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RECIP.NAME RECIPIENT AFFILIATION
EISENHUT,D.G. Division of Licensing

SUBJECT: Forwards response to NRC 801222 ltr re licensee interim actions & addl info re control of heavy loads. Justification for changes or mods necessary to meet NRC guidelines will be provided w/final rept.

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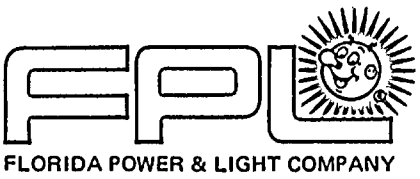
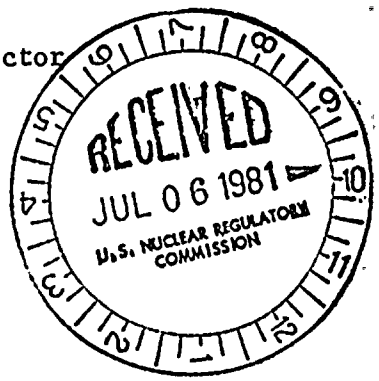


FLORIDA POWER & LIGHT COMPANY

July 2, 1981
L-81-276

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



Dear Mr. Eisenhut:

Re: St. Lucie Unit 1
Docket No. 50-335
Control of Heavy Loads

Florida Power & Light Company has reviewed the NRC letter dated December 22, 1980, concerning the Control of Heavy Loads with respect to St. Lucie Unit 1. A report of our actions in response to the request for implementation of interim actions and our report containing the Section 2.1 information requested in that letter are included as attachments to this letter.

Florida Power & Light Company also commits to implement those changes and modifications which we find necessary as soon as possible, without waiting for staff review. We cannot, however, commit to a completion schedule until we have completed our investigation and submit our final report.

When we submit our final report, we will also provide justification for any changes or modifications that would be required to fully satisfy the guidelines of Enclosure 1 of the December 22, 1980 NRC letter which we believe are not necessary for St. Lucie Unit 1.

It should also be noted that in the attached report of the Section 2.1 information, the Group I items in the Listing of all Plant Load Handling Systems are those from which a load drop may result in damage to systems required for plant shutdown or decay heat removal with no credit taken for interlocks, technical specifications, operating procedures, structural analysis, or system redundancy. We are confident that this group will be greatly reduced, if not eliminated, when appropriate credit is given for these items.

Very truly yours,

Robert E. Uhrig

Robert E. Uhrig
Vice President
Advanced Systems & Technology

REU/PLP/ras

cc: Mr. J. P. O'Reilly, Region II
Harold F. Reis, Esquire

A033
S/1

ATTACHMENT

Re: St. Lucie Unit 1
Docket No. 50-335
Interim Actions for
Control of Heavy Loads

1. Safe load paths have been identified per the guidelines of Section 5.1.1(1) of NUREG 0612 in Administrative Procedure (AP)0010438, Rev 0 "Control of Heavy Load Lifts". This procedure has been approved by the Facility Review Group and will be implemented prior to the next refueling outage.

2. Procedures have been developed to cover load handling operations for heavy loads that are or could be handled over or in proximity to irradiated fuels or safe shutdown equipment. These procedures will be implemented prior to the next refueling outage, when they will next be used.

3. Crane operator qualification, training and conduct will be addressed as an appendix to Administrative Procedure 0010438 and will be implemented prior to the next refueling outage. The requirements of ANSI Standard B 30.2.0-1976 and the recommendations of Nuclear Mutual Limited's Property Loss Prevention Standard on Cranes and Rigging (issued for trial use February 1980) are being reviewed to prepare a single policy for FP&L on crane operator requirements. We expect to resolve this issue in the near future and then prepare and implement the appendix to the administrative procedure. A description of the actions we intend to take on this item will be included with our final response on NUREG 0612.

   For the interim, however, a training program in accordance with ANSI B 30.2.0-1976 is being developed, and our standard company physical for new employees meets or exceeds the physical requirements of the ANSI standard. (Except for vision standards which are 20/40 in both eyes verses 20/30 in one eye and 20/50 in the other eye as prescribed in the ANSI standard).

It is also our intention to exclude Nuclear Control Center Operators (NCCO) (and their operation of refueling equipment) from coverage by the NUREG 0612 requirements. It is our judgement that the qualification and training of the NCCO's meets or exceeds the NUREG 0612 requirements.

4. St. Lucie Unit 1 has a program established for inspecting, testing and maintaining cranes. A review of this program is presently in progress to verify that the program meets the requirements of Section 5.2.2(6) of NUREG 0612. The program will be revised where necessary to meet the NUREG 0612 requirements prior to the next refueling outage.

5. A special review of crane operations over the core has been conducted and these operations are addressed in AP 0010438. Some revisions are expected to be made prior to the refueling outage.

ST. LUCIE UNIT 1

RESPONSE TO NRC REQUEST FOR ADDITIONAL

INFORMATION ON CONTROL OF HEAVY LOADS

(SECTION 2.1)

TABLE OF CONTENTS

I. Introduction

On December 22, 1980 the NRC issued a generic letter on the subject of control of heavy loads. The letter requests Florida Power and Light Company to review the controls for handling heavy loads at St. Lucie Unit No. 1 and to determine the extent to which the NRC guidelines published in NUREG 0612 are met. The letter further requests that a report be submitted in two parts addressing general and specific requirements respectively for overhead handling systems. Part one of the report is submitted here. Sections II thru VII provides the information requested by Section 2.1 of Enclosure 3 of the NRC generic letter. Section VIII provides a summary.

II. Identification of Plant Load Handling Systems

Section 2.1.1 and 2.1.2 of Enclosure 3 of the NRC December 22, 1980 letter requests a review of plant arrangements to identify all heavy load handling systems. It also requests a determination of those load handling systems from which a load drop could damage irradiated fuel or safety-related systems.

A complete listing of all heavy load handling systems has been prepared for St. Lucie Unit No. 1. A heavy load for St. Lucie Unit No. 1 as defined in NUREG 0612 is 1380 pounds. Each system was then visually inspected in the field where possible or reviewed on the drawings and classified into Groups I and II as follows:

> Group I - Heavy load handling systems from which a load drop could conceivably result in damage to irradiated fuel or systems required for plant shutdown or decay heat removal taking no credit for interlocks, technical specifications, operating procedures, detailed structural analysis or system redundancy.
>
> Group II - Heavy load handling systems excluded from Group I based upon a determination by inspection that there is sufficient physical separation from any load-impact point and any safety related component.

Table 1 in Appendix A provides this listing and classification.

III. Safe Load Paths

Sections 2.3(a) and (b) of Enclosure 3 of the NRC generic letter request drawings or sketches identifying safe load paths and a discussion of measures taken to ensure that operators remain within these areas..

Safe load paths have been defined as requested for all those load handling systems in Group 1 except the special fuel handling equipment. Safe load paths have not been delineated further for the spent fuel handling machine, refueling machine or fuel transfer

machine since the operation of this equipment is described in detail in existing plant procedures and the FSAR. The safe areas for the remaining Group I cranes are shown on Sketches 1 thru 6.

The St. Lucie plant administrative procedure AP0010438 "Control of Heavy Load Lifts" describes the measures taken to ensure that load handling operations remain within safe load paths and defines these areas. This procedure requires that a sign be posted at the controls of each affected crane stating that loads in excess of 1380 pounds shall not be carried out of the safe load path and that a map of the safe load area be posted. Any deviation from the safe load area requires prior Facility Review Group approval. This administrative procedure has been prepared as part of the interim actions required in the NRC December 22, 1980 generic letter. Operator training and qualification is underway so that this procedure will be fully implemented prior to the September 1981 refueling outage.

IV. Special Procedures

Section 2.1.3 (c) of Enclosure 3 of the NRC generic letter requests that heavy loads listed in Table 3-1 of NUREG 0612 be tabulated along with the load weight, designated lifting device and special handling procedure. These are significant heavy loads which are periodically handled in the vicinity of irradiated fuel in the reactor core or spent fuel pool.

Table 2 in Appendix A of this report provides this tabulation and lists the special procedures which follow the guidelines of NUREG 0612 Section 5.1.1 (2) for most of these loads. Special procedures for the handling of the fuel pool bulk-head, pressurizer missile shield and In-Service-Inspection tool are being developed and will be referenced in the second part of this report due in September.

V. Lifting Devices (slings, beams and special rigging)

Section 2.1.3 (d) of Enclosure 3 of the NRC generic letter requests that lifting devices comply with ANSI B30.9-1971 or ANSI N14.6-1978 as applicable.

The current St. Lucie plant administrative procedure AP0010438 is being revised to require that lifting devices for all load handling systems in Group I meet the requirements of these ANSI standards. This revision will be completed and in effect by the date required in the NRC generic letter.

VI. Crane Inspection, Testing and Maintenance

Section 2.1.3 (e) of Enclosure 3 of the NRC generic letter requests verification that ANSI B30.2-1976 Chapter 2-2 has been invoked with respect to crane inspection, testing and maintenance.

The St. Lucie plant has an established program for inspection, testing and maintaining cranes. This program is presently under review to determine to what degree this ANSI standard is satisfied and will be revised if required, prior to the next refueling outage.

VII. Crane Design

Section 2.1.3 (f) of Enclosure 3 of the NRC generic letter requests verification that crane design complies with the guidelines of the Crane Manufacturers Association of America Specification 70 "Specifications for Electric Overhead Traveling Cranes" (CMAA #70) and Chapter 2-1 of ANSI B30.2-1976 "Overhead and Gantry Cranes".

The following Group I bridge cranes fall under the scope of the CMAA #70 specification and the ANSI B30.2 standard which cover top running multiple girder electric overhead traveling cranes.

1. Reactor Building Polar Crane
2. Fuel Cask Crane
3. Intake Structure Crane
4. Spent Fuel Handling Machine
5. Refueling Machine

These cranes were designed to the Electric Overhead Crane Institute Specification 61, "Specifications for Electric Overhead Traveling Cranes" (EOCI #61) and ANSI B30.2-1967. These specifications and standards are the precedessors to CMAA #70 and ANSI B30.2-1976 and were in effect at the time of the manufacture of these cranes. They are similar to the succeeding specifications and standards now in effect and equivalent.

The primary differences between the EOCI #61 and CMAA #70 specifications are an advancement in girder design practice and higher allowable stresses in the CMAA #70 specification. Although the St. Lucie No. 1 cranes are designed to the older EOCI #61 specification which calls for ASTM - A7 steel the higher grade ASTM-A36 steel has been used which is in conformance with the CMAA #70 specifications.

During the upcoming refueling outage a new 1 ton telescoping jib crane will be installed in the Reactor building. The design of this crane has been specified to conform with CMAA #70, CMAA #74 and ANSI B30.2-1976

VIII. Summary

This report documents the first phase of Florida Power and Light Company's review of the controls for the handling of heavy loads at the St. Lucie Unit No. 1 plant as requested by the NRC Generic letter dated 12-22-80. A total of thirty-nine (39) load handling systems were identified, twelve (12) of which were found to be affected by NUREG 0612 "Control of Heavy Loads at Nuclear Power Plants".

IX. References

1. NUREG-0612 - "Control of Heavy Loads at Nuclear Power Plants"

2. NRC Generic Letter -"Control of Heavy Loads" dated December 22, 1980.

3. Enclosure 3 of Generic Letter - "Request for Additional Information on Control of Heavy Loads"

4. ANSI B30.2-1976 - "Overhead and Gantry Cranes"

5. ANSI B30.9 - 1971 - "Slings"

6. ANSI N14.6 - 1978 - "Standard for Special Lifting Devices for Shipping Containers Weighing 10,000 pounds (4500 kg) or More for Nuclear Materials."

7. Crane Manufacturers Association of America (CMAA) Specification 70 - "Specifications for Electric Overhead Traveling Cranes"

8. Electric Overhead Crane Institute (EOCI) Specification 61 - "Specifications for Electric Overhead Traveling Cranes."

9. Plant Maintenance Procedure M-0015 - "Reactor Vessel Maintenance - Sequence of Operations."

10. Plant Maintenance Procedure M-0913 - "General Operating Procedure for Handling and Loading of the NFS-4 Cask."

11. Plant Operating Procedure OP-1630022 - "Spent Fuel Handling Machine Operation."

12. Plant Operating Procedure OP-1630023 - "Fuel Transfer System Operations."

13. Plant Operating Procedure OP-1630024 - "Refueling Machine Operation."

14. Plant Administrative Procedure AP-0010438 - "Control of Heavy Load Lifts."

APPENDIX A

TABLES

TABLE 1 - LISTING OF ALL PLANT HEAVY LOAD HANDLING SYSTEMS

	NAME	LOCATION	RATED CAPACITY (TONS)	GROUP
1.	Laundry filter monorail	Reactor Auxiliary Bldg. El.-0.50'	10	II
2.	Waste filter monorail	" " " "	10	II
3.	Pump room monorails (2)	" " " "	5	I
4.	Charging pump A, B, & C monorails (3)	" " " "	5	I
5.	Boric Acid preconcentrator filter monorail	" " " "	10	II
6.	Hot machine shop bridge crane	Reactor Auxiliary Bldg. EL.-19.50'	5	II
7.	Hot machine shop jib hoist	" " " "	1	II
8.	Turbolator monorail	" " " "	2	II
9.	Control element assembly drive motor generator monorail	" " " "	7-1/2	II
10.	Purification filter monorail	" " " "	10	II
11.	Hydraulic compactor monorail	" " " "	10	II
12.	Drumming station bridge crane	" " " "	10	II
13.	Drumming station monorail	" " " "	10	II
14.	Maintenance monorail	Reactor Auxiliary Bldg. El.43.00'	7-1/2	II
15.	Resin handling jib hoist	" " " "	1	II
16.	Steam generator feedwater pumps monorail	Turbine Generator Bldg. El.19.50'	20	II
17.	Condensor monorails (8)	" " " "	3-1/2	II
18.	Gantry cranes - Units 1 & 2 (2)	Turbine Generator Bldg. El.62.00'	200/35	II
19.	Turbine canopy monorails	" " " "	3	II
20.	Polar crane	Reactor Bldg.	175/50	I
21.	Auxiliary telescoping jib crane (future)	" "	1	I
22.	Refueling Machine	" "		I
23.	Refueling Machine hoist	" "	1	I
24.	Maintenance hatch hoist	" "		II
25.	Fuel transfer machine	Reactor Bldg/Fuel Handling Bldg.		I
26.	Fuel pool purification filter monorail	Fuel Handling Bldg. El.19.50'	10	II
27.	Spent fuel handling machine	Fuel Handling Bldg. El.62.00'		I
28.	Fuel pool bulkhead monorail	" " " "	3	I
29.	New Fuel bridge crane	" " " "	5	II
30.	New fuel elevator	" " " "	1	II

TABLE 1 - LISTING OF ALL PLANT HEAVY LOAD HANDLING SYSTEMS

NAME	LOCATION		RATED CAPACITY (TONS)	GROUP
31. Fuel cask bridge crane	Fuel Handling Bldg.	El. 95.83	105/15	I
32. Diesel generators A & B monorails (2x2)	Diesel Generator Bldg.		1	I
33. Intake structure bridge crane	Intake structure		45	I
34. Rake guide monorail (2)	" "		2	II
35. Fish basket jib boom hoist	" "		1	II
36. Chlorine cask monorail	Intake area		2	II
37. Blowdown filter monorail	Blowdown Bldg.		1	II
38. Covered work area bridge crane	Covered work area		7-1/2	II
39. Cold machine shop jib hoist	Cold machine shop		2	II

GROUP I - Overhead Handling Systems From Which a load drop may result in damage to systems required for plant shutdown or decay heat removal. (no credit taken for interlocks, technical spec's, operating procedures, detailed structural analysis or system redundancy.)

GROUP II - Overhead Handling Systems excluded from Category I based upon 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. (i.e. sufficient physical separation).

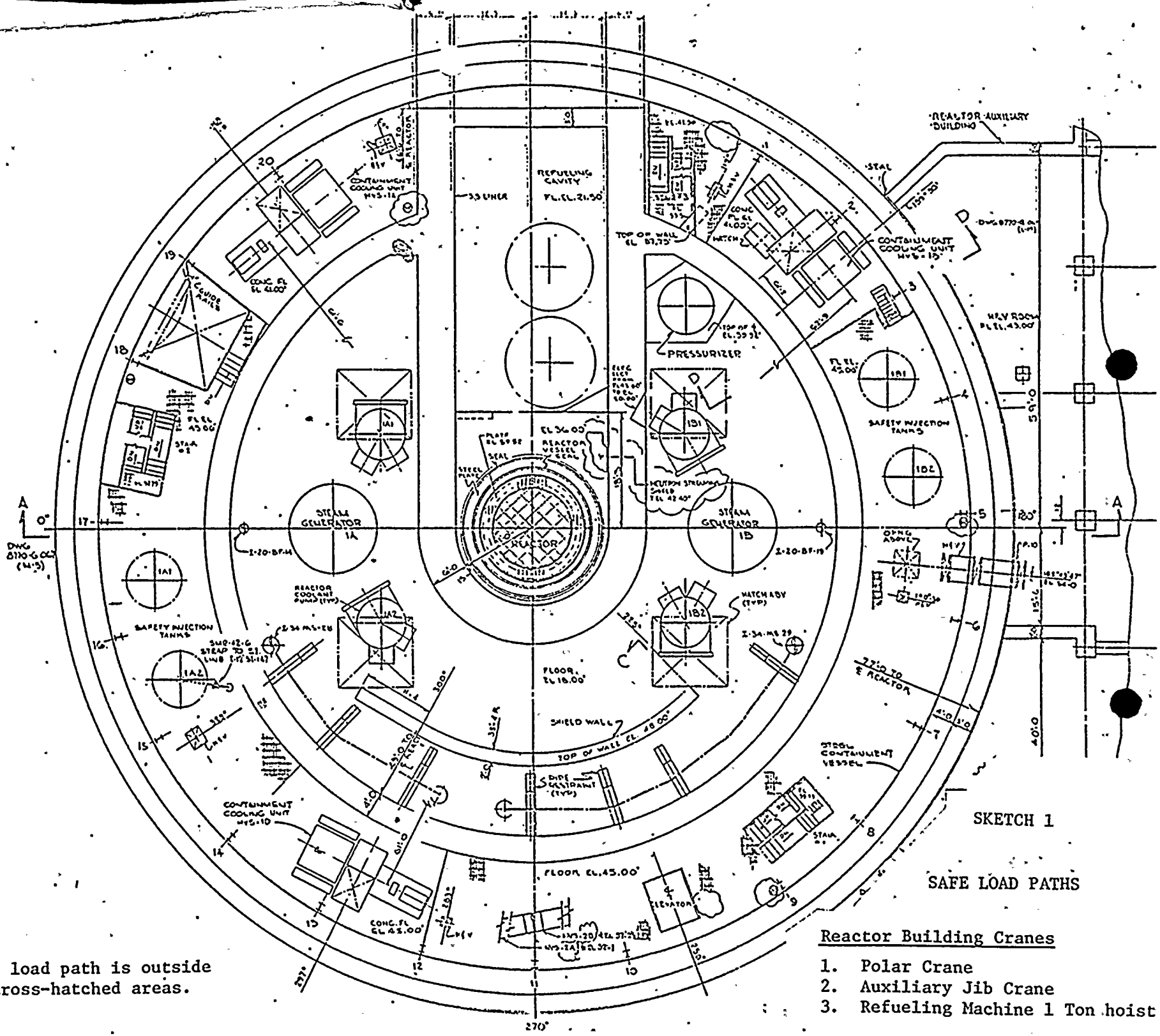
TABLE 2

LISTING OF MAJOR HEAVY LOADS PERIODICALLY HANDLED IN THE VICINITY OF IRRADIATED FUEL

LOAD IDENTIFICATION	LOAD WEIGHT (lbs)	DESIGNATED LIFTING DEVICE	PROCEDURE
Spent Fuel Shipping Cask	50,000	Fuel Cask Crane	M-0913
Fuel Pool Bulkhead	5,000	Fuel Pool bulkhead Monorail	Being Prepared
Reactor Missile Shields	145,700	Polar Crane - 4 Slings	M-0015
Pressurizer Missile Shield	96,000	Polar Crane - 4 Slings	Being Prepared
Polar Crane Load Block Main/Aux.	3,800/ 1,500	Polar Crane	AP0010438
Reactor Vessel Head	219,300	Polar Crane/Head Lift Rig	M-0015
Upper Guide Structure	128,800	Polar Crane - Upper Guide Structure Lift Rig	M-0015
In-Service-Inspection Tool	9,000	Polar Crane	Being Prepared
Fuel Cask Crane Load Block	3,000	Fuel Cask Crane	AP0010438
New and Spent Fuel Elements	1,380	Fuel Transfer Machine	OP-1630023
		Spent Fuel Handling Machine	OP-1630022
		Refueling Machine	OP-1630024

APPENDIX B

SAFE LOAD PATHS



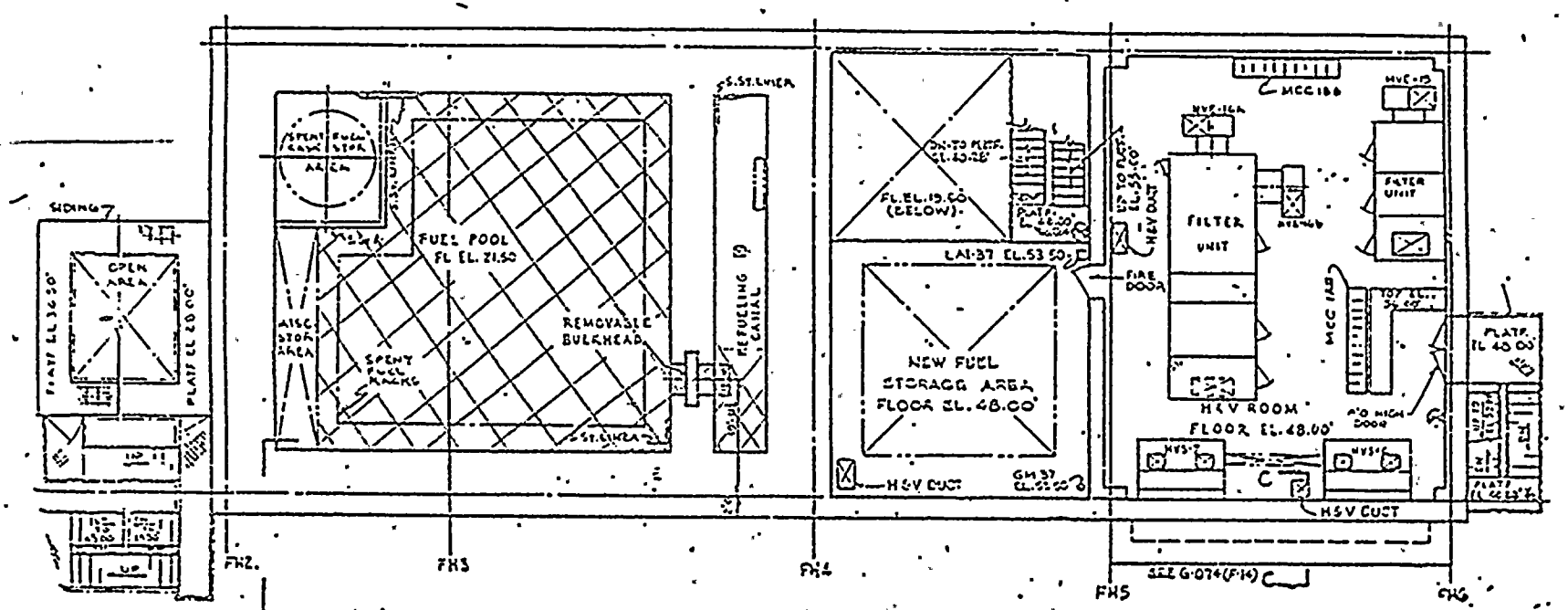
SKETCH 1

SAFE LOAD PATHS

Safe load path is outside of cross-hatched areas.

Reactor Building Cranes

1. Polar Crane
2. Auxiliary Jib Crane
3. Refueling Machine 1 Ton hoist



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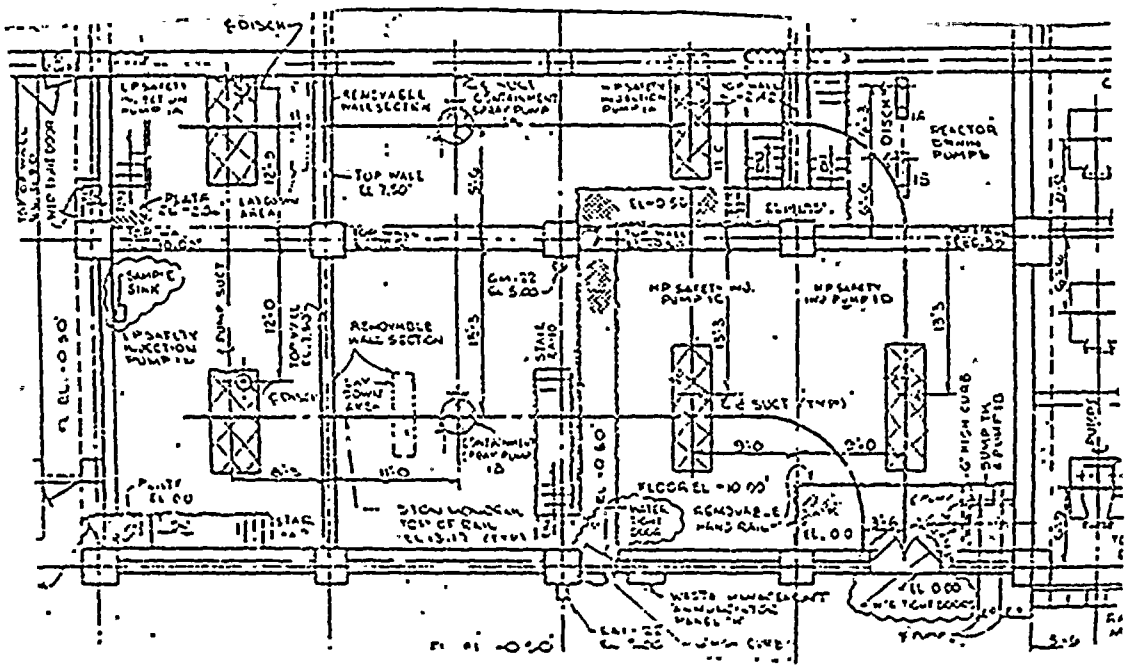
Safe load path is outside of cross-hatched areas.

SAFE LOAD PATHS

SKETCH 2

Fuel Handling Building Cranes

1. Fuel Pool Bulkhead Monorail
2. Fuel Cask Crane

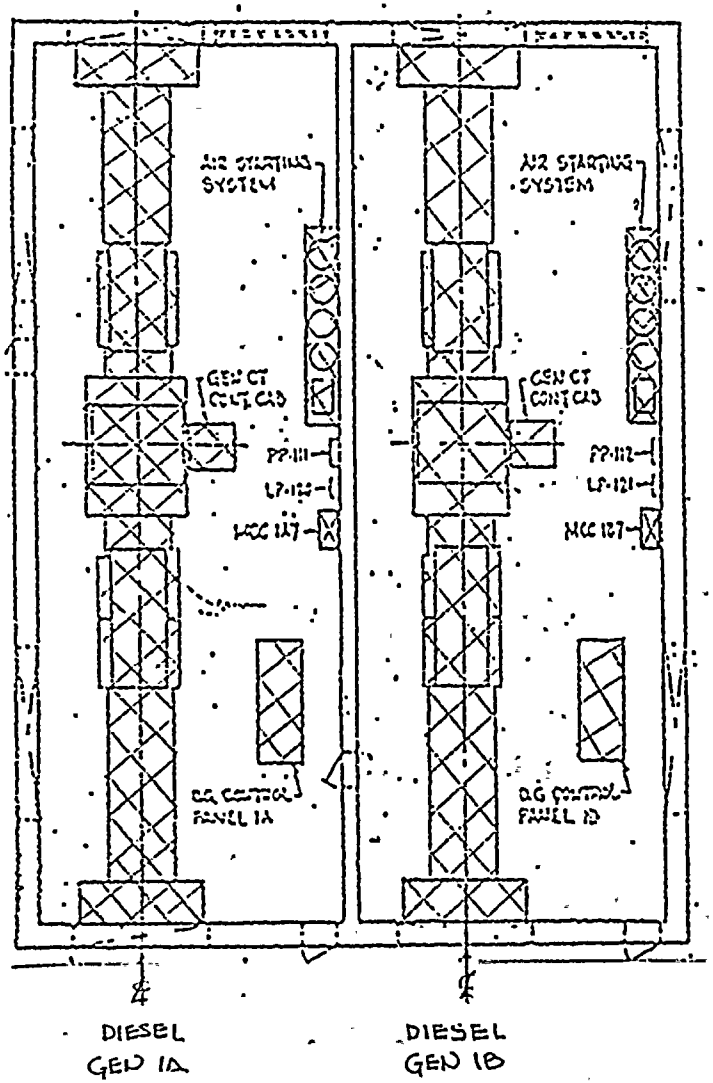


Safe load path is outside
of cross-hatched areas.

SAFE LOAD PATHS

SKETCH 3

Pump Room Monorails



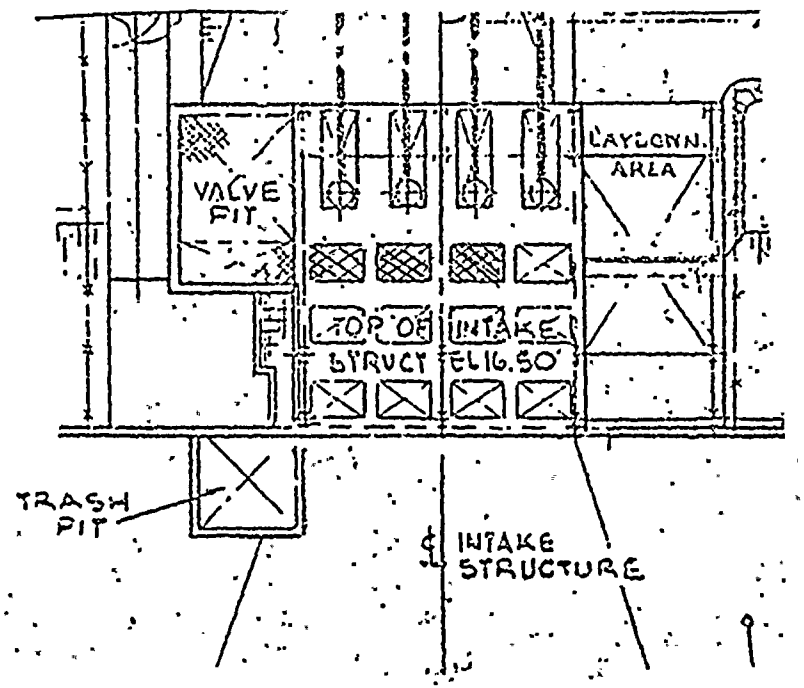
PLAN

Safe load path is outside of cross-hatched areas.

SAFE LOAD PATHS

SKETCH 4

Diesel Generator Building Monorai

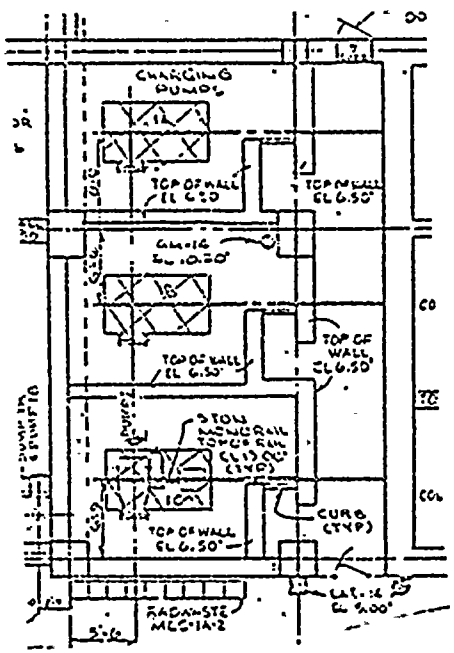


Safe load path is outside of cross-hatched areas.

SAFE LOAD PATHS

SKETCH 5

Intake Structure Bridge Crane



Safe load path is outside of cross-hatched areas.

SAFE LOAD PATHS

SKETCH 6

Charging Pump Monorails