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Southern California Edison Company

23 PARKER STREET

IRVINE, CALIFORNIA 92718

November 24, 1992

WALTER C. MARSH
ASSISTANT MANAGER,
NUCLEAR REGULATORY AFFAIRS

TELEPHONE
(714) 454-4403

U. S. Nuclear Regulatory Commission
Attention: Document Control Desk
Washington, D.C. 20555

Gentlemen:

Subject: **Docket No. 50-206**
Exemption from 10 CFR 70.24 Criticality Accident Requirements
San Onofre Nuclear Generating Station, Unit 1

This letter requests an exemption from 10 CFR 70.24, "Criticality Accident Requirements." The regulation has specific requirements for a criticality monitoring system in areas where special nuclear material is handled, used, or stored. The monitoring system at San Onofre Unit 1 does not satisfy all of those requirements. The regulation under 70.14 and 70.24(d) allow us to apply for an exemption where good cause exists.

The spent fuel storage area at San Onofre Unit 1 contains a single area radiation monitor as required by General Design Criteria 63. There were no provisions to provide a backup monitor when the area radiation monitor is out of service. In addition, there is no radiation monitor provided in the new fuel storage area. These provisions differ from those specified in 10 CFR 70.24. However, the fuel storage areas for both new and spent fuel have been designed and evaluated to preclude criticality. This design has been reviewed and approved by the NRC during the Systematic Evaluation Program (SEP).

REGULATORY BACKGROUND AND GUIDANCE

The NRC reviews fuel storage facilities at nuclear power plants under 10 CFR 50 to ensure compliance to Appendix A, General Design Criteria 61, 62, and 63. The regulations under 70.24 also provide further requirements for criticality monitoring systems in fuel storage facilities. The regulation 10 CFR 70.24(d) states:

Any licensee who believes that good cause exists why he should be granted an exemption in whole or in part from the requirements of this section may apply to the Commission for such exemption.

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Regulatory Guide 8.12, "Criticality Accident Alarm Systems," dated January 1981, states that it is appropriate for a licensee to request an exemption from 10 CFR 70.24 if an evaluation determines that a potential for criticality does not exist, as for example, where geometric spacing is used to preclude criticality.

SONGS 1 TECHNICAL BASIS FOR EXEMPTION

Inadvertent or accidental criticality is precluded by design for the fuel handling and storage areas of SONGS 1. SEP Topic IX-1 addressed fuel storage at San Onofre Unit 1. The results of this topic are contained in the NRC's Safety Evaluation Report (SER), dated December 7, 1982. A summary of the analysis and the NRC's SER for new and spent fuel storage is contained in Revision 3 to the SONGS 1 Updated Final Safety Analysis Report (UFSAR), Chapter 9, Section 9.1. The description for fuel handling and storage of fuel demonstrates that the geometric arrangements for fuel precludes accidental criticality.

New Fuel Storage Racks

From the NRC's SER, it was concluded that the design of the new fuel storage racks is in conformance with the requirements of General Design Criteria (GDC) 61 "Fuel Storage and Handling and Radioactivity Control," and GDC 62 "Prevention of Criticality in Fuel Storage and Handling." This is also documented in the UFSAR, Section 9.1.1.3. The results of this analysis demonstrated for new fuel the maximum K_{eff} is 0.843 with all uncertainties including optimum moderation. Also, since SONGS 1 will be permanently shutdown after this fuel cycle, no new fuel presently exists in this area and none will be placed here in the future. Therefore, there is no need for criticality monitoring.

Spent Fuel Storage Racks, Fuel Handling, and Radiation Monitoring

The SER stated that the design of storage racks is such that a fuel assembly can only be inserted in design locations, and that the racks have cross bars spanning the spaces between fuel locations which prevent a fuel assembly from being inserted other than in design locations. The SER concluded that the design requirements for spent fuel storage is in accordance with GDC 61 "Fuel Storage and Handling and Radioactivity Control," and GDC 62 "Prevention of Criticality in Fuel Storage and Handling," and Regulatory Guide 1.13, "Spent Fuel Storage Facility Design Basis," Positions C.1 and C.4. The results of this analysis demonstrated that the maximum K_{eff} for storage of spent nuclear fuel is 0.896. The geometric arrangement provides assurance that inadvertent criticality is precluded.

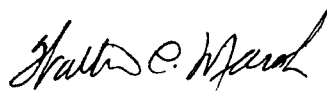
Also, storage and handling of fuel has been found to meet the guidelines of Regulatory Guide 1.13, Position C.7. The NRC concluded that the area radiation monitor is sufficient to monitor radiation levels and provides assurance that personnel will not be subjected to unnecessary radiation exposure during fuel handling activities. In the interim until the exemption is granted, we have placed a portable radiation monitor near the spent fuel pool. This is to ensure radiation levels are always monitored should the permanently installed area radiation monitor be out of service during non-fuel movement periods.

CONCLUSION

Currently, SONGS 1 fuel storage and handling is designed to preclude accidental criticality as discussed in this letter, SONGS 1 UFSAR Chapter 9, and the NRC's Safety Evaluation Report. The geometric arrangement and moderator are sufficient to control reactivity, and to preclude accidental criticality. Therefore, in accordance with § 70.14 and § 70.24(d), SCE requests an exemption from 10 CFR 70.24.

If you should have any questions or comments regarding this exemption request, please do not hesitate to contact me.

Very truly yours,



cc: J. B. Martin, Regional Administrator, NRC Region V
J. O. Bradfute, NRC Project Manager, San Onofre Unit 1
C. W. Caldwell, NRC Senior Resident Inspector, San Onofre Units 1, 2&3
R. F. Dudley, Jr., Section Chief, Non-Power, Decommissioning, and
Environmental Project, Directorate of Reactor Projects - 3, 4, and 5