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May 14, 1996

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

Gentlemen:

Subject: Docket Nos. 50-361 and 50-362
Response to NRC Bulletin 96-02, "Movement of Heavy Loads
Over Spent Fuel, Over Fuel in the Reactor Core, or Over
Safety Related Equipment"
San Onofre Nuclear Generating Station
Units 2 and 3

INTRODUCTION

This letter provides the Southern California Edison (Edison) response to NRC Bulletin 96-02. Edison has completed reviewing the plans and capabilities for handling heavy loads while the reactor is at power (in all modes other than cold shutdown (Mode 5), refueling (Mode 6), and defueled) for San Onofre Units 2 and 3. Enclosure 1 to this letter is a table that lists the heavy load lifts that could occur over spent fuel, over fuel in the reactor core, or over safe shutdown equipment¹ while the reactor is at power. The table identifies whether or not we currently plan to perform the lift within the next two years. However, unplanned and unforeseen lifts may become necessary to meet operational or maintenance needs. Enclosure 2 is a list of references that constitutes the licensing basis for Units 2 and 3, as it pertains to NUREG 0612. Enclosure 3 is a list of references that constitute the licensing basis for Unit 1, as it pertains to NUREG 0612.

REQUIRED RESPONSE TO BULLETIN 96-02

All lifts listed in Enclosure 1 are within the current licensing basis for Units 2 and 3. However, Edison is planning to change the Mode in which the 480V transformer, Item 8 on the enclosed table, may be replaced. In the past Edison performed the transformer replacement while the plant was in a shutdown mode as stated in the correspondence listed in Enclosure 2. Recently, a 10 CFR 50.59 safety evaluation was performed to allow the transformer replacement during Mode 1. This safety evaluation determined that the potential drop of a transformer from either jib hoist 1 or 2 would not be credible using NUREG-0612 single failure protection criteria. Two independent

¹ Bulletin 96-02 uses the term "Safety-related equipment." NUREG 0612 uses the term "safe shutdown equipment." The review and the response is based on the term "safe shutdown equipment" as used in the referenced correspondence.

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hoists are to be used for this lift. Each hoist is capable of holding the entire load during a seismic event.

Edison's plant safety review committee has reviewed the revised load path and mechanisms for performing the transformer replacement during Mode 1, based on the guidance in NUREG 0612. The committee's review found the new load path and movement methods to be acceptable. However, based on the guidance in Bulletin 96-02, to use this new loadpath a license amendment application will be required because this load path is included in our current licensing basis. Having the ability to perform the 480V transformer replacement during plant operation would be cost effective. Therefore, Edison will be requesting approval of this change as a Cost Beneficial License Action. Edison now plans to submit an amendment request to the NUREG 0612 licensing basis by August 30, 1996, and request NRC approval by March 3, 1997.

Edison does not have a dry cask facility, nor do we plan any spent fuel transfers in the next two years, and Edison has determined that no technical specification change or other license amendment is required at this time concerning either aspect of fuel handling involving fuel casks.

CLARIFYING INFORMATION

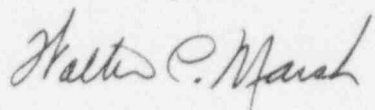
Edison's review of the heavy loads program revealed the following two areas from the NRC Safety Evaluation Report (SER) (Reference 1 of Enclosure 2) that need clarification:

- 1) The enclosed heavy loads table does not include empty hooks or the associated load block as separate lifts to be performed during modes 1 through 4. This approach is consistent with the heavy load tables as listed in the SER and the other references listed in Enclosures 2 and 3. Edison does not consider a drop of an empty hook and its associated load block as credible due to the high factors of safety in design and programmatic provisions to prevent two blocking. The weight of load blocks, hooks, and rigging are included in the consideration of potential drop consequences for loads that are greater than 1500 pounds in accordance with NUREG 0612 criteria. On all cranes other than the containment polar crane, empty hooks and loads weighing less than 1500 pounds are considered routine lifts and do not receive special consideration or treatment as heavy loads. Plant procedures do impose specific restrictions on moving, raising, and lowering an empty hook or a hook with loads up to 1500 pounds over the open reactor vessel when fuel is in the vessel. This practice on Units 2 and 3 is consistent with Reference 7 of Enclosure 3, and employs the same rationale as that approved for the Unit 1 heavy load program, which specifically identifies this exception to NUREG 0612 in that an empty hook and its associated load block are not considered to be heavy loads at San Onofre.

- 2) The SER requires all safe load paths to have permanent or temporary markings. There are areas that are difficult or impractical to mark. Edison allows a second person who has physical possession of the procedure with the safe load paths defined to "walk down" the lift and guide the crane operator during the lift when permanent markings are impractical. This action is deemed as equivalent compliance since this additional person takes the place of the temporary markings and ensures the paths are followed.

If you have any questions in this matter, please call me.

Sincerely,



Enclosures

cc: L. J. Callan, Regional Administrator, NRC Region IV
J. E. Dyer, Director, Division of Reactor Projects, Region IV
K. E. Perkins, Jr., Director, Walnut Creek Field Office, NRC Region IV
J. A. Sloan, NRC Senior Resident Inspector, San Onofre Units 2 & 3
M. B. Fields, NRC Project Manager, San Onofre Units 2 and 3

**San Onofre Units 2 and 3 Heavy Loads During Modes 1 through 4
and Over or Near Spent Fuel or Safe Shutdown Equipment**

Heavy Loads by Crane ⁽¹⁾		Weight or Design Capacity (tons)	Included in Previous NRC Submittals?	Plan to Lift within next 2 years? ⁽²⁾
1)	Containment Polar Crane ⁽³⁾	205/30/1	Yes	
	CRDM Missile Shield Blocks ⁽⁴⁾	88.5 ⁽⁵⁾	Yes	Yes
2)	Cask-Handling Crane ⁽⁶⁾	125/10	Yes	
	Irradiated Fuel Shipping Cask ⁽⁷⁾	125	Yes	No
	Spent-Fuel Pool Gate ⁽⁸⁾	2.2	Yes	No
3)	Turbine Gantry Crane	225/60/20	Yes	
	Salt Water Cooling Pump Motor ⁽⁹⁾	3	Yes	Yes
	Misc. Loads ⁽⁹⁾⁽¹⁰⁾	--	Yes	Yes
4)	New Fuel Handling Crane	5	Yes	
	Spent-Fuel Pool Gate ⁽⁸⁾	2.2	Yes	No
5)	AFW Pump Bridge Crane	5	Yes	
	AFW Pump Motor (Elec.)	4.9	Yes	No
	AFW Pump (Elec.)	3.3	Yes	No
	AFW Pump (Turbine)	2.5	Yes	No
6)	CCW Pump Monorail	3	Yes	
	CCW Pump Motor ⁽⁹⁾	3	Yes	No
	Hatch Cover ⁽⁹⁾	2.1	Yes	No
7)	Safety Injection Pump Monorails	4	Yes	
	HPSI Motor	2.9	Yes	No
	LPSI Pump	3.8	Yes	No
	LPSI Motor	2.8	Yes	No
	Containment Spray Pump	3.8	Yes	No
	Containment Spray Motor	2.8	Yes	No
	Hatch Cover	2.9	Yes	No
8)	Penetration Jib Hoists 1&2	6	Yes	
	480V Transformer Core	3.5	Yes ⁽¹¹⁾	Yes
	Tendon Platform ⁽⁹⁾	5	Yes	Yes

Heavy Loads by Crane ⁽¹⁾		Weight or Design Capacity (tons)	Included in Previous NRC Submittals?	Plan to Lift within next 2 years? ⁽²⁾
9)	TGC Side Boom ⁽¹²⁾	10	Yes	
	Tendon Platform	5	Yes	Yes
10)	Diesel Bldg. Bridge Crane	3	Yes	
	Diesel Generator Parts	<3	See note 12	Yes
11)	Charging Pump Monorails	5	Yes	
	Charging Pump & Components	<5	See Note 12	Yes

- Notes: 1) Load Block/Hook weights are not included in the tabulation of load weights. Load Blocks and hook weights are considered in performing load drop evaluations. Loads less than 1500 lbs., excluding the weight of hooks and load blocks, are considered routine lifts and do not receive special consideration as heavy loads.
- 2) This column identifies lifts currently being planned. The need to perform many of the lifts is contingent upon equipment performance and overhaul schedules. As such, those lifts that are indicated as "No" may be performed if necessary per the current SONGS NUREG-0612 program.
- 3) The load block and hook (10 tons main / 1.8 tons aux) with loads less than 1500 pounds may be moved during plant Modes 3 through 6.
- 4) Missile shield may be removed/installed during shutdown Modes 4, 5, and 6.
- 5) The Edison submittals and the NRC Safety Evaluation Report, the References of Enclosure 2, contain an incorrect weight of 22.5 tons for the missile shield. The correct maximum weight of 88.5 tons from Calculation C-257-06.07 is shown.
- 6) Cask Crane is physically incapable of passing over the spent fuel pool. However, emergency firewater tankers may be stored in the truck bay and are required to be removed or declared out of service while crane operations are made overhead.
- 7) The cask crane does not pass over spent fuel or safe shutdown equipment. However, the cask may contain spent fuel assemblies. Hence, it is included in this summary.
- 8) Gate removal/installation requires special rigging. The potential drop of a gate on the spent fuel racks is analyzed.
- 9) Load is carried over an intervening structure protecting safety related or safe shutdown equipment.
- 10) These loads are not specifically identified in the submittals. Miscellaneous loads less than 1500 lbs. are routine lifts and can be moved without restrictions. Loads greater than 1500 lbs. must comply with safe load path requirements. Miscellaneous loads which are allowed to be carried over the saltwater pump building with lift height restrictions include, but are not limited to traveling screens & rakes, mobile cranes, manlifts, saltwater cooling pumps, screen wash pumps, circulating water pump bellows, and roof plugs.

In addition, 480V transformers are placed upon the roof of the auxiliary building with lift height restrictions. The lift avoids passing over the saltwater pump building and only traverses an area of the auxiliary building where no safe shutdown equipment is located directly below. The auxiliary building roof is also capable of withstanding a transformer drop.

- 11) The load path for this lift is over a single train of the component cooling water system. In Reference 4 of Enclosure 2, the June 30, 1982 submittal, Edison stated that transformer replacements will only occur during cold shutdown. A 10 CFR 50.59 safety evaluation has been prepared to allow this lift during plant operation using two independent hoists to meet the single failure protection criteria of NUREG-0612.
- 12) Crane is an exempt load handling system based on design redundancy. A load drop by this lifting device would not damage multiple trains of safety related / safe shutdown equipment. In addition, when lifts are made over safe shutdown equipment, that equipment is declared out of service.

SAN ONOFRE UNITS 2 AND 3 NUREG 0612 CORRESPONDENCE

- Reference 1: Letter from George W. Knighton (NRC) to K. P. Baskin (Edison), dated August 27, 1984; Subject: Safety Evaluation Report Relating to Control of Heavy Loads (Phase I) at San Onofre Units 2 and 3
- Reference 2: Letter from K. P. Baskin (Edison) to F. Miraglia (NRC), dated July 7, 1981; Subject: Docket Nos. 50-361 and 50-362 San Onofre Nuclear Generating Station Units 2 and 3
- Reference 3: Letter from K. P. Baskin (Edison) to F. Miraglia (NRC), dated April 30, 1982; Subject: Docket Nos. 50-361 and 50-362 San Onofre Nuclear Generating Station Units 2 and 3
- Reference 4: Letter from K. P. Baskin (Edison) to F. Miraglia (NRC), dated June 30, 1982; Subject: Docket Nos. 50-361 and 50-362 San Onofre Nuclear Generating Station Units 2 and 3
- Reference 5: Letter from K. P. Baskin (Edison) to F. Miraglia (NRC), dated August 3, 1982; Subject: Docket Nos. 50-361 and 50-362 San Onofre Nuclear Generating Station Units 2 and 3
- Reference 6: Letter from K. P. Baskin to F. Miraglia (NRC), dated August 25, 1982; Subject: Docket Nos. 50-361 and 50-362 San Onofre Nuclear Generating Station Units 2 and 3
- Reference 7: NUREG-0612, Control of Heavy Loads at Nuclear Power Plants, published July 1980.

SAN ONOFRE UNIT 1 NUREG 0612 CORRESPONDENCE

- Reference 1: Letter from John A. Zwolinski, (NRC) to K. P. Baskin (Edison), dated November 4, 1985; Subject: Control of Heavy Loads (Phase I)
- Reference 2: Letter from K. P. Baskin (Edison) to D. M. Crutchfield (NRC), dated February 5, 1982; Subject: Control of Heavy Loads - San Onofre Unit 1
- Reference 3: Letter from K. P. Baskin (Edison) to D. M. Crutchfield (NRC), dated February 22, 1982; Subject: NUREG 0612, Control of Heavy Loads - San Onofre Unit 1
- Reference 4: Letter from K. P. Baskin (Edison) to D. M. Crutchfield (NRC), dated April 1, 1982; Subject: Control of Heavy Loads - San Onofre Unit 1
- Reference 5: Letter from K. P. Baskin (Edison) to D. M. Crutchfield (NRC), dated April 9, 1982; Subject: Control of Heavy Loads - San Onofre Unit 1
- Reference 6: Letter from R. W. Krieger (Edison) to D. M. Crutchfield (NRC), dated May 10, 1982; Subject: Control of Heavy Loads - San Onofre Unit 1
- Reference 7: Letter from K. P. Baskin (Edison) to D. M. Crutchfield (NRC), dated July 6, 1982; Subject: Nine Month Report, Control of Heavy Loads - San Onofre Unit 1
- Reference 8: Letter from K. P. Baskin (Edison) to D. M. Crutchfield (NRC), dated October 21, 1982; Subject: Control of Heavy Loads - San Onofre Unit 1
- Reference 9: Letter from K. P. Baskin (Edison) to D. M. Crutchfield (NRC), dated January 19, 1983; Subject: Control of Heavy Loads - San Onofre Unit 1
- Reference 10: Letter from M. O. Medford (Edison) to J. A. Zwolinski (NRC), dated January 19, 1983; Subject: Control of Heavy Loads - San Onofre Unit 1
- Reference 11: NUREG-0612, Control of Heavy Loads at Nuclear Power Plants, published July 1980.