UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

Application of SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. for a Class 103 License to Acquire, Possess, and Use a Utilization Facility as Part of Unit 2 of the San Onofre Nuclear Generating Station	)	Docket No. 50-361 Amendment Application No. 126

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 126.

This amendment application consists of proposed Technical Specification Change No. NPF-10-406 to Facility Operating License No. NPF-10. Proposed Technical Specification Change NPF-10-406 is a request to revise Technical Specification (TS) 3.9.7, "Fuel Handling Machine - Spent Fuel Storage Pool Building," to allow long-term use of the spent fuel cask pool cover. This proposed change deletes TSs 3.9.7.c and 3.9.7.d, which provided for temporary use of the cask pool cover during reracking.

Subscribed on this 24th day of December, 1992.

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: H E Morgan
H.E. Morgan
Vice President and Site Manager

State of California
County of Orange
On December 24, 1992 before me, Mariane Sanchez,
personally appeared H. E. Morgan, personally known to me to be the person whose name is subscribed to the within instrument and acknowledged to me that he executed the same in his authorized capacity, and that by his signature on the instrument the person, or the entity upon behalf of which the person acted, executed the instrument.

WITNESS my hand and official seal.

Signature Mariane Sanchez

OFFICIAL SEAL
MARIANE SANCHEZ
Notary Public-California
ORANGE COUNTY
My Commission Expires
October 14, 1994

James A. Beoletto
Attorney for Southern
California Edison Company

By: James A. Beoletto
James A. Beoletto

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Application of SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. for a Class 103 License to Acquire, Possess, and Use a Utilization Facility as Part of Unit 3 of the San Onofre Nuclear Generating Station	)	Docket No. 50-362 Amendment Application No. 110

SOUTHERN CALIFORNIA EDISON COMPANY, ET AL. pursuant to 10 CFR 50.90, hereby submit Amendment Application No. 110.

This amendment application consists of proposed Technical Specification Change No. NPF-15-406 to Facility Operating License No. NPF-15. Proposed Technical Specification Change NPF-15-406 is a request to revise Technical Specification (TS) 3.9.7, "Fuel Handling Machine - Spent Fuel Storage Pool Building," to allow long-term use of the spent fuel cask pool cover. This proposed change deletes TSs 3.9.7.c and 3.9.7.d, which provided for temporary use of the cask pool cover during reracking.

Subscribed on this 24th day of December, 1992.

Respectfully submitted,

SOUTHERN CALIFORNIA EDISON COMPANY

By: H E Morgan
H.E. Morgan
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State of California
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On December 24, 1992, before me, Mariane Sanchez,
personally appeared H. E. Morgan, personally known to
me to be the person whose name is subscribed to the within instrument
and acknowledged to me that he executed the same in his authorized
capacity, and that by his signature on the instrument the person, or the
entity upon behalf of which the pers n acted, executed the instrument.

WITNESS my hand and official seal.

Signature Mariane Sanchez

OFFICIAL SEAL
MARIANE SANCHEZ
Notary Public-California
ORANGE COUNTY
My Commission Expires
October 14, 1994

James A. Beoletto
Attorney for Southern
California Edison Company

By: James A. Beoletto

DESCRIPTION AND SAFETY ANALYSIS
OF PROPOSED CHANGE NPF-10/15-406

This is a request to revise Technical Specification (TS) 3/4.9.7, "Fuel Handling Machine - Spent Fuel Storage Pool Building." This change will permit long-term use of the spent fuel cask pool cover.

Existing Specification

Unit 2: Attachment "A"
Unit 3: Attachment "B"

Proposed Specification

Unit 2: Attachment "C"
Unit 3: Attachment "D"

Description

PCN 406 is a request to revise TS 3/4.9.7, "Fuel Handling Machine - Spent Fuel Storage Pool Building", to allow continued use of the spent fuel cask pool cover. The existing Technical Specification (TS) states that loads in excess of 2000 pounds shall be prohibited from travel over fuel assemblies in the storage pool except for four cases. Cases 3.9.7.c and 3.9.7.d provided for temporary use of the cask pool cover during the reracking project. TS 3.9.7.c also requires that the cover, fuel, and racks will be removed from the cask pool on completion of the reracking process. This proposed change will delete the requirement to remove the cask pool cover on completion of the reracking process.

To accomplish this, TSs 3.9.7.c and 3.9.7.d will be deleted. This also removes the temporary provisions for lifts over stored spent fuel that were granted as part of Amendments 88 and 77 to the Operating Licenses of Units 2 and 3, respectively. This is to reflect that the reracking project is complete.

Load restrictions over the cask pool cover are necessary to prevent a dropped load from resulting in perforation of the cover, unacceptable leakage from the pool, or rolling into the spent fuel pool. However, these load restrictions should not be included in the TSs because spent fuel will not be stored in the cask pool when the cover is in use. Therefore, the lifting of loads over the cask pool with the cover in place does not constitute a lift over spent fuel and TS requirements are not appropriate.

Instead, load restrictions involving use of the cask pool cover will be incorporated into the San Onofre Units 2 and 3 Heavy Loads Program.

The existing TS required the cover, spent fuel, and spent fuel racks that were temporarily stored in the cask pool during reracking to be removed from the cask pool when the reracking process was completed. The cover, spent fuel, and spent fuel racks were removed when reracking was completed. The cask pool will not be used for storage of spent fuel or spent fuel racks as a result of this change.

The purpose of the cask pool cover during the reracking project was to protect spent fuel stored in the cask pool and to provide additional work space for construction activities in the fuel handling building. Although spent fuel is no longer being stored in the cask pool, long-term use of the cask pool cover is requested to take advantage of the additional work space, typically during fuel inspection and reconstitution. While the cover may generally be left installed on the cask pool, it will need to be removed occasionally for various reasons. Examples of reasons to remove the cover are transshipment of spent fuel from Unit 1 and removal of the spent fuel pool gate for scheduled seal maintenance.

Background

The cask pool cover (see Figures 1 and 2), the same cover previously approved and used during reracking, consists of four segments which will be bolted together with installation beams (strongbacks) to create one complete assembly prior to its placement over the cask pool. The cover assembly will be lifted by the Cask Handling Crane (CHC) then lowered over the cask pool until it rests on the cask pool curbs. Once in place the strongbacks would normally be removed, and the confining nature of the cask pool walls will hold the cover in place.

Approval for temporary use of the cask pool cover was requested in PCN 287 (Reference 1), as part of the San Onofre Units 2 and 3 reracking project. The analysis in Reference 1 discussed both the structural effects of a heavy load drop over the cask pool cover and the effects such a drop would have on spent fuel stored in the cask pool. The NRC approved reracking and temporary use of the cask pool cover in Amendments 88 and 77 to the Operating Licenses of Units 2 and 3, respectively (Reference 2).

Included in the approval of temporary use of the cover was the requirement that the cover be removed after reracking. According to the Safety Evaluation Report included in Reference 2, this requirement was included to ensure continued safety during normal operation of the cask pool. Therefore, for long-term use of the cask pool cover to be acceptable, continued safe operation of the cask pool with the cover in place must be demonstrated.

Discussion

Long-term use of the cask pool cover is acceptable because the proposed load restrictions which control use of the cover are more conservative than the load restrictions in the amendments which allowed temporary use of the cover. The proposed restrictions are more conservative in that spent fuel will not be stored in the cask pool when the cover is installed and used. Also, the structural responses of the cover to postulated load drops are enveloped by results of the prior load evaluations which are documented in Reference 1 and which governed the design of the cover.

The loads that have been analyzed for lifting over the cask pool cover are as follows:

1) Cask Pool Cover Special Lifting Device

2) Test Equipment

3) Spent Fuel Handling Machine Trolley

4) Reconstitution Gantry

5) Cask Handling Crane Load Block without Load

6) Temporary Work platforms

Any unanticipated loads to be lifted over the cask pool cover will be analyzed in accordance with the provisions outlined in the NUREG-0612 Heavy Loads evaluation as discussed below.

Heavy Loads Evaluation

To demonstrate acceptability of long-term use of the cask pool cover, Southern California Edison (SCE) has prepared a NUREG 0612 Heavy Loads Evaluation for long-term use of the cask pool cover (Reference 3). This evaluation documents the necessary load restrictions associated with use of the cask pool cover. These load restrictions are based on the initial conditions assumed in the load drop calculations for each of the postulated loads to be lifted over the cask pool cover.

The load drop calculations performed for long-term use of the cask pool cover are based on the methodology and acceptance criteria contained in Bechtel Topical Report BC-TOP-9A, Revision 2, September 1974. Four of the six load drops postulated for long-term use of the cover were previously evaluated and found to be acceptable. These loads are the cask pool cover special lifting device, the temporary work platforms, the spent fuel handling machine trolley, and the cask crane load block without load.

Additional load drop calculations were performed for the test equipment and reconstitution gantry. These calculations are consistent with the administrative controls which will be implemented to control lift weight, lift height, and exclusion zones. The structural consequences of these load drops were determined to be acceptable. Specifically, these calculations addressed the following effects:

a. Local effects were investigated, and it was determined that the cask pool cover will not be perforated.

b. Structural response was investigated, and it was determined that the acceptance criteria of the cask pool cover's structural members were satisfied.

The cask pool cover is handled as a heavy load when it is installed or removed. In terms of structural consequences the heavy load evaluation for lifting the cover over concrete is identical to the evaluation performed for temporary use of the cover in Reference 1.

A postulated drop of the cask pool cover and/or its special lifting device into the spent fuel pool or cask pool is highly unlikely. The safe load path for both the cask pool cover and the special lifting device used for installation

and removal of the cover is very narrow and restrictive, is aligned with the east-west centerline axis of the cask pool, and the cover drop height is limited to one foot above the cask pool. The use of crossbeams and strongbacks which extend beyond the pool edges and are designed to absorb the energy of the potential drop precludes the possibility of the cover from entering the cask pool during its installation and removal. As an additional precaution, these lifts will only be permitted if all stored fuel assemblies in the two closest spent fuel pool storage racks (racks 7 and 8) have a minimum decay time of 120 days (not "hot" fuel) and the Fuel Handling Building hatches are closed.

Heavy load lift heights and weights will be administratively controlled by approved procedures to assure that the analyzed conditions of the operating deck and cask pool cover are not violated, and that postulated load drops into the spent fuel pool are precluded. These controls are based on the initial conditions assumed in the load drop analyses. The applicable lift height, lift weight, and related specific restrictions for handling the identified heavy loads when the cask pool cover is in-place are as follows:

1. Heavy loads will not be carried above Exclusion Zone A, a rectangular zone 6 feet wide extending 2 feet 8 inches over the edge of the cask pool next to the spent fuel pool (see Figure 3), thereby maintaining a minimum horizontal separation of six feet between any portion of the load and the spent fuel pool edge. The two exceptions to this are (1) the test equipment may be lifted through this zone if it is being placed in or removed from the spent fuel pool in accordance with the provisions of Technical Specification 3.9.7.b, and (2) the Cask Handling Crane (CHC) load block (without load) may enter this zone only if the zone is occupied by the test equipment load to be lifted (or just lifted).

2. The CHC load block without a load may enter Exclusion Zone B, a rectangular zone 6 feet wide and extending 2 feet 8 inches over the edge of the cask pool away from the spent fuel pool (see Figure 3), only if this zone is occupied by the load to be lifted (or just lifted).

3. The consequences of potential drops associated with the CHC have been evaluated with respect to structural damage and found to be acceptable. The rolling distance of a load, if dropped, is not expected to be significant, because heavy load handling with the cask pool cover in place will be performed at low drop heights. As an added precaution certain load lifts (e.g., the spent fuel handling machine trolley) will remain attached to the CHC until its seismic restraints are secured. Therefore, a postulated load drop into the spent fuel pool is highly unlikely.

4. No heavy loads will be carried over fuel in the cask pool or unprotected safe shutdown equipment.

5. Postulated load drops above the cask pool cover have been analyzed in accordance with the guidelines of Appendix A of NUREG-0612 except that administrative controls rather than mechanical stops or

electrical interlocks are used to establish the postulated load drop locations. These administrative controls will maintain lift height and weight restrictions according to Table 2-1 of Reference 3.

The San Onofre Units 2 and 3 heavy loads program is implemented in accordance with station procedures. Special considerations pertaining to the handling of the heavy loads affected by use of the cask pool cover will be integrated into these procedures. Existing procedures will be used or revised and new procedures will be developed in accordance with Reference 3. The procedures will comply with the guidelines of NUREG-0612 Subsection 5.1.1(2).

The equipment and procedures used to move spent fuel casks are unaffected by the proposed change because the cask pool cover will be removed whenever a spent fuel cask is lifted in the Spent Fuel Handling Building.

Unanticipated heavy loads incurred during long-term cask pool cover usage will be evaluated using the methodology and the acceptance criteria contained in Bechtel Topical Report BC-TOP-9A (which is the appropriate criteria document per Updated Final Safety Analysis Report (UFSAR) Paragraph 3.8.4.2.4.b). An evaluation of the postulated heavy load drop will be performed (and documented by revising existing calculations) for all pertinent Fuel Handling Building (FHB) areas (spent fuel pool, cask pool, cask pool cover, and/or concrete) and will investigate applicable considerations such as local effects (perforation, penetration, and spalling), structural response (i.e. ductility ratios), and water leakage. Specific acceptance criteria shall include the following:

- No concrete spalling.
- No cask pool cover perforation that would permit loads to fall in the cask pool.
- Ductility ratio limits as specified in Section 4.3 of Bechtel Topical Report BC-TOP-9A.
- Water leakage limits of 49 gal/min as discussed in paragraph 4.7.4.4 of Reference 1.

The above evaluation may consist of a calculation which shows that a postulated drop of the unanticipated heavy load is enveloped (enveloping type evaluations are permitted by NUREG-0612, Appendix A, Section 1) by previously evaluated postulated heavy load drops. Any enveloping type calculations will show that the energy of the new load drop is less than or equal to the energy of the previously evaluated load drop, and the impact area (which accounts for the shape of the impact points) of the new load drop is greater than or equal to the impact area of the previously evaluated load drop.

If (1) the above evaluation shows that all acceptance criteria are satisfied and (2) station management determines that the unanticipated heavy load lift supports the fuel management program (fuel movement, fuel inspection, fuel shipment, fuel reconstitution, etc.), a 10CFR50.59 Safety Evaluation would be performed and the lift will proceed. If the above acceptance criteria are not satisfied, the lift would not be made unless the consequences were evaluated and

determined to be acceptable using Criteria I through IV stated in NUREG-0612, Section 5.1, and a license amendment request would be approved by the NRC.

In summary, the intent of the applicable guidelines of NUREG-0612 Subsection 5.1.2(2) will be complied with. The objective of these guidelines (to assure that the potential for a load drop into the spent fuel pool is extremely small) is satisfied.

Accidents Involving Lifts Over Spent Fuel

The analyses of accidents involving lifts over spent fuel are unaffected by this proposed TS change. This is because there are no new lifts over the spent fuel pool and spent fuel will not be stored in the cask pool when the cover is in place.

A drop of the Test Equipment skid onto racks containing Units 1, 2, and 3 fuel assemblies was evaluated as discussed in Sections 4.6.5.B and 5.3.5 of Reference 1. Existing Technical Specification 3.9.7 restricts the height that the test equipment skid will be carried over rack cells which contain Units 1, 2, or 3 fuel assemblies. Restricting the skid height above the racks ensures that the radiological consequences of a potential test equipment drop are bounded by the consequences of a potential spent fuel pool gate drop.

The consequences of a potential spent fuel pool gate drop have previously been evaluated as discussed in Sections 4.6.1.3.B, 4.6.5.A, and 5.3.6 of Reference 1. The spent fuel criticality accident worst case analysis was discussed in Section 6.2 of Reference 1. These analyses showed acceptable results assuming heavy load lifts over the cask pool cover with spent fuel stored in the cask pool. The probability or consequences of a spent fuel pool gate drop are not affected by the proposed change because the methods and equipment used to move the gates will not change. Also, the cask pool cover will be removed whenever a spent fuel pool gate at the cask pool end of the main pool is lifted in the Fuel Handling Building. Therefore, this proposed change is bounded by previous analyses.

Safety Analysis

Existing Technical Specification 3/4.9.7 provides that "the cover, fuel, and rack will be removed from the cask pool on completion of the reracking process." In accordance with this TS the cover, fuel, and racks were removed when reracking was completed. The proposed change permits the cask pool cover to be reinstalled for long-term use. The primary function of the proposed cask pool cover will be to provide additional work area adjacent to the spent fuel pool.

The proposed change described above shall be deemed to involve a significant hazards consideration if there is a positive finding in any of the following areas:

A. Will operation of the facility according to this proposed change involve a significant increase in the probability or consequences of an accident previously evaluated?

No.

The probability or consequences of a spent fuel assembly drop during normal movement of spent fuel are not affected by the proposed change because the methods and equipment used to move spent fuel are not changed.

As discussed in Section 15.7 of the UFSAR, spent fuel casks cannot be transported over the spent fuel pool and are not transported over irradiated fuel assemblies. Thus, an accident resulting from dropping a cask into the spent fuel pool or onto spent fuel is not credible. The equipment and procedures used to move spent fuel casks are unaffected by the proposed change because the cask pool cover will be removed whenever a spent fuel cask is lifted in the Fuel Handling Building. Therefore, the probability and the consequences of this type of accident are unaffected by the proposed change.

The probability or consequences of a spent fuel pool gate drop are not affected by the proposed change because the methods and equipment used to move the gates will not change and the cask pool cover will be removed whenever a spent fuel pool gate at the cask pool end of the main pool is lifted in the Fuel Handling Building.

The probability or consequences of a test equipment drop are not affected by the proposed change because the methods and equipment used to move the Test Equipment will not change. The existing lift height restriction for movement of the Test Equipment above the pool racks will also be applied when moving the Test Equipment in Exclusion Zone A, which is adjacent to the spent fuel pool. This means that administrative controls will limit the maximum Test Equipment lift height to six inches above the cover or the edge of the spent fuel pool whenever the cask pool cover is installed.

The cask pool cover, to be used as a work area adjacent to the spent fuel pool, will consist of a single assembly with length and width which exceed the length and width of the cask pool. During its installation, the cover will be placed over the cask pool in a manner which will preclude a drop into the cask pool. A postulated drop of the cask pool cover and/or its special lifting device into the spent fuel pool is highly unlikely because of the features of the cover's design. The safe load path for both the cask pool cover and the special lifting device is very narrow and restrictive, is aligned with the east-west centerline axis of the cask pool, and the drop height of the assembly is limited to one foot. Spent fuel will not be stored in the cask pool while the cask pool cover is either in-place or being removed or installed.

The heavy loads to be lifted in the proximity of the spent fuel pool while the cask pool cover is in-place (or being installed or removed) have been evaluated utilizing the guidelines of NUREG-0612. Administrative controls will be used to prevent lifts that could result in a heavy load drop from heights or locations that exceed the design capability of the cover or cause perforation of the cover. Heavy load lift restrictions will be imposed within an exclusion zone adjacent to the spent fuel pool. Additionally, a heavy load will not be placed or stored within the exclusion zone unless it remains hooked to the cask handling crane. The rolling distance of a load, if dropped, is not expected to be significant, because heavy load handling with the cask pool cover in place will be controlled and performed at low drop heights. Thus, a postulated load drop into the spent fuel pool is highly unlikely.

Therefore, (1) the probability of an accident resulting from the handling of a heavy load in the proximity of the spent fuel pool is not significantly increased and (2) the radiological and pool leakage consequences of a potential heavy load drop remain bounded by the consequences of a potential spent fuel gate drop.

It is concluded that the proposed change will not significantly increase the probability or the consequences of any accident previously evaluated.

B. Will operation of the facility according to this proposed amendment create the possibility of a new or different kind of accident from any accident previously evaluated?

No.

The proposed change does not create a new or different type of accident because heavy load drops during normal spent fuel handling operations are accidents that have been previously analyzed for the spent fuel pool area.

The heavy loads to be lifted in the proximity of the spent fuel pool while the cask pool cover is in-place (or being installed or removed) have been evaluated utilizing the guidelines of NUREG-0612. The guidelines of Section 5.1 of NUREG-0612 are met with respect to the handling of these heavy loads.

C. Does the proposed modification involve a significant reduction in a margin of safety?

No.

The radiological and pool leakage consequences of a potential heavy load drop remain bounded by the consequences of a potential spent fuel gate drop. Therefore, the margins of safety are not significantly reduced by the proposed change.

Safety and Significant Hazards Determination

Based on the above Safety Analysis, it is concluded that: (1) the proposed change does not constitute a significant hazards consideration as defined by 10CFR50.92; and (2) there is reasonable assurance that the health and safety of the public will not be endangered by the proposed change; and (3) this action will not result in a condition which significantly alters the impact of the station on the environment as described in the Final Environmental Statement.

References:

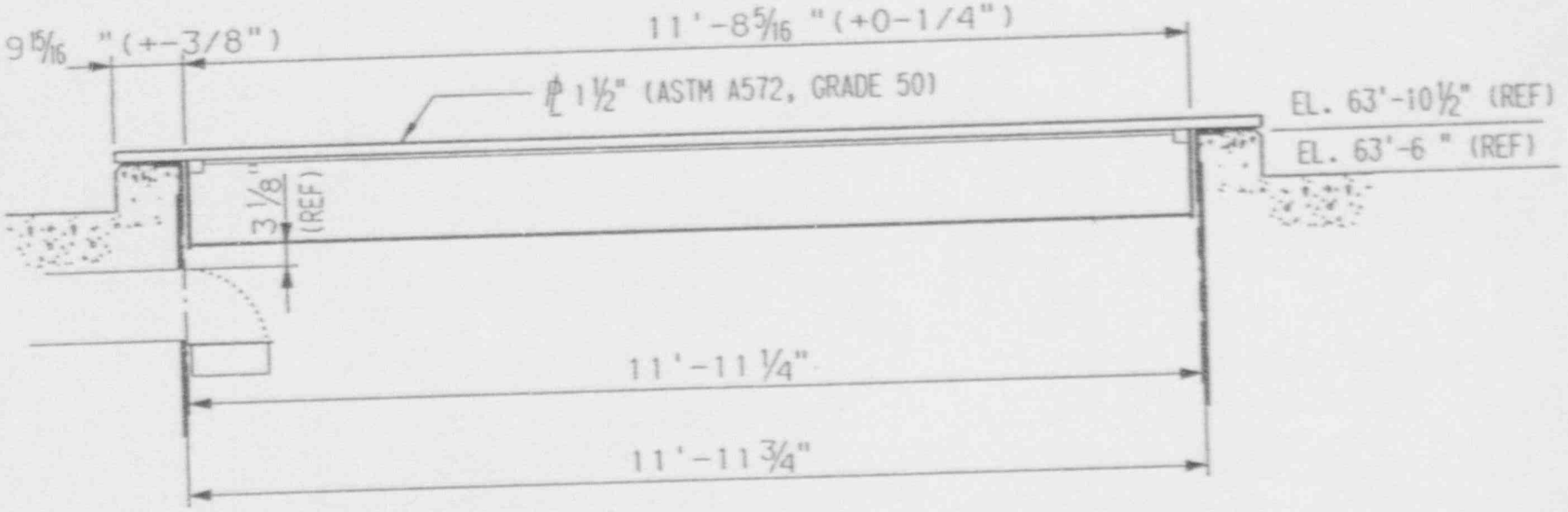
1) Amendment Applications 78 and 64, dated March 10, 1989. "Reracking", including Reracking Licensing Report, Revisions 1 through 6, dated April 19,; June 1, 1989; September 22, 1989; November 2, 1989; January 18, 1990; February 16, 1990

2) Amendments 88 and 77 to San Onofre Units 2 and 3 Operating Licenses, dated May 1, 1990

3) NUREG-0612 Evaluation; Cask Handling Crane, Long-term Cask Pool Cover Usage, Revision 0. Dated December 17, 1992

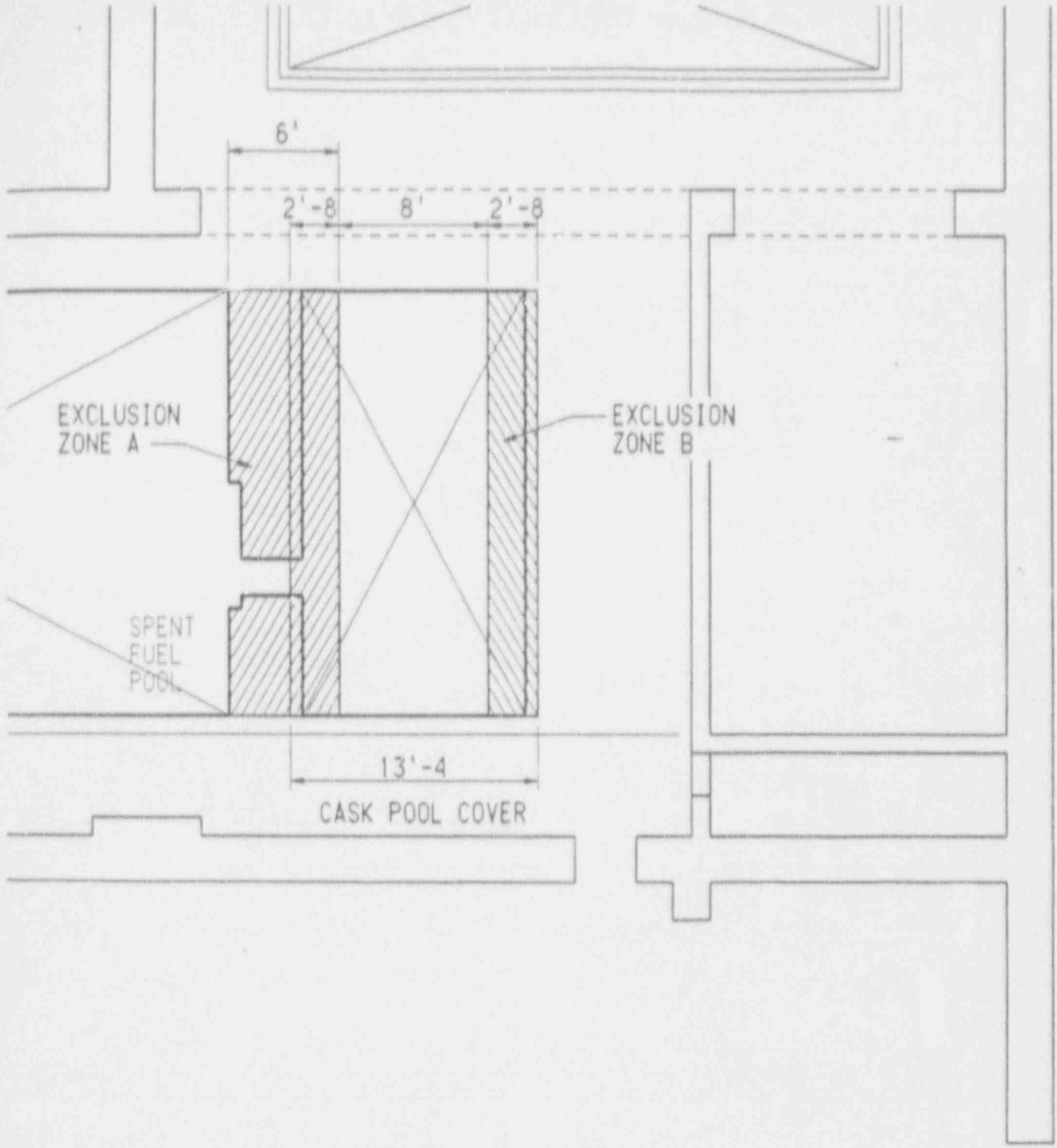
CASK POOL COVER
TOP VIEW

FIGURE 1



CASK POOL COVER
SIDE VIEW

FIGURE 2



Administratively controlled exclusion zones for heavy load lifts.

EXCLUSION ZONES
FUEL HANDLING BUILDING (UNIT 2)

FIGURE 3