, environmental monitoring procedures, environmental program audits, records and reports; status of NUREG 0737 items; LER 82-09 associated with the collapse of the "B" CVCS HUT; licensee action on IE Notices; radiation protection program and a tour of the licensee's facilities and of environmental sampling locations. The inspection involved 35 inspector-hours on site by one NRC inspector.

Results: Of the areas inspected, no items of noncompliance or deviations were identified.

## DETAILS

### 1. Persons Contacted

#### a) Portland General Electric (PGE) Personnel

- \*C. P. Yundt, General Manager
- \*T. D. Walt, Manager, Radiological Engineering
- \*R. Schmitt, Manager, Technical Services
- \*J. D. Reid, Manager, Plant Services
- R. L. Steele, Manager, Nuclear Projects Engineering Department
- T. Andone, Assistant Operations Superintendent
- J. G. Schweitzer, Engineering Supervisor, Quality Assurance Department
- G. Zielinski, Effluent Analyst
- G. A. Sprain, Engineer, Radiochemistry
- G. Rich, Chemistry Supervisor
- \*T. Meek, Radiation Protection Supervisor
- \*N. C. Dyer, PhD, Supervising Health Physicist
- M. Huey, Unit Supervisor of Radiation Protection
- \*P. A. Martin, Quality Assurance Supervisor

#### b) Non PGE Personnel

- H. F. Moomey, Oregon State Department of Energy, Resident Engineer
- R. L. Nyswaner, Combustion Engineering, Senior Radiation Protection Technician

\*Denotes those individuals attending the exit interview on August 20, 1982.

In addition to the individuals noted above, the inspector met with and interviewed other members of the licensee's staff.

### 2. Action on IE Information Notices

#### a) IE Information Notice 81-26, Part 3, Supplement No. 1: "Clarification of Placement of Personnel Monitoring Devices for External Radiation."

The inspector held a discussion with the Radiation Protection Supervisor in regards to Supplement No. 1 to IN-81-26. The discussion revealed that the licensee had received a copy of the supplement and the licensee was taking action with respect to the concerns expressed in the IE Notice.

b) IE Information Notice 82-18, "Assessment of Intakes of Radioactive Materials by Workers."

The inspector held a discussion with the Radiation Protection Supervisor in regards to the concerns of IE Notice 82-18. The discussions revealed that the licensee is using the ICRP-2 methodology in assessing intakes of radioactive materials by workers in determining compliance with 10 CFR 20. This matter is considered closed.

No items of noncompliance or deviations were identified.

3. TMI Action Items

The inspector examined the status for implementation of certain TMI Action Plan Requirements discussed in NUREG 0737 (Items II.B.3 and II.F.1). The examination included the review of the licensee's written responses to NRC Generic Letter 82-05 of March 17, 1982 and NRC letter of June 30, 1982.

The licensee's response to the June 30, 1982 letter revealed that the requested information will not be provided to the NRC until November 30, 1982. The licensee's response to Generic Letter 82-05 of April 28, 1982 in regard to Action Item II.B.3, "Post Accident Sampling," Action Item II.F.1.1, "High-Range Effluent Radiation Monitors" and Action Item II.F.1.2, "Effluent Iodine and Particulate Monitoring System" revealed that slippages beyond their control could defer complete implementation of these systems until July 1, 1983. The latter response also identifies that Action Item II.F.1.3, "Containment Area Radiation Monitors" was completed before January 1, 1982.

The April 28, 1982 letter also discusses the interim measures PGE will maintain for implementation of post-accident sampling, high-range effluent sampling and effluent iodine and particulate sampling.

The NRC inspector also discussed the guidelines to be utilized by the NRC inspector for conducting the final review of TMI Action Items after the items are installed and ready for use. The discussions emphasized the need for preparation of procedures and training of personnel concerning TMI Action Item modifications and changes.

No items of noncompliance or deviations were identified.

4. Licensee Event Report

The NRC inspector examined a Licensee Event Report (LER No. 82-09) that was made pursuant to Section 6.9.1.9.d of the Technical Specifications on June 28, 1982. The LER reported that the "B" CVCS radioactive

holdup tank (HUT) was partially collapsed during transfer of the HUT's contents to the spent fuel pool on May 27, 1982. The occurrence resulted in the release of 1.13 curies of noble gases to the auxiliary building. The examination included discussions of the May 27 occurrence and of a previous occurrence involving the partial collapse of the same "B" CVCS HUT that occurred on January 31, 1977. The previous occurrence is described in Region V IE Inspection Report 50-344/77-02. An unplanned release of noble gases resulted in both occurrences. The inspection also included a review of licensee's corrective actions taken in 1977 and also with respect to IE Information Notice 79-07, "Rupture of Radwaste Tanks" which was received by the licensee on March 30, 1979. It should be noted that the latest occurrence is also being investigated by the NRC's resident inspector.

The review revealed that in both instances the apparent cause for the partial collapse was attributed to inadequacies in the design of the cover gas system. The source of cover gas used during the transfer was from Waste Gas Decay Tanks (WGDT) A, C and D. It was assumed that the backup nitrogen cover gas supply was not operational due to several problems the licensee had experienced with its pressure control regulator. The licensee's evaluation of the occurrence also revealed that the cover gas supply from the WGDTs contain large quantities of water vapor which condenses in the cover gas piping. This prevents an adequate supply of cover gas from reaching the HUT. Additionally, the pressure indicators for the HUT tanks were similarly affected periodically giving erroneous readings. This was attributed to the locations at which pressure indicators are installed in the system. The inspection revealed that the licensee was unable to determine actions taken in response to IN-79-07.

The inspection disclosed that the collapsed tank was repaired at a cost of approximately 5 man-Rem. Additional short term corrective actions consisted of revisions to Operating Instruction OI-3-9 to require initial and periodic draining of the vent header during lowering the level in any HUT. The change also requires that the HUT pressure be monitored closely and be maintained at greater than 2 psig.

Discussions with the staff revealed that a Request for Design Change (RDC #82-050) to relocate pressure transmitters at each vent located on each individual HUT inlet lines has been issued. An additional RDC involving long term corrections actions is being considered by the licensee's corporate Nuclear Projects Engineering Department.

The inspection included a review of the following documents:

	<u>Subject</u>	<u>Date</u>	<u>No.</u>
a)	"B" Holdup Tank (HUT) Collapse	June 8, 1982	DRK-053-82
b)	Trojan Nuclear Plant <u>Breach of the</u> "B" Holdup Tank	June 1, 1982	GMW-003-82
c)	Possible Reportable Occurrence/Event (Attachment AO-7-6-B)	May 28, 1982	82-024

<u>Subject</u>	<u>Date</u>	<u>No.</u>
d) RDC	July 6, 1982	82-050
e) <u>RDC-82-050-Measures to Prevent Holdup Tank Collapse</u>	July 27, 1982	CPY-611-82
f) <u>Plant Engineering's Recommendations Concerning the Collapse of "B" HUT</u>	July 13, 1982	ASC-060-82
g) <u>C&amp;RP Rotating Technician Log</u>	May 27, 1982	02052 & 02053

A review of the data associated with the noble gas release of 1.13 curies did not reveal any obvious mistakes or anomalous measurement results. The occurrence did not result in any personnel contamination or releases of radioactivity that exceeded 10 CFR 20, Appendix B or T.S. limits.

The NRC inspector emphasized the need for implementing permanent corrective actions to prevent a recurrence.

No items of noncompliance or deviations were identified.

5. Tour of Facility and Environmental Sampling Locations

The inspector and a licensee representative conducted a tour of the licensee's Auxiliary Building, radioactive material storage areas and onsite and offsite environmental sampling locations. Independent measurements obtained with a Model 36100 Keithley survey meter, Serial Number NRC 009163 due for calibration on August 9, 1983 were conducted during the tour. The tour included observations to determine compliance with the following Technical Specification and regulatory requirements.

<u>Areas</u>	<u>Requirement</u>
Specification 2.1.3.a, b, c, d, e & f, including Tables 2-1, 2-2 and 2-3	Appendix B of Trojan's Technical Specifications
Posting of radiation areas, high radiation areas, airborne activity, controlled areas, and radioactive material storage areas	10 CFR 20.203(b), (c), (d), (e)
Labeling of Containers	10 CFR 20.203(f)
Control of radiation and high radiation areas	10 CFR 20.105(b), 1 and 2
Engineered Controls	10 CFR 20.103(b), 1 and 2

Several environmental sampling locations identified in Table 2-2 of Appendix B to the T.S. were observed by the inspector during the tour. Air sampling equipment and thermoluminescent dosimeters placed at the licensee's meteorological tower, Kalama River and Recreation Lake were observed. A rain collecting device located at the meteorological tower was also observed. Additionally, surface water sampling locations at the Recreation Lake, Reflection Pond and Kalama River were observed during the tour.

The following observations were brought to the licensee's attention:

- a) General radiation levels adjacent to the Boric Acid Evaporator observed by the inspector appeared to be approximately 50% higher than those posted for the area. This measurement was confirmed by the licensee representative who accompanied the inspector.
- b) A PGE utility worker was observed sitting on a 55 gallon drum that contained packaged radioactive waste having contact dose rates in excess of the general area readings.
- c) A portable exhaust ventilation unit having a yellow poly bag installed over the inlet to the HEPA filter assembly was not labeled to indicate that the filter assembly may have been internally contaminated.

The licensee took immediate action to correct the conditions observed on the tour. The need to emphasize the ALARA criteria to the involved utility worker and remaining plant personnel was emphasized by the inspector at the exit interview.

No items of noncompliance or deviations were identified.

## 6. Environmental Protection

### a) Management and Organization

The licensee's Generation Licensing and Analysis Department (GLAD) from the Corporate office is responsible for ensuring that the radiological environmental monitoring meets the requirements of Trojan's Environmental Technical Specifications (ETS). Management, responsibilities and implementation of the licensee's radiological environmental program is described in Generation Licensing and Analysis Procedure (GLAP) No. 110-4. The procedure identifies a strong management commitment for ensuring that the operational activities of its generating plants have a minimal radiological impact on the environment. The Branch Manager of Radiological Engineering who reports directly to Manager of GLAD is responsible for administering the program. The Branch Manager is a certified health physicist. A PhD supervising health physicist who reports

to the Manager, Radiological Engineering is responsible for implementing the environmental radiological program described in Procedure GLAP-No. 110-4. The Supervising Health Physicist has a minimum staff of five professional and technical personnel to maintain the program.

No items of noncompliance or deviations were identified.

b. Program Documentation

A set of procedures referred to as Generation Licensing and Analysis Instructions (GLAI) has been established for implementing the Environmental Radiological Monitoring Program. These instructions have been divided into four major sections: Personnel Dosimetry, Environmental Dosimetry and Monitoring, Corporate Radiation Protection and Tests. The inspection revealed that the GLAI's are periodically reviewed for the purpose of improving them and ensuring compliance with the ETS. No problems were identified in a review of the following GLAIs:

<u>Title</u>	<u>GLAI No.</u>	<u>Rev.</u>
. Preventative Maintenance for the Eberline TLD Reader Model TLR-5	200-2Q	1
. Preparation for Field Placement of Environmental TLDs	200-4Q	1
. Environmental TLD Readout	200-6Q	1
. Environmental Dosimeter (TLD) Field Placement and Collection	200-8Q	2
. Waterborne Pathway/Surface Water Sampling	200-10Q	0
. Waterborne Pathway Shoreline Soil Sampling	200-12Q	0
. Ingestion Pathway Aquatic Animal Sampling	200-14Q	1
. Ingestion Pathway Terrestrial Vegetation Sampling	200-16Q	0
. Ingestion Pathway Milk Sampling	200-18Q	0
. Rainwater Sample Collection	200-20Q	0
. Airborne Radioactivity Sampling	200-22Q	1
. Terrestrial Soil Sampling	200-24Q	0

<u>Title</u>	<u>GLAI No.</u>	<u>Rev.</u>
. Terrestrial Animal Sampling	200-26Q	0
. Sediment Sampling	200-28Q	0
. Aquatic Vegetation Sampling	200-30Q	0
. Waterborne Pathway Composite Water Sampling	200-32Q	0
. Waterborne Pathway Ground Water Sampling	200-34Q	0
. Training Requirements for Personnel Authorized to Prepare and Process Environmental Monitoring TLDs	200-36Q	0

No problems were identified during a review of GLAP No. 110-4.

The review of procedures/instructions and personnel interviews revealed that the environmental monitoring program including authorities, duties and responsibilities have been well established. The inspection showed that various aspects of Regulatory Guide 4.15, "Quality Assurance for Radiological Monitoring Programs (Normal Operations) - Effluent Streams and the Environment" had been documented with respect to the licensee's environmental monitoring program.

No items of noncompliance or deviations were identified.

c. Program Audits

The inspection disclosed that the licensee recognizes the need for and has implemented a Quality Assurance Program which audits those activities affecting the quality of safety related systems, structures and components as well as environmental and effluent monitoring. The licensee's Quality Assurance Program is described in the "Nuclear Projects Quality Assurance Program for Operations" manual. The manual has been established for the purpose of ensuring compliance with 10 CFR 50, Appendix "B", "Quality Assurance Criteria for Nuclear Power Plants and Fuel Reprocessing Plants." The licensee's Quality Assurance Program is committed to follow the requirements and guidelines of ANSI N18.7-1976, "Administrative Controls and Quality Assurance for the Operational Phase of Nuclear Power Plants."

During 1982 there were two audits of the environmental monitoring program. A thorough examination of the personnel dosimetry, environmental dosimetry and monitoring, and respiratory protection

activities was conducted on March 16 through 19, 1982. Additionally, an audit of Eberline Corporation, Midwest Facility was conducted on May 20-21, 1982 and an audit of R. S. Landuer, Jr. & Company was conducted in 1981. An audit of Eberline Corporation has been scheduled for the latter part of August 1982. It should be noted that both Eberline and Landuer are under contract to the licensee. Eberline is responsible for accomplishing the radioanalytical analysis for the licensee's environmental samples and Landuer is responsible for providing dosimetry service to the licensee.

Each audit is well documented. A review of the 1982 audit reports was conducted by the NRC inspector. The audits are thorough and appear to ensure compliance with the regulatory requirements. Corrective action responses to audit findings are required for all deficient conditions that are identified. Followup audits are performed when deemed appropriate. The licensee's quality assurance program appeared to be consistent with Regulatory Guide 4.15, Rev. 1, February 1979.

No items of noncompliance or deviations were identified.

d. Analytical Measurements Quality Assurance

The inspection disclosed that the licensee's radiological environmental monitoring program has established an interlaboratory comparison program with other activities, including federal and state agencies. The licensee and each of these activities maintain liaison with the Environmental Protection Agencies intralaboratory comparison program. Split samples of various environmental media are being independently analyzed by the licensee, Eberline Corporation, Oregon State Health Division and Washington State Health Services Division as part of the quality assurance program that the licensee has established.

Eberline Corporation, the radioanalytical ETS environmental sample contractor, has established an internal 10 CFR 50 Appendix "B" type quality assurance program. Eberline submits monthly reports which contain the results of blank, split and background sample and standard measurements. The inspector examined Eberline's report for January 1982. Eberline is also a participant in the EPA interlaboratory comparison program.

The results of the interlaboratory comparison program are included in the licensee's Environmental Radiological Monitoring Program Annual Reports specified in Section 3.5.1a of the ETS. The inspector reviewed the 1980 and 1981 annual reports. The review did not reveal any obvious mistakes or anomalous measurements.

No items of noncompliance or deviations were identified.

e. Records and Reports

The inspection included an examination of records and reports related to the environmental monitoring program including: Eberline Corporation sample analysis records, Trojan Nuclear Plant Operating Environmental Radiological Surveillance Program; PCE-1006-81, Annual Report of Trojan Nuclear Plant, PGE-1015-81 and Quality Assurance Audit Reports #GAI-64P-82M and GAI-82T-82. The review of Eberline sample analysis records covered the period between January 1981 and June 1982. Sample collection sheets for the same period were also reviewed.

The inspection included the review of a licensee's memorandum number NCD-14-82M of August 2, 1982 regarding Tritium Monitoring of the Trojan Recreation Lake performed during the first quarter of 1981. The report noted that tritium had been detected in the Recreation Lake which is in the site exclusion area. The source of tritium was leakage into the secondary system as a result of steam generator leaks. The tritium was detected in the Recreation Lake at sample point location 1DA where discharges from the oily water separator previously entered the lake. This portion of the lake is diked off from the rest of the lake; however, there is a pipe that connects the two bodies of water. An initial sample taken on January 5, 1981 showed levels of  $3.6E-5$   $\mu\text{Ci/ml}$  or 36000 pCi/l at the 1DA sample location. A series of fifteen samples were taken, between the period of January 5, 1981 and March 30, 1981 at sample location 1DA and a series of 13 samples were taken at sample location 1DB during approximately the same period. Additional routine samples were taken from other portions of the Recreation Lake and Reflection Lake as specified in Table 2-2 of the ETS.

The analysis of the routine samples did not reveal any tritium activity levels greater than  $1E-6$   $\mu\text{Ci/ml}$ . The analysis of the samples taken at sample location 1DA ranged from less than  $1E-6$   $\mu\text{Ci/ml}$  to  $1.56 E-4$   $\mu\text{Ci/ml}$ . This value represents 5.2 percent of 10 CFR 20.106(a) limit of  $3E-3$   $\mu\text{Ci/ml}$  for tritium that can be released to unrestricted areas. The analysis of samples taken at sample location 1DB ranged from less than  $1E-6$   $\mu\text{Ci/ml}$  to a maximum of  $1E-5$   $\mu\text{Ci/ml}$  or less than 0.4% of 10 CFR 20.106(a) limits. Sample location 1DB is located at the northwest corner of the Recreation Lake at a point where the Recreation Lake drains into the Reflection Lake. The normal sample location of the Recreation Lake is at the southern boundary and at the northern boundary for the Reflection Lake. The flow from the Reflection Lake is to Carr Slough and subsequently to the Columbia River. Gross beta analysis for sample locations 1DA and 1DB ranged from  $0.8 \pm 0.6$  pCi/l to 37.0 pCi/l. Gross gamma analysis for the same sample points were all less than 25 pCi/l.

The oily water separator drain was modified during the second half of 1981. This is discussed in Region V IE Inspection Report 50-344/81-25. The modification redirected the drainage from the oily water separator to the Discharge and Dilution Structure. Tritium concentrations in surface water samples taken from the Reflection Lake, Recreation Lake and at sample location 1DA since April 1981 have not exceeded  $1\text{E-}6 \mu\text{Ci/ml}$ . At the time of this inspection, no tritium at or above the detection limit of  $1\text{E-}6 \mu\text{Ci/ml}$  have been found at any of the environmental monitoring locations specified in the ETS.

During the inspection, the NRC inspector observed an oily substance draining into the Recreation Lake at sample point 1DA. The licensee representative stated the oily substance was from natural ground water draining into the discharge line and residual oil that remained in the line. The NRC inspector emphasized the need for the licensee to verify that the oily substance was not draining from the oily water separator.

The review of remaining records and reports did not disclose any obvious mistakes or anomalous measurement results.

The inspection disclosed that the average tritium concentration detected for sample location 1DA for the first quarter of 1981 did not exceed  $1.15 \times 10^{-5} \mu\text{Ci/ml}$ . This value was below the ETS table 2-3 value which requires reporting pursuant to Section 2.1.4 of the ETS.

No items of noncompliance or deviations were identified.

f. Land Use Census

The inspection disclosed that the licensee conducts an annual agricultural survey within a five mile radius of the Trojan plant to identify locations of milk cows and goats, dairy farms and changes in agricultural activities which may require modification of the environmental monitoring program. The annual agricultural land use census survey is normally performed during the summer or fall growing season. The licensee's awareness in regards to the land use census appears to be consistent with section 2.1.3.f of the ETS.

No items of noncompliance or deviations were identified.

7. Exit Interview

The inspector met with the licensee representatives (denoted in paragraph 1) at the conclusion of the inspection on August 20, 1982. The inspector summarized the scope and findings of the inspection. The licensee was informed that there were no apparent items of noncompliance or deviations. Matters identified in Sections 3, 4 and 5 were emphasized during the exit interview.