



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

DOCKET NO.: 72-17

LICENSEE: Portland General Electric Company, et al.; applicant for the Trojan Independent Spent Fuel Storage Installation

SUBJECT: SAFEGUARDS EVALUATION OF THE PHYSICAL SECURITY PLAN FOR THE PROPOSED TROJAN INDEPENDENT SPENT FUEL STORAGE INSTALLATION

1.0 BACKGROUND

Portland General Electric Company, et al., (PGE or the applicant) submitted an application to construct and operate a Trojan Independent Spent Fuel Storage Installation (ISFSI) in a letter dated March 26, 1996, as supplemented, in accordance with the requirements of 10 CFR Part 72. In the application, PGE submitted a proposed Physical Security Plan entitled "Trojan ISFSI Security Plan" (PGE-1073). After initial staff review that included a visit to the site from July 17-22, 1996, PGE resubmitted this plan in its entirety by letter dated August 15, 1996, which incorporated staff comments. In both cases, the plan was considered "safeguards material."

The proposed Trojan ISFSI will store spent nuclear fuel, fuel debris, and greater than Class C waste that was generated at the Trojan Nuclear Plant. The installation will be situated next to the Trojan Nuclear Plant which is currently being decommissioned. The spent fuel contains low-enriched uranium and some strategic special nuclear material that is not readily separable from other radioactive material. Accordingly, the applicant must comply with the following applicable regulations for this area: 10 CFR Part 72, Subpart H, "Physical Protection," Sections 72.24(o), 72.40(a)(8), and 72.44(e) and 10 CFR Part 73, notably Section 73.50. Additionally, NUREG-1497, "Interim Licensing Criteria for Physical Protection of Certain Storage of Spent Fuel," states:

The NRC staff believes that the requirements of § 73.50 can be selectively implemented because design features of the spent fuel and its storage mechanism provide a degree of inherent physical protection for the fuel. In addition, because the requirements of § 73.50 were originally developed to encompass fuel reprocessing facilities, the regulation contemplated protection for unencapsulated, reprocessed strategic special nuclear material. Hence, § 73.50 may present excessive requirements for the protection of irradiated spent fuel that has not been chemically separated into its constituent parts through reprocessing.

Basic physical protection performance capabilities were developed that form the basis for selective implementation of § 73.50.

The general design objectives of a system used to store spent fuel are to protect the storage of spent fuel and to minimize the possibilities for

radiological sabotage. To achieve this, the physical protection system should provide for the following performance capabilities:

- (1) The establishment of a security organization with written procedures;
- (2) The use of physical barriers to control access to the spent fuel;
- (3) Procedures and controls to assure only authorized individuals are granted access to the spent fuel;
- (4) Detection and assessment of unauthorized penetration or activities by an individual or individuals within the protected area containing the spent fuel; and
- (5) The capability for timely communications of unauthorized penetration or activities to a designated response force through a continuously manned alarm station, not necessarily within the protected area, and via one other redundant means sufficient to permit response.

2.0 DISCUSSION

The applicant has affirmed the general design objectives of the implemented physical protection system to protect the storage of spent fuel and to protect the facility from radiological sabotage and has met the basic performance capabilities as indicated below.

2.1 Physical Security Organization

The applicant has affirmed that a security organization comprised of a minimum of two watchmen per shift has been established to provide for monitoring of detection and assessment subsystems, performance of access control functions, and communicating with a designated response force or local law enforcement agency in the event of detection of unauthorized penetration or activities.

The applicant has affirmed that security audits will be conducted at least every 24 months by individuals independent of both security program management and of personnel directly responsible for implementation of the security program. The review includes an evaluation of the effectiveness of the physical protection system and an audit of commitments established with local law enforcement agencies. The reports are maintained in a form suitable for audits and are available for inspection for 3 years.

2.1.1 Qualifications for Employment in Security

The applicant has affirmed that individuals, including watchmen, granted unescorted access to the protected area where spent fuel is stored will undergo screening prior to the granting of such access. The screening includes a Federal Bureau of Investigation criminal history check and a previous employment check that includes two reference checks.

2.1.2 Security Force Training

PGE has submitted an ISFSI Security Training and Qualification Plan in its physical security plan. The plan documents that the applicable criteria of Appendix B to Part 73 are being met. Specifically, the applicable criteria of Appendix B are:

- (1) Educational development (possession of a high school diploma or equivalent);
- (2) No felony convictions involving the use of a weapon or that reflect on the individual's reliability; and
- (3) Physical qualifications that indicate no physical weaknesses or abnormalities that would adversely affect performance of assigned security job duties.

The ISFSI Security Training and Qualification Plan is included as "Appendix C" to the Trojan ISFSI Security Plan.

2.1.3 Records

The following records are maintained by PGE for 3 years after the records are created: (1) screening records until the affected individual terminates employment and (2) training and qualification records.

2.2 Physical Barrier System

The applicant has provided for spent fuel to be stored within a protected area such that access to this area requires passage through, or penetration of, at least three security barriers. The first barrier is at the perimeter of the protected area, while the second barrier offers substantial penetration resistance by requiring specialized equipment to accomplish the penetration. The protected area barrier includes an isolation zone between the outer and inner barriers. The inner isolation zone is free from clutter and has intrusion surveillance prior to penetration of the second or inner barrier. The second security barrier is the concrete cask which provides substantial penetration resistance. The third barrier is the stainless steel PWR basket assembly. In addition, there is an air gap which separates the last two barriers.

2.2.1 Security Post(s)

The applicant has provided for two persons (watchmen) to be on duty at all times. The same watchmen are also trained as alarm station operators. Normal duties encompass the operation of the central alarm station and control of personnel entry, including searches of persons who enter the protected area. Security force personnel periodically monitor the protected area boundaries for the presence of unauthorized persons and activities and for security system or barrier degradation. There are two alarm stations associated with this site. The one at the site can be monitored either from inside the alarm station or through a pager carried by the on-duty watchman. The other alarm

station (secondary alarm station) is located at the PGE central building, and the site is monitored through closed circuit television.

2.2.2 Illumination

The applicant has provided for sufficient illumination to allow surveillance of the protected area.

2.3 Access Control Subsystems and Procedures

2.3.1 Identification System

PGE has included in its physical protection program an identification system. The system provides unique identification of individuals granted unescorted access to the protected area through such means as badges and personnel identification cards (e.g., company identification, driver's license photograph). In addition, the system identifies individuals requiring an escort while within the protected area.

2.3.2 Access to Protected Areas

The physical security plan describes procedures for determining an individual's need for access to the protected area. Access to protected areas is limited to individuals authorized escorted or unescorted access to perform job duties. Procedures are also described for dealing with required access of emergency response personnel vehicles.

2.3.3 Access Controls at the Protected Area

The applicant has provided procedures for granting access of individuals and packages into the protected area. Only those vehicles listed on the Designated Vehicles list are allowed into the protected area. Authorization is checked, and individuals, packages, and vehicles are searched for explosive devices. The search is conducted by physical search (e.g., pat-down) or with the use of a portable explosive detector.

2.3.4 Escorts and Escorted Individuals

The applicant's plan identifies the individuals designated to be granted unescorted access into the protected area. Additionally, it describes the requirements and procedures for escorting individuals who need escorted access.

2.3.5 Key and Lock Control

The licensee has implemented a key and lock control system that will limit access to, and within, the protected area to authorized individuals.

2.3.6 Records

The physical security plan has commitments for the following: (1) current written procedures that require access control personnel to identify

authorized vs. unauthorized entry for the period the applicant stores spent fuel; (2) the record of escorted individuals for 3 years from the date of the record; and (3) written procedures for key and lock control for the period the applicant stores spent fuel.

2.4 Detection, Surveillance, and Alarm Subsystems

2.4.1 Isolation Zone Penetration

The applicant has committed to have the capability to detect unauthorized penetrations through the interior isolation zone at the perimeter of the protected area. The intrusion detection system covers all of the inner areas of the protected area. The intrusion detection system is comparable to those systems described in Regulatory Guide 5.44, "Perimeter Intrusion Detection Systems."

2.4.2 Alarm Annunciation at Security Posts

The applicant has provided for a central alarm station and a redundant secondary alarm station, as well as annunciation at the pager carried by the patrol. Interior isolation zone penetrations are detected and annunciated within the alarm stations, and an indication is provided for the status of all alarms and alarm zones within the alarm stations.

2.4.3 Power Sources

The applicant has provided automatic switch-over to standby power for security equipment systems.

2.4.4 Component Supervision

Intrusion detection systems are tamper-resistant and tamper-indicating. The systems have a fail-safe mode that provides an indication in the event of component failure.

2.4.5 Protected Area Monitoring and Assessment

The physical security plan describes methods used to monitor the protected area for unauthorized penetration or activities and to assess unauthorized penetrations. Monitoring capability of the protected area is provided by closed circuit television coverage and random patrols.

2.5 Communications Subsystems

2.5.1 Security Force Communications

The physical security plan commits to each watchman being equipped with two-way radios capable of maintaining continuous communications with the security posts.

2.5.2 Alarm Station Communications

The applicant has committed to providing redundant communication among the security posts, the alarm stations, and the off-site responders. A description of the redundant system is provided in the physical security plan.

2.5.3 Power Sources

The licensee has described measures to provide non-portable communications equipment operable in the event of loss of normal power.

2.6 Test and Maintenance Program

2.6.1 Specification Tests

All security-related equipment is tested to applicable manufacturer's specifications.

2.6.2 Operational Tests

The security systems and support equipment are checked for operability weekly and at the beginning and end of each interval used for security.

2.6.3 Repairs and Maintenance

The applicant has committed to a repair and preventive maintenance program. This includes taking interim compensatory measures until the system is restored to normal capability.

2.7 Contingency Response Plan and Procedures

2.7.1 Contingency Plan Documentation

The applicant has provided for contingencies by the inclusion of a site safeguards contingency plan, which is described in the physical security plan.

2.7.2 Response Force Liaison

The contingency plan describes off-site response from two different law enforcement agencies. The county sheriff's organization is the primary responding agency. The physical security plan provides response time and the number of responders.

2.7.3 Response Procedures

The applicant's response procedures for dealing with detection of unauthorized presence or activities within the protected area are described in its physical security plan.

2.7.4 Records

The contingency plan describes response record data and commits to maintaining those records for 3 years.

3.0 CONCLUSION

Based upon the contents of PGE's submittal dated August 15, 1996, and subsequent staff review, the staff has determined that implementation of the physical security plan, "Trojan ISFSI Security Plan" (PGE-1073), will protect the storage of spent fuel at the Trojan ISFSI and minimize the possibilities for radiological sabotage. The staff concludes that the physical protection system meets the following performance capabilities:

- (1) The establishment of a security organization with written procedures;
- (2) The use of physical barriers to control access to the spent fuel;
- (3) Procedures and controls to assure only authorized individuals are granted access to the spent fuel;
- (4) Detection and assessment of unauthorized penetration or activities by an individual or individuals within the protected area containing the spent fuel; and
- (5) The capability for timely communication of unauthorized penetration or activities to a designated response force through a continuously manned alarm station, not necessarily within the protected area, and via one other redundant means sufficient to assure response.

The staff concludes that the applicant's plan will not be inimical to the common defense and security or to public health and safety, and is, therefore, acceptable.

As a result, a license condition pursuant to 10 CFR 72.44(e) shall be stated in the license, which may be similar to the following:

The licensee shall implement the physical security plan, "Trojan ISFSI Security Plan" (PGE-1073), dated August 15, 1996, as amended. The licensee shall not make changes to the plan would decrease its effectiveness without prior approval from the Commission as evidenced by a license amendment.

In the interim, any changes made to the plan prior to issuance of the license must be submitted to the staff for review and approval.