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 MIRAGLIA, F. Licensing Branch 3

SUBJECT: Forwards addl info in response to 801222 info request re compliance w/NUREG-0612, "Control of Heavy Loads," Section 2.1 of Encl 3. Turbine gantry crane side boom info will be provided by 820801.

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 TITLE: Control of Heavy Loads Near Spent Fuel (US1, A-36) PRE-OL

NOTES: J Hanchett 1cy PDR Documents. ELD Chandler 1cy. 05000361
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ELD/HDS2		1	0	MPA		1	0
NRR REGUA, G		1	1	NRR/DE/CEB	11	1	1
NRR/DE/EGB	13	3	3	NRR/DE/GB	28	1	1
NRR/DE/HGEB	30	2	2	NRR/DE/MEB	18	1	1
NRR/DE/MTEB	17	1	1	NRR/DE/QAB	21	1	1
NRR/DE/SAB	24	1	1	NRR/DE/SEB	25	1	1
NRR/DHFS/HFEB40		1	1	NRR/DHFS/LQB	32	1	1
NRR/DHFS/OLB	34	1	1	NRR/DHFS/PTRB20		1	1
NRR/DSI/AEB	26	1	1	NRR/DSI/ASB	27	1	1
NRR/DSI/CPB	10	1	1	NRR/DSI/CSB	09	1	1
NRR/DSI/ETSB	12	1	1	NRR/DSI/ICSB	16	1	1
NRR/DSI/PSB	19	1	1	NRR/DSI/RAB	22	1	1
NRR/DSI/RSB	23	1	1	NRR/DST/LQB	33	1	1
<u>REG FILE</u>	04	1	1	RGN5		1	1

EXTERNAL:							
ACRS	41	10	10	FEMA-REP DIV	39	1	1
LPDR	03	1	1	NRC PDR	02	1	1
NSIC	05	1	1				

NOTES: 3 3

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June 30, 1982

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Director, Office of Nuclear Reactor Regulation
Attention: Mr. Frank Miraglia, Branch Chief
Licensing Branch No. 3
U. S. Nuclear Regulatory Commission
Washington, D.C. 20555

Gentlemen:

Subject: Docket Nos. 50-361 and 50-362
San Onofre Nuclear Generating Station
Units 2 and 3

Enclosed are sixty-three (63) copies of additional information in response to Section 2.1 of Enclosure 3 of the NRC information request in the December 22, 1980 letter concerning compliance with NUREG-0612, Control of Heavy Loads. Responses to the control of heavy loads information request for San Onofre Units 2 and 3 was submitted to the NRC by letters dated July 7, 1981 and April 30, 1982. Additional information responding to Section 2.1 of Enclosure 3 of the December 22, 1980 letter will be provided by August 1, 1982 for the Turbine Gantry Crane Side Boom.

If you have any questions or comments concerning this information, please contact me.

Very truly yours,

R. W. Krueger for K. P. Baskin

Enclosures

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CONTROL OF HEAVY LOADS
RESPONSE TO NUREG-0612
SONGS 2/3

INTRODUCTION

The NRC's letter of December 22, 1980, requested a review of the controls for handling heavy loads at San Onofre Nuclear Generating Station, Units 2 and 3 (SONGS 2/3), the implementation of certain recommendations regarding these controls, and the submittal of information to demonstrate that the recommendations have been implemented.

A report was submitted in July 1981 which addressed the information required in Section 2.1 of Enclosure 3 of the December 22, 1980, letter. Subsequently, a report was submitted in April 1982 which addressed Sections 2.2, 2.3 and 2.4 of the Enclosure. In addition, this second report identified and addressed nine cranes which had not been addressed in the July 1981 report. The report contained herein is in response to the information required in Section 2.1 of Enclosure 3 for these additional cranes.

CONTROL OF HEAVY LOADS
RESPONSE TO NUREG-0612
SONGS 2/3

Item 1: Report the results of your review of plant arrangements to identify all overhead handling systems from which a load drop may result in damage to any system required for plant shutdown or decay heat removal (taking no credit for any interlocks, technical specification, operating procedures, or detailed structural analysis).

Response: The following is a list of fixed overhead handling systems (i.e., Cranes) of sufficient capacity to warrant review per NUREG-0612.

This list is an addition to Table I in the report submitted July 1981.

<u>Handling System</u>	<u>Capacity (Tons)</u>	<u>Location</u>
Jib Cranes 1,2,3&4	5	Auxiliary Building (El. 95'-0")
MSIV Jib Cranes	4	Safety Equipment Building (El. 63'-6")

Plant arrangement drawings were reviewed and plant walk throughs were conducted to determine if any of the handling systems listed above could carry a heavy load over components in systems required for plant shutdown or decay heat removal. The location of components of interest with respect to the handling systems was determined by review of these plant arrangement drawings, review of the fire zone descriptions previously submitted to the NRC as part of the "Fire Hazards Analysis Report" for SONGS 2/3 (Amendment 4, December 1980), and the area surveys. The fire zone descriptions identify the safety related components within fire zones and the location of the fire zones within the plant.

This review determined that none of the subject cranes can carry heavy loads over an open reactor vessel or the spent fuel pool. They can, however, carry loads over components in systems required for a safe shutdown of the plant (i.e., safety related equipment). A brief description of these cranes follows:

(1) Jib Cranes 1, 2, 3 & 4

Location: Auxiliary Building, Penetration Area,
Elevation 95'-0"
Crane Nos. 1&3 in Unit 2
Crane Nos. 2&4 in Unit 3

Crane Type: Jib

Rating: 6 Tons

Manufacturer: Ace Crane & Engineering

Hoist Speed: 25 - 8.3 fpm

Trolley Travel Speed: 35 fpm

Design Criteria: Bechtel Power Corporation,
Specification No. S023-411-12

Description: These jib cranes have A-53 structural pipe for a mast with composite A-36 wide flange and channel sections as booms. The trolley and hoisting functions are performed by the operator at a pushbutton station located on the mast.

(2) MSIV Jib Cranes

Location: Safety Equipment Building
Elevation 63'-6"
Two Cranes for each Unit

Crane Type: Jib

Rating: 4 Tons

Manufacturer: American Monorail of California

Hoist Speed: Hand Operated

Design Criteria: Bechtel Power Corporation,
Specification No. S023-411-12

Description: These jib cranes have A-53 structural pipe for a mast and A-36 "S" section for a boom. Both the trolley and hoisting operations are performed by hand.

Item 2: Justify the exclusion of any overhead handling system from the above category by verifying that there is sufficient physical separation from any load-impact point and any safety related component to permit a determination by inspection that no heavy load drop can result in damage to any system or component required for plant shutdown or decay heat removal.

Response: The MSIV Jib Cranes lift the Main Steam Isolation Valve (MSIV) Components and Feedwater Valves to the roof area of the Safety Equipment Building. Because the plant must be in a shutdown mode to remove these components, postulated load-impacts would not damage any system or component required for plant shutdown or decay heat removal. Therefore, these cranes do not require further consideration.

Item 3: With respect to the design and operation of heavy-load-handling systems in the containment and the spent-fuel-pool area and those load-handling systems identified in 2.1-1 above, provide your evaluation concerning compliance with the guidelines of NUREG 0612, Section 5.1.1. The following specific information should be included in your reply:

- a. Drawings or sketches sufficient to clearly identify the location of safe load paths, spent fuel, and safety related equipment.
- b. A discussion of measures taken to ensure that load-handling operations remain within safe load paths, including procedures, if any, for deviation from these paths.

Response:

(1) Jib Cranes 1,2,3&4:

These cranes are used to lift the Tendon Surveillance Platforms of Buttress No. 2 and the Load Center Transformer to the laydown area on the roof of the Auxiliary Building, see Figure 3-8 in the April 1982 report. During movement over the roof slab, a maximum load height of 9 ft. above the roof is permitted. This height is required to allow the loads to clear vent stacks in the area and analysis has shown that the resultant impact load is within the capacity of the roof. Removal of the transformer through the equipment hatch at the roof, which will occur only in the infrequent

case of transformer malfunction, requires a total lift of 59 ft. over the floor at elevation 45'-0". Train B of the component cooling water system is located in the vicinity of potential impact on the floor below and its operability following a load drop cannot be conclusively demonstrated. Train A is physically separated from this location such that a potential drop cannot affect both systems. To guard against damage to this system, the transformer will be removed only during cold shutdown. The CCW system will be operating on Train A during this lift by procedural control and Train B will be secured.

- Item 3c: A tabulation of heavy loads to be handled by each crane which includes the load identification, load weight, its designated lifting device, and verification that the handling of such load is governed by a written procedure containing, as a minimum, the information identified in NUREG 0612, Section 5.1.1(2).

Crane Designator	Load Identification	Load Weight	Applicable Operating Procedure	Lifting Device
Jib Cranes	Tendon Surveillance	5 Tons	Station Order S0123-M-14 Attachment 1	Slings
	Load Center Transformer	3.2 Tons	Station Order S0123-M-14 Attachment 1	Slings

- Item 3d: Verification that lifting devices identified in 2.1.3-c above, comply with the requirements of ANSI N14.6-1978, or ANSI B30.9-1971 as appropriate. For lifting devices where these standards, as supplemented by NUREG 0612, Section 5.1.1(4) or 5.1.1(5), are not met, describe any proposed alternatives and demonstrate their equivalency in terms of load-handling reliability.

Response: Plant procedures will require that sling selection and use be in accordance with ANSI B30.9 and supplemental criteria as specified in NUREG-0612.

- Item 3e: Verification that ANSI B30.2-1976, Chapter 2-2, has been invoked with respect to crane inspection, testing, and maintenance. Where any exception is taken to this standard, sufficient information should be provided to demonstrate the equivalency of proposed alternatives.

Response: (1) The criteria in ANSI B30.2 are not directly applicable to such handling systems as jib cranes and hand-driven hoists.

Accordingly, ANSI B30.11-1973, "Monorail Systems and Underhung Cranes" and ANSI B30.16-1973, "Overhead Hoists" will be used in developing the inspection, test and maintenance procedures for jib cranes.

(2) Because these cranes have limited use, the inspections, tests and maintenance will be performed prior to their use.

Item 3f: Verification that crane design complies with the guidelines of CMAA Specification 70 and Chapter 2-1 of ANSI B30.2-1976, including the demonstration of equivalency of actual design requirements for instances where specific compliance with these standards is not provided.

Response:

CMAA-70 or ANSI B30.2.0-1976 are not directly applicable to jib cranes. However, our evaluation, based on a comparison of the information found on the structural drawings and the requirements of CMAA-70, shows that these cranes comply with the structural guidelines of this document.

Item 3g: Exceptions, if any, taken to ANSI B30.2-1976 with respect to operator training, qualification and conduct.

Response: Procedures for the qualification and training of crane operators are being developed consistent with the schedule operating date and will meet the provisions of ANSI B30.2-1976.