



UNITED STATES  
NUCLEAR REGULATORY COMMISSION  
REGION IV  
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July 17, 2006

Stephen M. Quennoz  
Vice President, Generation  
Portland General Electric Company  
Trojan Nuclear Plant  
71760 Columbia River Highway  
Rainier, OR 97048

SUBJECT: NRC INSPECTION REPORT 72-017/06-02

Dear Mr. Quennoz:

A routine inspection of storage operations was conducted June 19 - 21, 2006, at your Trojan Independent Spent Fuel Storage Installation (ISFSI). At the conclusion of the inspection on June 21, 2006, an exit briefing was conducted with Mr. Jay Fischer and other members of your staff. Subsequent to the site visit, a final telephonic exit was conducted on July 6, 2006 between the inspector and Mr. Fischer. The enclosed report presents the scope and results of that inspection.

The inspection was an examination of activities conducted under your license as they relate to safety and compliance with the Commission's rules and regulations and with the conditions of your license. Within these areas, the inspection included reviews of emergency response, environmental monitoring, ISFSI operations, quality assurance, corrective actions, and safety reviews. No violations of NRC regulations were identified during the inspection.

In accordance with 10 CFR 2.390 of the NRC's "Rules of Practice," a copy of this letter, its enclosures, and your response (if any) will be available electronically for public inspection in the NRC Public Document Room or from the NRC's document system (ADAMS), accessible from the NRC website at <http://www.nrc.gov/reading-rm/adams.html>. To the extent possible, your response should not include any personal privacy, proprietary, or safeguards information so that it can be made available to the Public without redaction.

Should you have any questions concerning this inspection, please contact the undersigned at (817) 860-8191 or Mr. Ray Kellar at (817) 860-8164.

Sincerely,

/RA/

D. Blair Spitzberg, Ph.D., Chief  
Fuel Cycle and Decommissioning Branch

Docket No.: 72-017  
License No.: SNM-2509

Portland General Electric Company

-2-

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 Publicly Available  Non-Publicly Available 9 Sensitive Non-Sensitive

DOCUMENT NAME:

final: R:\\_TN\\_2006\ 0602-rlk.wpd

RIV:DNMS:FCDB	C:FCDB
RLKellar	DBSpitzberg
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**ENCLOSURE**

U.S. NUCLEAR REGULATORY COMMISSION  
REGION IV

Docket No.: 72-017  
License No.: SNM-2509  
Report No.: 72-017/06-02  
Licensee: Portland General Electric Company  
Facility: Trojan Independent Spent Fuel Storage Installation  
Location: 71760 Columbia River Highway  
Rainier, OR 97048  
Dates: June 19 - 21, 2006  
Inspectors: Ray L. Kellar, P.E., Health Physicist  
Approved By: D. Blair Spitzberg, Ph.D., Chief  
Fuel Cycle & Decommissioning Branch, Region IV  
Attachments: Supplemental Inspection Information

## **EXECUTIVE SUMMARY**

### Trojan Nuclear Plant NRC Inspection Report 72-017/06-02

The licensee's operation of Independent Spent Fuel Storage Installation (ISFSI) activities were reviewed along with the licensee's implementation of emergency response, environmental monitoring, quality assurance, corrective action and safety review programs as required by 10 CFR Part 72. In summary, the licensee was conducting ISFSI operations and implementing programs in accordance with regulatory and license requirements.

#### **Operation of an ISFSI (60855, 40801, 82701)**

- Aspects of the Trojan emergency plan reviewed along with emergency drills and an exercise conducted during 2004/2005 met regulatory requirements (Section 1.2).
- The environmental monitoring reports for 2004 and 2005 documented that radiological conditions at the ISFSI had remained stable and the controlled area boundary dose rates were well below regulatory limits (Section 1.2).
- The ISFSI was observed to be in good condition. Operational activities associated with inspections for cask screen blockage and daily temperature monitoring had been conducted in accordance with Technical Specification requirements (Section 1.2).
- A detailed audit/assessment schedule had been developed by the licensee. Selected audits of vendor activities as well as ISFSI program audits were found to be adequate. Auditor certifications were valid during the audit reporting periods reviewed (Section 1.2).
- Corrective action requests selected for review during the inspection met regulatory requirements (Section 1.2).

#### **Review of 10 CFR 72.48 Evaluations (60857)**

- Portions of the licensee safety review program and the ISFSI Safety Review Committee requirements were reviewed. Selected safety screenings conducted by the licensee were found to meet regulatory requirements. No issues or concerns were identified with the safety review program and its implementation (Section 2.2).

## **Report Details**

### **Summary of Facility Status**

The Trojan Nuclear Plant was permanently shutdown in January 1993. The licensee submitted an application for termination of the 10 CFR Part 50 license to the NRC by letter dated December 20, 2004. The NRC approved the license termination request on May 23, 2005.

On September 3, 2003, the licensee completed transfer of all fuel from the spent fuel pool to the nearby Independent Spent Fuel Storage Installation (ISFSI). The licensee continued to monitor the 34 loaded casks located at the ISFSI. This was the first ISFSI inspection since termination of the 10 CFR Part 50 license by the NRC.

### **1      Operation of an ISFSI (60855, 40801, 82701)**

#### **1.1      Inspection Scope**

The Trojan ISFSI operational inspection reviewed selected aspects of emergency response, environmental monitoring, operations, quality assurance, and the corrective action program.

#### **1.2      Observations and Findings**

##### **a.      Emergency Response**

Changes to the licensee's ISFSI emergency plan since 2004 were reviewed. The changes had been processed in accordance with instructions contained in Trojan ISFSI Procedure (TIP) 06, "Implementation of Regulatory and Licensing Basis Requirements," Revision 4. Licensing Document Change Request (LDCR) Numbers 2004-009, 2005-003, 2005-004, 2005-016 and 2006-003 were reviewed. The documentation contained in the LDCR packages provided detailed descriptions of the proposed changes.

Table 7-1 of the "Trojan ISFSI Emergency Plan (PGE-1075)," Revision 6, provided a specified frequency for performing emergency preparation activities. The activities and frequencies specified in the emergency plan were verified to have been met by the licensee during calendar years 2004 and 2005.

The results of the emergency plan drills and biennial exercise conducted during 2004 and 2005 were reviewed. Section 7.1.2 of PGE-1075 required that a radiological/health physics drill, a medical drill and a fire drill be conducted annually and a critiqued exercise be conducted biennially. Records indicated that the required 2004 drills had been conducted between August 4-12, 2004. During 2005, the required radiological, medical and fire drills had been conducted concurrent with the biennial exercise. Critiques of the 2005 exercise had been performed. Documentation was available that

the appropriate agencies had been invited to participate during the 2005 exercise. The licensee reported that a training opportunity had also been offered to the participating agencies.

b. Environmental Monitoring

The Environmental Monitoring Program for the Trojan ISFSI consisted of 16 thermo-luminescent dosimetry (TLD) devices. Eight of the TLD devices were located along the ISFSI controlled area boundary or as physically close to the ISFSI controlled area boundary as possible, since a portion of the controlled area boundary extended into the Columbia river. An additional eight TLD devices were located near the ISFSI protected area fence to meet Oregon Department of Energy requirements. The TLD devices were read on a quarterly basis. TIP 14, "Trojan ISFSI Radioactive Effluent Control Program and Radiological Environmental Monitoring Program," Revision 6, provided instructions for the environmental monitoring program.

The inspector reviewed selected portions of the ISFSI environmental monitoring reports from 2004 and 2005. The TLD readings taken from the ISFSI controlled area boundary were used to determine the radiological dose that an individual member of the public would be expected to receive if located at the controlled area boundary for 2,080 hours during a year. The licensee's exposure records indicated that a dose of 2.6 mrem in 2004 and 2.0 mrem in 2005 would have been received by this hypothetical individual located at the controlled area boundary. Since a portion of the controlled area boundary extended into the Columbia river, TLD reading number 16 was used to calculate the dose that would be received by an individual located on the river near the ISFSI during a 24-hour period. The radiological dose received by the hypothetical individual located on the river, resulted in a 2 mrem exposure in both the 2004 and 2005 reports. All of the expected off-site personnel dose exposures were well below the regulatory limit of 25 mrem per year.

TIP 13, "Radiation Protection Program," Revision 3, required that a quarterly radiation survey be performed of the ISFSI by personnel with specific radiation protection training and qualifications. The inspector reviewed the two most recent ISFSI surveys that were conducted on February 16 and May 17, 2006. The surveys had been conducted in accordance with instructions located in TIP 13-3, "ISFSI Radiological Surveys," Revision 0. The radiological survey data was consistent between the two surveys. Both of the surveys had been performed by an individual that had specific radiation protection training and qualifications.

c. Operations

A tour of the ISFSI facility was conducted during the inspection. The facility was observed to be in good condition. The air inlet and outlet screens were clear and in good shape.

Trojan Technical Specification (TS) 5.5.3.a. required that the air inlet vents be visually inspected every week to verify that no blockage existed. Additionally, the air outlet temperatures and the ambient air temperature were required to be measured and

recorded daily. An ISFSI Specialist demonstrated obtaining measurements of the cask outlet and ambient temperatures in accordance with the requirements of TIP 17, "Concrete Cask Thermal Monitoring Program," Revision 5. The measurements were obtained using a Fluke Model 2286A data logger. The ISFSI Specialist also demonstrated how the temperature measurements were performed in the event of a failure of the Fluke data logger by utilizing a handheld Omega Model 450 APT platinum thermometer. In the event of failure of the first Omega thermometer, a second back-up Omega thermometer was readily available. Calibration stickers located on the Fluke data logger and both of the Omega thermometers were verified by the inspector to be current.

The records of the air inlet vent weekly inspections as well as the daily air outlet and ambient temperature readings for the months of November 2005 and March 2006 were selected for review. The licensee records indicated that all of the TS measurements had been performed and correctly documented. No abnormal observations were noted during the reviewed time frames.

d. Quality Assurance

Revision 28 of the Portland General Electric (PGE) Nuclear Quality Assurance Program for Trojan Independent Spent Fuel Storage Installation (PGE 8010) became effective on May 23, 2005, concurrent with the Part 50 license termination. As part of the changes that had been implemented to the Trojan Quality Assurance Program, the design and calibration functions that had been previously performed by internal resources, were now being performed by vendors. The licensee maintained a "10 CFR 72 (ISFSI) Approved Suppliers List," with a current revision date of March 3, 2006. This list provided detailed information for each of the approved suppliers, including the design and calibration vendors that were approved for use.

The licensee had established a detailed audit/assessment schedule. Attachment 1 of TIP 54, "Audits," Revision 2, provided the required audit frequency for each portion of the ISFSI program. The licensee had merged the required audit due dates and frequencies into the existing ISFSI Activities Database to aide in tracking and upkeep of due dates. Each of the vendors were evaluated on an annual basis and were audited on a predetermined frequency. The inspector chose two of the vendors that were responsible for the calibration of radiation meters and measuring equipment for review. Both of the vendor audits were current and determined to be acceptable.

The three ISFSI audits that had been conducted since January 1, 2004, were reviewed. Audit AP-I-004, had been conducted from August 12 through November 15, 2004 and had resulted in three findings and five recommendations. Audit 2005-I-007, had been conducted from September 7 through December 8, 2005 and had resulted in two recommendations. Audit AP-I-006, had been conducted from August 19, 2005 through February 16, 2006 and had resulted in one recommendation. The Audit findings had been documented in Corrective Action Requests (CAR's) to track resolution. The recommendations were categorized as program improvements for management consideration.

The qualifications for five of the quality assurance auditors were selected for review. The auditor qualification form for each individual was compared to the dates when the audits had been performed. All of the auditors were found to have had valid qualifications at the time the audits had been conducted.

e. **Corrective Actions**

The Trojan corrective action program is governed by TIP 50, "Corrective Action Program," Revision 1. The licensee provided a list of 11 ISFSI CAR's that had been generated since January 1, 2004. The inspector selected CAR # IC04-002, IC05-001, IC05-003 and IC06-001 for review. The documentation contained in the CARs and the corrective actions taken by the licensee were adequate.

1.3 **Conclusion**

Aspects of the Trojan emergency plan reviewed along with emergency drills and an exercise conducted during 2004/2005 met regulatory requirements.

The environmental monitoring reports for 2004 and 2005 documented that radiological conditions at the ISFSI had remained stable and the controlled area boundary dose rates were well below regulatory limits.

The ISFSI was observed to be in good condition. Operational activities associated with inspections for cask screen blockage and daily temperature monitoring had been conducted in accordance with Technical Specification requirements.

A detailed audit/assessment schedule had been developed by the licensee. Selected audits of vendor activities as well as ISFSI program audits were found to be adequate. Auditor certifications were valid during the audit reporting periods reviewed.

Corrective action requests selected for review during the inspection met regulatory requirements.

**2 Review of 10 CFR 72.48 Evaluations (60857)**

2.1 **Inspection Scope**

Requirements of the licensee safety review implementing procedure and selected safety screenings for proposed ISFSI changes were reviewed. Meeting minutes for the two most recent ISFSI Safety Review Committee (ISRC) meetings were reviewed to ensure selected requirements of the Trojan Safety Analysis Report (SAR) were being met.

2.2 **Observations and Findings**

Trojan ISFSI Procedure (TIP) 05, "10 CFR 72.48 and Other Regulatory Evaluations," Revision 3 was used by the licensee to review potential changes to the ISFSI facility and procedures. TIP 05 required that an applicability screening first be performed utilizing

the guidance found in Attachment 1 of the procedure to determine if a 10 CFR 72.48 screening would be necessary. Attachment 2 of the procedure contained the guidance and questions required to perform a safety evaluation that would meet the requirements of 10 CFR 72.48(c)(2).

The licensee provided a list that contained 66 applicability screenings and 10 CFR 72.48 screenings that had been performed since January 1, 2004. The licensee had not performed any 10 CFR 72.48 evaluations during the specified time frame. The inspector selected 17 of the screenings for review. Overall the documents reviewed were adequate and met regulatory requirements.

Section 9.6.2 of the Trojan SAR required that the ISRC be composed of a minimum of a Chairman and three members to achieve a quorum. The ISRC was also required to meet at least once annually. The ISRC meeting minutes from the two most recent meetings conducted on May 18, 2005 and May 1, 2006 were reviewed. Both meetings were well attended with a Chairman, two Vice-Chairmen, and three members that were present at each meeting. The meeting minutes confirmed the ISRC was meeting on a frequency and with the minimal amount of representatives as required by the Trojan SAR.

### 2.3 Conclusion

Portions of the licensee safety review program and the ISFSI Safety Review Committee requirements were reviewed. Selected safety screenings conducted by the licensee were found to meet regulatory requirements. No issues or concerns were identified with the safety review program and its implementation.

### **3 Exit Meeting**

The inspector presented the inspection results to the Trojan ISFSI Manager along with other members of the staff, at the conclusion of the inspection on June 21, 2006. Two findings were identified during the inspection that required additional information to resolve. After the two findings were resolved, a final telephonic exit was conducted on July 6, 2006 between the inspector and the Trojan ISFSI Manager along with Mr. Rocha. The licensee provided selected portions of a proprietary vendor calculation to the inspector as part of the inspection.

**ATTACHMENT 1**  
**Supplemental Inspection Information**

**PARTIAL LIST OF PERSONS CONTACTED**

Licensee

S. Beri, QA  
J. Fischer, ISFSI Manager  
M. Kramberg, ISFSI Specialist  
K. Lehman, Administrative Assistant  
L. Rocha, Specialist, ISFSI Rad Protection & Licensing  
J. Reid, ISRC Chairman & Responsible for QA Oversight  
C. Storms, ISFSI Specialist  
J. Vingerud, Manager, Decommissioning Projects

**INSPECTION PROCEDURES USED**

40801	Self-Assessment, Auditing, and Corrective Action at Permanently Shutdown Reactors
60855	Operations of an ISFSI
60857	Review of 10 CFR 72.48 Evaluations
82701	Operational Status of the Emergency Preparedness Program

**ITEMS OPENED, CLOSED, AND DISCUSSED**

Opened

None

Closed

None

Discussed

None

## LIST OF ACRONYMS

CAR	Corrective Action Request
CFR	Code of Federal Regulations
ISFSI	Independent Spent Fuel Storage Installation
ISRC	ISFSI Safety Review Committee
NRC	Nuclear Regulatory Commission
PGE	Portland General Electric
SAR	Safety Analysis Report
TIP	Trojan ISFSI Procedure
TLD	Thermo-Luminescent Dosimeter
TS	Technical Specification