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Alabama Power
the southern electric system

June 24, 1981

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U.S. NUCLEAR REGULATORY COMMISSION

Docket No. 50-348
No. 50-364

Mr. Darrell G. Eisenhut, Director
Division of Licensing
Office of Nuclear Reactor Regulation
U. S. Nuclear Regulatory Commission
Washington, D. C. 20555

Dear Mr. Eisenhut:

In response to your December 22, 1980 letter, subject "Control of Heavy Loads," Alabama Power Company submits the enclosed response.

If you have any questions, please advise.

Yours very truly,

F. L. Clayton, Jr.

FLCjr/JAR:rt

Enclosure

cc: Mr. R. A. Thomas
Mr. G. F. Trowbridge
Mr. J. P. O'Reilly w/enclosure
Mr. E. A. Reeves w/enclosure
Mr. J. O. Thoma w/enclosure
Mr. W. H. Bradford w/enclosure

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AD Core Sys	1	1
OR Ass. BR	1	1

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ENCLOSURE

RESPONSE TO STAFF POSITION

GENERAL REQUIREMENTS FOR OVERHEAD HANDLING SYSTEMS

1. Staff Position:

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 specifications, operating procedures, or detailed structural analysis).

Response:

a. Inside Containment:

The polar crane handles the reactor head, upper internals, RV missile shield, reactor coolant pumps and motors, and the polar crane load block. If any of these heavy loads were dropped, it could result in damage to a system required for plant shutdown or decay heat removal. However, safe load paths with corresponding exclusion areas have been developed for each of these heavy loads.

b. Auxiliary Building:

All floors underneath the following crane and hoists: drumming station bridge crane, auxiliary building equipment hatch monorail hoist, decontamination room monorail hoist, blowdown drum storage area bridge crane and the spent fuel pool bridge crane, are capable of withstanding the drop of their design loads without precluding safe shutdown capability provided certain lifting height limitations are observed. The definition of the safe load pathways for these areas is limited to a lift height restriction. The only exception to this identified during Alabama Power Company's review of NUREG-0612 is that, if the Demineralizer Hatch Monorail Hoist were used during normal plant operation and dropped a hatch cover through the open hatch area at elevation 155', the falling hatch could potentially break through or damage the floor at elevation 139' causing damage to the lower floor elevations. The probability of the demineralizer cover dropping through the open hatch and damaging the lower elevations is remote; however, Alabama Power Company will revise plant procedures to minimize the time the hatch cover is positioned over the demineralizer during lifting operations and require special precautions.

c. Diesel Generator Building:

The diesel generator building contains three hoists on underhung bridge cranes and two hoists on monorails. However, these hoists are used for maintenance only (one per diesel) when the diesel is not on standby. In addition, the diesels are separated by concrete walls, making it physically impossible for a hoist to drop a load on an adjacent diesel generator.

2. Staff Position:

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:

A heavy load drop from the new fuel monorail hoist, new fuel bridge crane, spent fuel cask crane, tendon surveillance areas, or the various maintenance monorail hoists would have no consequence to safe shutdown or decay heat removal equipment due to physical separation.

External portable maintenance cranes could drop loads onto the river water intake structure, service water intake structure, and outside buried service water piping. However, due to system redundancy, a heavy load drop on these structures or piping will not preclude a safe shutdown.

3. Staff Position:

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 indentified 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.

Response:

Drawings for the polar crane in the containment building are provided which identify safe load paths, spent fuel and safety-related equipment.

The drawings only address modes 5 and 6 for all loads except the polar crane load block, since this is the only heavy load which can be handled during all 6 modes.

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:

A discussion of measures taken to ensure that load-handling operations remain within safe load paths will be included in the September 22, 1981 response.

c. 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).

Response:

The heavy loads now being handled by the polar crane and the external maintenance cranes, and the load weight are presented in Table 1. The loads handled by the cranes in the auxiliary building have been enveloped by a lead cube, numerically equal to the capacity of the crane and representing every possible piece of equipment which may be dropped. The handling of all heavy loads will be governed by a written procedure, scheduled to be completed by October 1, 1981, which will provide guidance for handling heavy loads in areas where safe shutdown related equipment is located.

d. Verification that lifting devices identified in 2.1.3c, above, comply with the requirements of ANSI N14.6-1978, or ANSI 330.9-1971 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:

The lifting devices identified in 2.1.3c will comply with the inspection criteria and operator qualification requirements of ANSI N14.6-1978 or ANSI 330.9-1971 as appropriate by October 1, 1981. Equivalency in terms of load-handling reliability for any proposed alternatives will be discussed in the September 22, 1981 response.

e. 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:

Crane inspection, testing, and maintenance procedural requirements will be revised to incorporate the basic requirements of Chapter 2-2 of ANSI B30.2-1976 by October 1, 1981. As noted in NUREG-0612, certain frequencies of tests cannot be met due to inaccessibility.

f. 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:

Crane design complies with the guidelines of CMAA Specification 70 and Chapter 2-1 of ANSI B30.2-1967 which was the current standard when the cranes were designed.

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

Response:

Any exception taken to ANSI B30.2-1976 with respect to operator training, qualification, and conduct will be identified in the Septenber 22, 1981 response.

TABLE 1

Tabluation of Heavy Loads

Designated Lifting Device	Load Identification	Load Weights (Lbs)
Polar Crane	Load Block	9,000
	Reactor Vessel Missile Shield	140,000
	Upper Internals	110,000 w/lifting rig
	Reactor Vessel Head	118,200
	Reactor Coolant Pump	77,300
Drumming Station Bridge Crane	Crane capacity was chosen as the leavy load to envelop every possible piece of equipment which may be dropped.	12,000
Auxiliary Building Equipment Hatch Monorail Hoist		20,000
Decontamination Room Monorail Hoist	" "	6,000
Hot Machine Shop Bridge Crane	" "	6,000
Demineralizer Hatch Monorail Hoist	" "	20,000
Filter Hatch Monorail Hoist	" "	10,000
Blowdown Drum Storage Bridge Crane	" "	10,000
External Maintenance Cranes (Mobile)	River water pump & motor	20,800
	Service water pump & motor	20,800
	Service water strainer	31,300

POOR ORIGINAL