

MEMORANDUM TO: Susan F. Shankman, Deputy Director
Licensing and Inspection Directorate
Spent Fuel Project Office, NMSS

FROM: Eric J. Leeds, Acting Chief
Licensing and International
Safeguards Branch
Division of Fuel Cycle Safety
and Safeguards, NMSS

SUBJECT: RESPONSE TO TECHNICAL ASSISTANCE REQUEST – REVIEW OF
RANCHO SECO ISFSI PHYSICAL PROTECTION PLAN
(TAC NO. L10017)

This is a response to your technical assistance request dated May 19, 1995, which requested a technical review of the Sacramento Municipal Utility District Rancho Seco ISFSI Physical Protection Plan submittal of May 8, 1995, with a subsequent full resubmittal dated February 1, 2000. Attached is a suggested license condition and a Safeguards Evaluation Report recommending approval of the proposed Physical Protection Plan dated February 1, 2000.

Docket No.: 72-11

Attachments: 1. Proposed License Condition
2. Safeguards Evaluation Report

CONTACT: Andrew D. Rayland, NMSS
(301) 415-8102

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PROPOSED LICENSE CONDITION

The following paragraphs will be included in the 10 CFR Part 72 license.

The licensee shall follow the Physical Protection Plan entitled, "Sacramento Municipal Utility District Rancho Seco Independent Spent Fuel Storage Installation (ISFSI) Physical Protection Plan (PPP)," Amendment 0 dated February 1, 2000, and as it may be further amended under the provisions of 10 CFR Parts 72.44(e) and 72.84(d).

The licensee shall follow the Contingency Plan which is included as a part of the aforementioned Physical Protection Plan and entitled, "Chapter 10-Contingency Response Plan and Procedures," and as it may be further amended under the provisions of 10 CFR Parts 72.44(e) and 72.84(d).

The licensee shall follow the Physical Protection Plan entitled, "Sacramento Municipal Utility District Rancho Seco Independent Spent Fuel Storage Installation (ISFSI) Training and Qualification Plan (T&QP)," Revision 0 dated February 1, 2000, and as it may be further amended under the provisions of 10 CFR Parts 72.44(e) and 72.84(d).

SAFEGUARDS EVALUATION BY THE OFFICE OF NUCLEAR
MATERIAL SAFETY AND SAFEGUARDS
ON THE PHYSICAL PROTECTION PLAN FOR
SACRAMENTO MUNICIPAL UTILITY DISTRICT
RANCHO SECO INDEPENDENT SPENT FUEL STORAGE INSTALLATION
DOCKET NUMBER 72-22

13. PHYSICAL PROTECTION PLAN

13.1 Conduct of Review

This safety evaluation addresses the Physical Protection Plan (Plan) submitted to the NRC for review by Sacramento Municipal Utility District (SMUD) in support of the application to license the Rancho Seco Independent Spent Fuel Storage Installation (ISFSI). Formal requests for additional information were sent to the licensee and the licensee's response to these requests was adequate. This safety evaluation is based on Amendment 0 dated February 1, 2000, to the SMUD Physical Protection Plan.

13.1.1 Applicable Regulations and Guidance

10 CFR Part 72, Subpart H - Physical Protection

10 CFR 73.51 *Physical Protection*, section (a), provides the regulatory requirements for ISFSI Physical Protection Plans.

Standard Review Plan for Physical Protection Plans for the Independent Storage of Spent Fuel and High Level Radioactive Waste, NUREG 1619, July 1998, provides guidance for staff reviewers.

13.2 Evaluation

13.2.1 Facility Description

The Plan provides an adequate description of the facility and site. It includes site maps showing the cask storage area, important supporting structures, and the boundaries of the protected area, as well as descriptions of the area adjacent to the site.

13.2.2 General Performance Objectives

The general objective of the physical protection system is to provide high assurance that activities involving spent nuclear fuels do not constitute an unreasonable risk to public health and safety.

To achieve this objective, the physical protection system should provide for the following performance capabilities in accordance with 10 CFR 73.51(b):

- (i) Store spent nuclear fuel and high level radioactive waste only within a protected area;
- (ii) Grant access to the protected area only to individuals who are authorized to enter the protected area;
- (iii) Detect and assess unauthorized penetration of, or activities within the protected area;
- (iv) Provide timely communication to a designated response force whenever necessary; and,
- (v) Manage the physical protection organization in a manner that maintains its effectiveness.

In addition, 10 CFR 73.51(b)(3) requires that the physical protection system must be designed to protect against loss of control of the facility that could be sufficient to cause a radiation exposure exceeding the dose specified in 10 CFR 72.106(b) from any design basis accident.

The licensee has reaffirmed the general design objective of the implemented physical protection system is to protect the storage of spent fuel and to protect the facility from loss of control by providing a physical protection plan with commitments that meet the requirements of 10 CFR Parts 72.180 and 73.51.

The commitments in the Plan for general performance objectives meet the requirements of 10 CFR Parts 72.180 and 73.51.

13.2.3 Physical Barrier Systems

As required by 10 CFR 73.51(d)(1), the licensee must store spent fuel only within a protected area so that access to this material requires passage through or penetration of two physical barriers, one barrier at the perimeter of the protected area and one barrier offering substantial penetration resistance.

The licensee has provided for spent fuel to be stored within a protected area such that access to stored spent fuel requires passage through or penetration of at least two security barriers. The first barrier is a fence topped with razor ribbon at the perimeter of the protected area. The protected area barrier includes an adequate isolation zone between the outer and inner barrier and on either side of each barrier. The inner isolation zone is free from clutter and has intrusion surveillance prior to penetration of the second inner barrier. The second security barrier is the Horizontal Storage Module concrete and metal storage system which provides substantial penetration resistance.

Once installed, these barriers will be included in the pre-operational inspection.

The commitments in the Plan for physical barrier systems therefore meet the requirements of 10 CFR 73.51(d)(1) and are adequate for facility licensing.

13.2.4 Illumination

As required by 10 CFR 73.51(d)(2), illumination must be sufficient to permit adequate assessment of unauthorized penetrations of or activities within the protected area.

The licensee has provided for sufficient illumination to allow surveillance and adequate assessment within the protected area. Illumination will be included in pre-operational performance inspections to assure the illumination levels are sufficient.

The commitments in the Plan therefore meet the requirements of 10 CFR 73.51(d)(2).

13.2.5 Surveillance

As required by 10 CFR 73.51(d)(3), the perimeter of the protected area must be subject to continual surveillance and be protected by an active intrusion alarm system which is capable of detecting penetrations through the isolation zone and that is monitored in a continually staffed primary alarm station and in one additional continually staffed location. The primary alarm station must be located within the protected area and have bullet-resisting walls, doors, ceiling and floor; and the interior of the station must not be visible from outside the protected area. A timely means for assessment of alarms must also be provided. Regarding alarm monitoring, the redundant location need only provide a summary indication that an alarm has been generated.

The licensee has committed to have the capability to detect unauthorized penetrations through the isolation zones 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." The licensee commits to meeting Regulatory Guide 5.44. The intrusion detection system is tamper indicating and has line supervision.

The licensee has proposed alternative measures where the Primary Alarm Station (PAS) is outside the protected area at a continuously manned SMUD Headquarters location. The Secondary Alarm Station (SAS) is located at Rancho Seco within a protected structure. Both alarm stations are bullet resisting to UL Standards (UL 752, Standard for Bullet Resisting Equipment). Both alarm stations have complete display status of all alarms and Closed Circuit Television (CCTV) monitors for assessment. All access control and all intrusion alarms are monitored from these facilities. Assessment is enhanced through the use of a video capture system.

Once installed, these surveillance systems, including the alarm stations, will be included in the pre-operational inspection.

The commitments in the Plan for alarm surveillance, annunciation, and additional alternative measures provide comparable protection to the requirements of 10 CFR 73.51(d)(3).

13.2.6 Security Patrols

As required by 10 CFR 73.51b(d)(4) the protected area must be monitored by daily random patrols.

A member of the security force randomly monitors the protected area boundaries for the presence of unauthorized persons, activities, and for security system or barrier degradation on a daily basis. Both the PAS and the SAS provide CCTV oversight of the security force member on patrol.

The commitments to patrols in the Plan therefore meet the requirements of 10 CFR 73.51(d)(4).

13.2.7 Security Organization

As required by 10 CFR 73.51(d)(5), a security organization with written procedures must be established. The security organization must include sufficient personnel per shift to provide for monitoring of detection systems and the conduct of surveillance, assessment, access control, and communications to assure adequate response. Members of the security organization must be trained, equipped, qualified, and requalified to perform assigned job duties in accordance with applicable portions of Appendix B to Part 73, sections I.A.(1)(a) and (b), B.(1)(a), and the applicable portions of Section II.

The licensee has established a security organization that includes trained individuals, oversight, and written procedures. This organization provides for security personnel who are trained to carry out physical protection duties. Shift manning levels may be increased dependent upon planned daily activities.

13.2.7.1 Qualifications for Employment in Security

The licensee has committed to perform screening for individuals, including security personnel, granted unescorted access to the protected area where spent fuel is stored, prior to the granting of such access in accordance with 10 CFR Part 73.51 which meets the requirements of 10 CFR Part 73, Appendix B, General Criteria for Security Personnel, Sections I.A.1.a., Educational Development, I.A.1.b., Felony Convictions; and I.B.1.a., Physical and Mental Qualifications; and the applicable portion of Section II Training and Qualifications.

13.2.7.2 Security Force Training

The licensee submitted an ISFSI Security Training and Qualification Plan (T&QP) as an attachment to the Plan. The T&QP commits to meet applicable criteria of Appendix B to 10 CFR Part 73.

The licensee has committed to training and qualifying all non-supervisory security personnel to all non-supervisory duty functions including PAS and SAS operator, physical searches, personnel identification, and logging functions, as well as response functions. All shift security personnel are to be trained in searching for firearms, explosive materials, and incendiary devices.

Once implemented, the security organization and training will be included in the pre-operational inspection.

The commitments in the Plan for security organization therefore meet the requirements of 10 CFR 73.51(d)(5).

13.2.8 Response Liaison

As required by 10CFR 73.51(d)(6), documented liaison with a designated offsite response force or local law enforcement agency (LLEA) must be established to permit timely response to unauthorized penetration or activities.

The licensee has included a Contingency Response Plan as Chapter 10 to their Plan. The Contingency Plan references documented liaison with the Sacramento County Sheriff's Office as the LLEA. The referenced agreement contains response times and numbers of responding LLEA personnel.

The commitment made in the Plan for offsite response therefore meets the requirements of 10 CFR 73.51(d)(6).

13.2.9 Identification and Controlled Lock Systems

As required by 10 CFR 73.51(d)(7), a personnel identification system and a controlled lock system must be established and maintained to limit access to authorized individuals.

The licensee included in its physical protection program an identification system used at the facility. 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, photograph). In addition, the identification system identifies individuals requiring an escort while within the protected area.

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

Once implemented, the identification and controlled lock system will be included in the pre-operational inspection.

The commitments in the Plan for identification and controlled lock systems therefore meet the requirements of 10 CFR 73.51(d)(7).

3.2.10 Communications Capability

As required by 10 CFR 73.51(d)(8), redundant communications capability must be provided between onsite security force members and designated response force or LLEA.

The licensee commits to equipping each watchman with two-way radios capable of maintaining continuous communications with the security posts. The PAS and SAS have both a base radio system and a commercial telephone to maintain contact with LLEA. Onsite communication is equipped with an uninterruptible power supply system.

Once implemented the communication capability will be included in the pre-operational inspection.

The commitments in the Plan for communications capability therefore meets the requirements of 10 CFR 73.51(d)(8).

3.2.11 Access Controls at the Protected Area

As required by 10 CFR 73.51(d)(9), all individuals, vehicles, and hand-carried packages entering the protected area must be checked for proper authorization and visually searched for explosives before entry.

13.2.11.1 Access to Protected Areas

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

13.2.11.2 Access Controls at the Protected Area

The licensee has provided procedures for granting access of individuals and packages and emergency vehicles into the protected area. Authorization is checked, and individuals, packages, and vehicles are searched for explosive devices. The search is conducted by physical search (pat down), which exceeds the regulatory requirements.

13.2.11.3 Escorts and Escorted Individuals

The licensee identifies the individuals designated to be granted unescorted access into the protected area as well as describing the requirements and procedures for escorting individuals who need escorted access.

The commitments in the Plan for access control therefore exceed the requirements of 10 CFR 73.51(d)(9).

13.2.12 Procedures

As required by 10 CFR 73.51(d)(10) written response procedures must be established and maintained for addressing unauthorized penetration of, or unauthorized activities within the protected area including Category 5, "Procedures," of Appendix C to Part 73. The licensee will retain a copy of response procedures as a record for three years or until termination of the license for which the procedures were developed. Copies of superseded material must be retained for three years after each change or until termination of the license.

The licensee's response procedures for dealing with detection of unauthorized presence or activities within the protected area are described in its Physical Protection Plan. These procedures detail the actions to be taken and decisions to be made by each member or unit of the response organization.

The commitment in the Plan to provide procedures therefore meets the requirements of 10 CFR 73.51(d)(10).

13.2.13 Equipment Operability

As required by 10 CFR 73.51(d)(11), all detection systems and supporting subsystems must be tamper-indicating with line supervision. These systems, as well as surveillance/assessment and illumination systems, must be maintained in operable condition. Timely compensatory measures must be taken after discovery of an inoperable condition, to assure that the effectiveness of the security system is not reduced.

The licensee has committed to perform testing of all security related equipment to applicable manufacturers' specifications. The licensee has committed to check the security systems and support equipment for operability periodically and before and after each time it is used.

The commitments in the Plan for equipment operability meet the requirements of 10 CFR 73.51 (d)(11).

3.2.14 Audits

As required by 10 CFR 73.51(d)(12) the physical protection program must be reviewed once every 24 months by individuals independent of both physical protection program management and personnel who have direct responsibility for implementation of the physical protection program. The physical protection program review must include an evaluation of the effectiveness of the physical protection system and a verification of the liaison established with the LLEA.

The licensee has committed to conduct security audits 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 audits include evaluation of the effectiveness of the physical protection program and verification of the liaison established with the LLEA. The reports are maintained in a form sufficient for auditing. They are available for inspection for a period of three years.

The commitments in the Plan for an audit program therefore meet the requirements of 10 CFR 73.51(d)(12).

13.2.15 Documentation

As required by 10 CFR 73.51(d)(13), documentation must be retained as a record for three years after the record is made or until termination of the license. Duplicate records to those required under 10 CFR Parts 72.180 and 73.71 need not be retained.

The licensee's Contingency Plan describes response record data and commits to maintaining those records for a period of three years. These records include:

- (1) Employment screening records until the affected individual terminates employment.
- (2) Training and qualification records required by Appendix B, Section II. B.
- (3) Current written procedures that require access control personnel to identify authorized versus unauthorized entry for the period the licensee stores spent fuel,
- (4) The record of escorted individuals for a period of three years from the date of the record,
- (5) Written procedures for key and lock control for the period the licensee stores spent fuel,
- (6) Audit reports and resolutions, and
- (7) A record of assessment and response to alarms.

The commitments in the Plan for record keeping therefore meets the requirements of 10 CFR 73.51(d)(13).

13.3 Evaluation Findings

As required by 10 CFR 72.180, the Physical Protection Plan describes how the licensee will meet the requirements of 10 CFR 73.51. The staff has concluded that the Sacramento Municipal Utility District Rancho Seco ISFSI Physical Protection Plan; Chapter 10, Contingency Response Plan and Procedures; and the Sacramento Municipal Utility District Rancho Seco ISFSI Training and Qualification Plan, Revision 0, are adequate and meet the requirements of 10 CFR 73.51. Further, when fully implemented, the licensee's physical protection plans satisfies the provisions of 10 CFR 72.40 by providing for the common defense and security and the protection of the health and safety of the public.

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