NORTHEAST UTILITIES
THE CONNECTICUT LIGHT AND POWER COMPANY
THE HARTFORD ELECTRIC LIGHT COMPANY
WESTERN MASSACHUSETTS ELECTRIC COMPANY
HOLYOKE WATER POWER COMPANY
NORTHEAST UTILITIES SERVICE COMPANY
NORTHEAST NUCLEAR ENERGY COMPANY

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(203) 666-6911

July 20, 1981

Docket No. 50-213
50-245
50-336
A01482

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

References: (1) D. G. Eisenhut letter to All Licensees of Operating Plants and Applicants for Operating Licenses and Holders of Construction Permits, dated December 22, 1980.
(2) D. G. Eisenhut letter to All Licensees of Operating Plants and Applicants for Operating Licenses and Holders of Construction Permits, dated February 3, 1981.
(3) W. G. Counsil letter to D. G. Eisenhut dated June 25, 1981.

Gentlemen:

Haddam Neck Plant
Millstone Nuclear Power Station, Unit Nos. 1 and 2
Control of Heavy Loads

In Reference (1), Connecticut Yankee Atomic Power Company (CYAPCO) and Northeast Nuclear Energy Company (NNECO) were requested to review our controls for the handling of heavy loads to determine the extent to which the guidelines of NUREG-0612, "Control of Heavy Loads at Nuclear Power Plants", are presently satisfied at our facilities. CYAPCO and NNECO were specifically requested in Reference (1) to implement the interim actions described in Enclosure (2) to Reference (1) by March 22, 1981. However, the NRC Staff extended this implementation date to May 15, 1981 in Reference (2). The extent of CYAPCO's and NNECO's compliance with the interim actions can be found in Attachment (1).

In addition to the implementation of the interim actions, CYAPCO and NNECO were requested to provide certain information to the NRC Staff by June 22, 1981. CYAPCO and NNECO indicated in Reference (3) that due to the significant effort and time required to develop this information, CYAPCO and NNECO were unable to submit such information by June 22, 1981. However, it was further indicated that CYAPCO and NNECO intended to submit an initial response to the NRC Staff by July 13, 1981. Therefore, the following information is provided in response to the Reference (1) requests:

A033
S
1/10

1.1 Submit the information identified in Section 2.1 of Enclosure (3) of Reference (1) by June 22, 1981.

Response:

Information regarding Items 1, 2, and (3) can be found in Attachment (2). CYAPCO and NNECO intend to submit additional information regarding Items 3(c), 3(d), 3(f), and 3(g) by January 31, 1982.

1.2 Submit the information identified in Sections 2.2, 2.3 and 2.4 of Enclosure (3) of Reference (1) for PWR plants and Sections 2.2 and 2.3 for BWR plants by September 22, 1981.

Response:

CYAPCO and NNECO intend to submit this information by March 31, 1982.

2. Furnish confirmation by June 22, 1981 that implementation of those changes and modifications you find are necessary will commence as soon as possible without waiting on staff review, so that all such changes, beyond the above interim actions, will be completed within two years of submittal of Section 2.4 of Enclosure (3) of Reference (1).

3. Furnish justification by June 22, 1981 for any changes or modifications that would be required to fully satisfy the guidelines of Enclosure (1) of Reference (1) which you believe are not necessary.

Response

Data is still being collected in response to Reference (1) and at this point in time CYAPCO and NNECO are not in the position to determine what modifications will be necessary to satisfy the guidelines of NUREG-0612. Therefore, it would be premature to state that all required modifications will be completed within two years of submittal of Section 2.4 information. However, if any modifications are required, CYAPCO and NNECO intend to implement them as soon as practical. Also, CYAPCO and NNECO are not yet in the position to indicate which required modifications we do not believe are necessary. CYAPCO and NNECO intend to inform the NRC Staff of the above required information by March 31, 1982.

CYAPCO and NNECO have determined that retrieval of data requested in Items 1, 2, and 3 above requires extensive time and manpower. Since two of the three plants for which data is being collected are relatively older plants, such data are not always readily available. Therefore, the above submittal dates have been determined to be within CYAPCO's and NNECO's capabilities. As stated in Attachment (1), the interim actions necessary to meet the intent of Enclosure (3) to Reference (1) are being implemented. Therefore, CYAPCO and NNECO have concluded that implementation of the interim actions adequately assures that the above-stated extended submittal dates pose no significant safety concern.

Should you have any questions on the above, please feel free to contact us.

Very truly yours,

NORTHEAST NUCLEAR ENERGY COMPANY

W. G. Counsil
Senior Vice President

Docket Nos. 50-213
50-245
50-336

Attachment 1

Haddam Neck Plant
Millstone Nuclear Power Station, Unit Nos. 1 and 2

July, 1981

Attachment 1

Interim Actions for Control of Heavy Loads

1. Safe load paths should be defined per the guidelines of Section 5.1.1(1) of NUREG-0612.

Response:

Safe load paths have been defined which meet the intent of the guidelines of Section 5.1.1(1) of NUREG-0612 for the movement of heavy loads to minimize the potential for heavy loads, if dropped, to impact irradiated fuel in the reactor vessel and in the spent fuel pool, or to impact safe shutdown equipment. The approach taken was to define restricted areas and administratively prohibit crane operation in these areas. Also it is not our intent to permanently mark load paths on the floors in areas where loads are handled, as these areas are frequently covered with clean synthetic canvas during crane operation periods, and painted paths would not be visible to load handlers.

2. Procedures should be developed and implemented per the guidelines of Section 5.1.1(2) of NUREG-0612.

Response:

Existing procedures have been revised and new procedures have been established which meet the intent of Section 5.1.1(2) of NUREG-0612.

3. Crane operators should be trained, qualified and conduct themselves per the guidelines of Section 5.1.1(3) of NUREG-0612.

Response:

A training program which meets the intent of Section 5.1.1(3) of NUREG-0612 for crane operators has been developed and will be implemented for new crane operators prior to being allowed to operate the cranes. Experienced crane operators have been qualified to operate particular overhead cranes based on their previously demonstrated skills. It is planned that experienced crane operators will also participate in the training program.

4. Cranes should be inspected, tested, and maintained in accordance with the guidelines of Section 5.1.1(6) of NUREG-0612.

Response:

Overhead lifting devices listed in our response to Item 3.e in Attachment 2 have been inspected, tested, and maintained in general accordance with the guidelines of Chapter 2-2 of ANSI B30.2-1976.

5. In addition to the above, special attention should be given to procedures, equipment, and personnel for the handling of heavy loads over the core, such as vessel internals or vessel inspection tools.

Response:

Procedures for handling heavy loads over the core have been reviewed for detail, clarity, and conciseness with regard to installation of rigging or lifting devices and load movement. These procedures meet the intent of NUREG-0612.

It is intended that visual inspections of load bearing components of cranes, slings, and special lifting devices to identify flaws or deficiencies that could lead to failure of the component will be made prior to use of the crane, sling, or lifting device. Appropriate repairs will be made if required.

It is also intended that crane operators will be trained and will be familiar with specific procedures used in handling loads over the core prior to crane use.

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Attachment 2

Haddam Neck Plant
Millstone Nuclear Power Station, Unit Nos. 1 and 2

July, 1981

Attachment 2

Information Requested by the NRC Staff in Section 2.1 of Enclosure (3) to Reference (1).

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 specifications, operating procedures, or detailed structural analysis).

Response:

The following overhead handling systems have been identified from which a load drop may result in damage to a system required for plant shutdown or decay heat removal (taking no credit for any interlocks, technical specifications, operating procedures, detailed structural analysis, or sufficient physical separation between load-impact point and any safety-related component).

(a) Haddam Neck Plant

(i) Monorail, Primary Auxiliary Building, Elevation 21'6"
(ii) Monorail, LPSI pump area
(iii) Miscellaneous rigging - HPSI pump area

(b) Millstone Unit No. 1

(i) Intake structure monorail system
(ii) Miscellaneous rigging - FWCI pump area
(iii) Miscellaneous rigging - core spray pump area
(iv) Miscellaneous rigging - shutdown cooling pump area
(v) Miscellaneous rigging - fuel pool cooling pump area

(c) Millstone Unit No. 2

(i) Monorails, diesel generator rooms
(ii) Monorails, charging pump area
(iii) Monorails, HPSI pump rooms
(iv) Miscellaneous rigging - LPSI pump area
(v) Monorail, auxiliary feedwater pump
(vi) Intake structure monorail system
(vii) Monorail, service water strainer

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:

For the lifting devices listed below there is sufficient physical separation between any load-impact point and any safety-related component such that it has been determined that no heavy load drop can result in damage to a system or component required for plant shutdown or decay heat removal:

(a) Haddam Neck Plant

(i) Monorail, LPSI pump area
(ii) Miscellaneous rigging - HPSI pump area

(b) Millstone Unit No. 1

(i) Miscellaneous rigging - FWCI pump area
(ii) Miscellaneous rigging - core spray pump area
(iii) Miscellaneous rigging - shutdown cooling pump area
(iv) Miscellaneous rigging - fuel pool cooling pump area

(c) Millstone Unit No. 2

(i) Monorails, diesel generator rooms
(ii) Monorails, charging pump area
(iii) Monorails, HPSI pump rooms
(iv) Miscellaneous rigging - LPSI pump area
(v) Monorail, auxiliary feedwater pump
(vi) Monorail, service water strainer

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.

Response:

See Enclosures 1, 2, and 3.

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:

The following procedures provide administrative controls which ensure that load-handling operations remain within safe load paths. These procedures establish where safe load paths are, who is responsible for moving loads over the safe load paths and when and how deviations from these paths can be made.

(a) Haddam Neck Plant

Procedure N.O.P. 2.26-2, "Control of Heavy Loads Lifting."

(b) Millstone Unit No. 1

Procedure MP 790.4, "Control of Heavy Loads."

(c) Millstone Unit No. 2

Procedure MP 2712 B1, "Control of Heavy Loads."

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).

(a) Haddam Neck Plant

Crane	Load Identification	Load Weight (Tons)	Lifting Device	Procedure Verification
Containment Polar Crane	Reactor Head	71	Reactor Head Lifting Rig	M 8.5-1
Containment Polar Crane	Upper Core Package	*	Upper Core Lifting Rig	M 8.5-2
Containment Polar Crane	RCP Motor	*	Slings	M 8.5-29
Containment Polar Crane	RCP	*	Slings	NOP 2.26-2
Containment Polar Crane	Miscellaneous Plant Equipment	Varies	Slings	NOP 2.26-2
Containment Polar Crane	Crane Load Block	*	N/A	NOP 2.26-2
Jib Crane	Miscellaneous Plant Equipment	1	Slings	NOP 2.26-2
Outside Yard Crane	Spent Fuel Shipping Cask	Varies	Cask Lifting Rig	SNM 1.4-17
Outside Yard Crane	Miscellaneous Plant Equipment	Varies	Slings	NOP 2.26-2
South Fuel Handling Crane	Miscellaneous Plant Equipment	*	Slings	NOP 2.26-2

Monorail, PAB Elevation 21'-6"	Floor Shield Blocks	*	Block Lifting Rig	M 8.5-33 M 8.5-99
Monorail, PAB Elevation 21'-6"	HPSI Pump A Motor & Pump	*	Slings	M 8.5-26

* To be provided later

(b) Millstone Unit No. 1

Crane	Load Identification	Load Weight (Tons)	Lifting Device	Procedure Verification
Reactor Building Bridge Crane	Spent Fuel Cask	Varies	Cask Lifting Rig	OP 347
Reactor Building Bridge Crane	Drywell Head	64	Reactor Head Lifting Rig	MP 701.4
Reactor Building Bridge Crane	Reactor Vessel Head	81	Reactor Head Lifting Rig	MP 701.1
Reactor Building Bridge Crane	Dryer/ Separator	21	Slings & Spreader Rig	MP 702.1
Reactor Building Bridge Crane	Refuel Canal Plugs & Gate	80	Slings	MP 701.6
Reactor Building Bridge Crane	Concrete Shielding	76	Slings	MP 701.5
Reactor Building Bridge Crane	"Cattle Shoot"	24	Slings	MP 701.5
Reactor Building Bridge Crane	Service Platform Support & Flange Protector	5	Slings	MP 790.4
Reactor Building Bridge Crane	Miscellaneous Plant Equipment	Varies	Slings	MP 790.4
Reactor Building Bridge Crane	Load Block	10	N/A	OP 347 MP 790.4
Intake Structure Monorail	Emergency Service Water Pumps	*	Slings	MP 722.2 MP 722.3

Intake Structure Monorail	Service Water Pumps	*	Slings	MP 722.2 MP 722.3

(c) Millstone Unit No. 2

Crane	Load Identification	Load Weight (Tons)	Lifting Device	Procedure Verification
Spent Fuel Cask Crane	Spent Fuel Shipping Cask	Varies	Cask Lifting Rig	OP 2352
Spent Fuel Cask Crane	Spent Resin Cask	*	Slings	MP27210 MP27201
Spent Fuel Cask Crane	Spent Fuel Transfer Gates	15	Slings	MP2712B1
Spent Fuel Cask Crane	Crane Load Block	*	N/A	MP2712B1
Spent Fuel Cask Crane	Miscellaneous Plant Equip-ment	Varies	Slings	MP2712B1
Containment Polar Crane	Reactor Head	80	Reactor Head Lifting Rig	MP2704C MP2704L
Containment Polar Crane	Upper Guide Structure with ICI Plate	*	Upper Guide Structural Lifting Rig	MP2704F MP2704I
Containment Polar Crane	RCP Motor	*	Slings	M2720D4
Containment Polar Crane	RCP Pump	*	Slings	M2703E1
Containment Polar Crane	Crane Load Block	*	N/A	MP2712B1 OP 2352
Containment Polar Crane	Miscellaneous Plant Equip-ment	Varies	Slings	MP2712B1
Intake Structure Monorail	Service Water Pumps	*	Slings	MP2703A5

* To be provided later

d. 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:

Verification that lifting devices comply with the appropriate specifications is an ongoing activity at this time. Contacts with the lifting device designers have been made to obtain data to perform the necessary reviews and analysis.

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:

The following cranes have been inspected on an annual or "before use" basis:

(i) Millstone Unit No. 1 Reactor Building bridge crane
(ii) Millstone Unit No. 1 Turbine Building bridge crane
(iii) Millstone Unit No. 2 polar crane
(iv) Millstone Unit No. 2 spent fuel cask crane
(v) Haddam Neck Plant polar crane
(vi) Haddam Neck Plant outside yard crane

Their inspection conforms to or exceeds ANSI B30.2-1976.

Crane testing and maintenance is conducted by plant personnel and it generally conforms to or exceeds the requirements of ANSI B30.2-1976.

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:

Verification of crane design is an on going activity at this time. Crane purchase specifications and design drawings have been assembled and are in the process of being compared to CMAA Specification 70 and Chapter 2-1 of ANSI B30.2-1976.

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

Response:

No exceptions are being taken to ANSI B30.2-1976 with respect to operator training, qualification, and conduct at this point in time by CYAPCO and NNECO. If necessary exceptions are required, the NRC Staff will be informed.

Docket No. 50-213

Enclosure 1

to

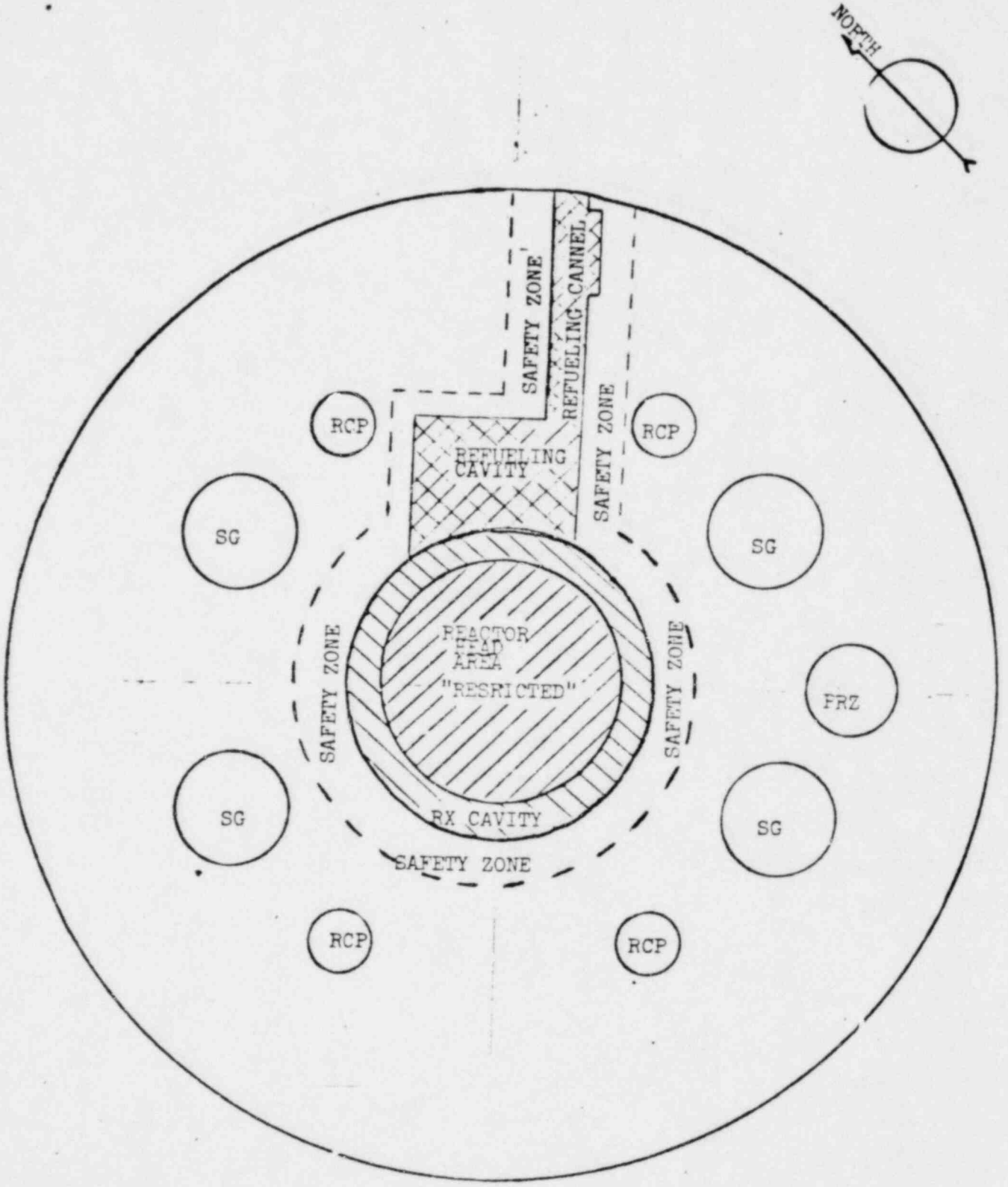
Attachment 2

Haddam Neck Plant

Response to Item 3(a)

July, 1981

REACTOR CONTAINMENT
Fig. 1



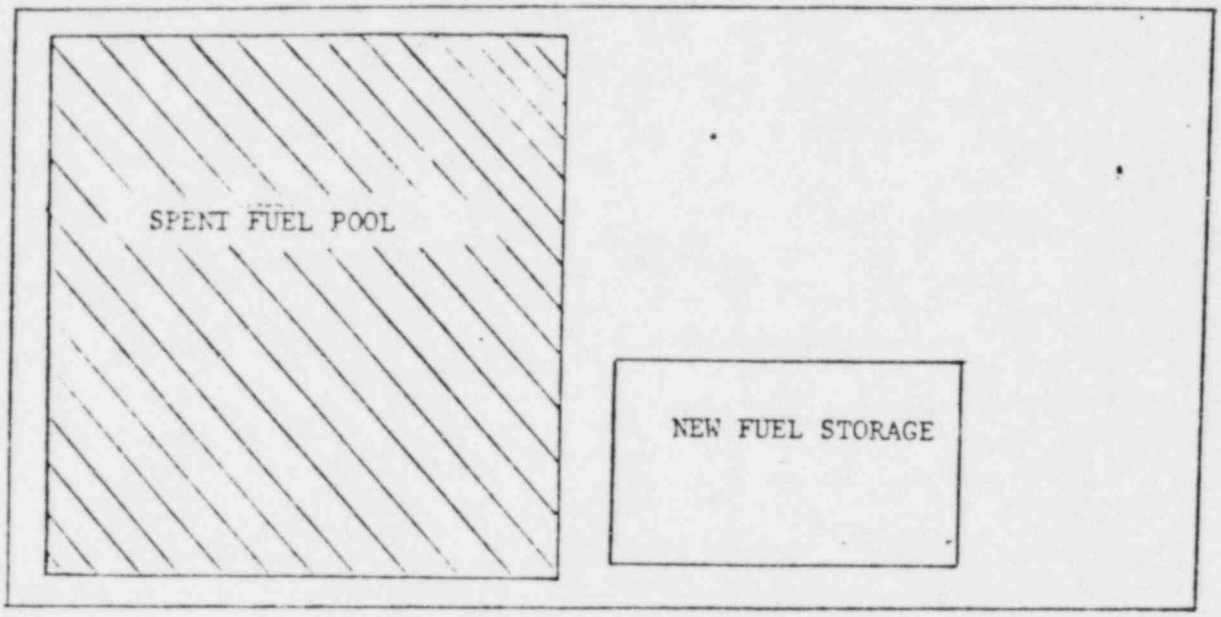
NOTE: SAFETY ZONE IS REMOVED IF IRRADIATED FUEL (SPENT) IS REMOVED FROM THE RESTRICTED ZONE.
(ref section 6.2.4)

REACTOR HEAD AREA (fully restricted)

REACTOR CAVITY (fully restricted)

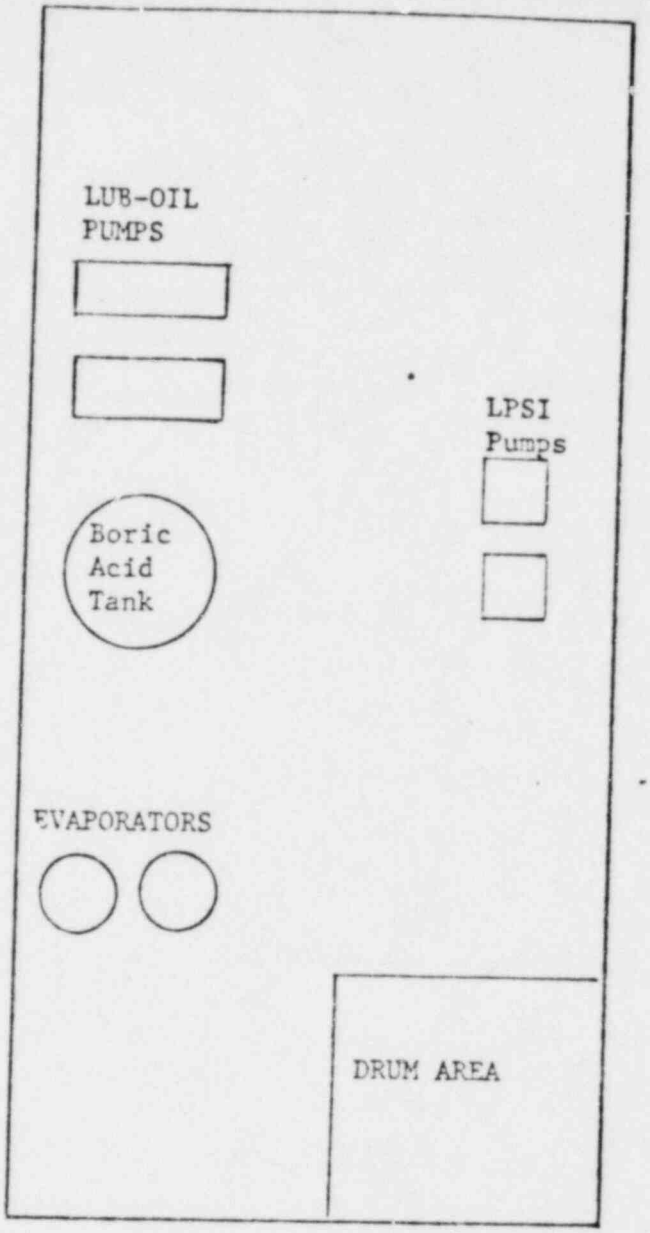
REFUELING CAVITY & CANNEL (restricted only when fuel is present)

FUEL STORAGE BUILDING
FIG. 2



Spent Fuel Pool - Fully restricted when spent fuel is present

NOTE: All remaining areas are restricted if lifting of heavy loads requires passage over or in close proximity to spent fuel placed for inspection or in transition. Ref. Para. 6.1.4.



RESTRICTED LOAD LIFTING AREAS DEFINED IN SECTION 6.1.5

Docket No. 50-245

Enclosure 2

to

Attachment 2

Millstone Nuclear Power Station, Unit No. 1

Response to Item 3(a)

July, 1981

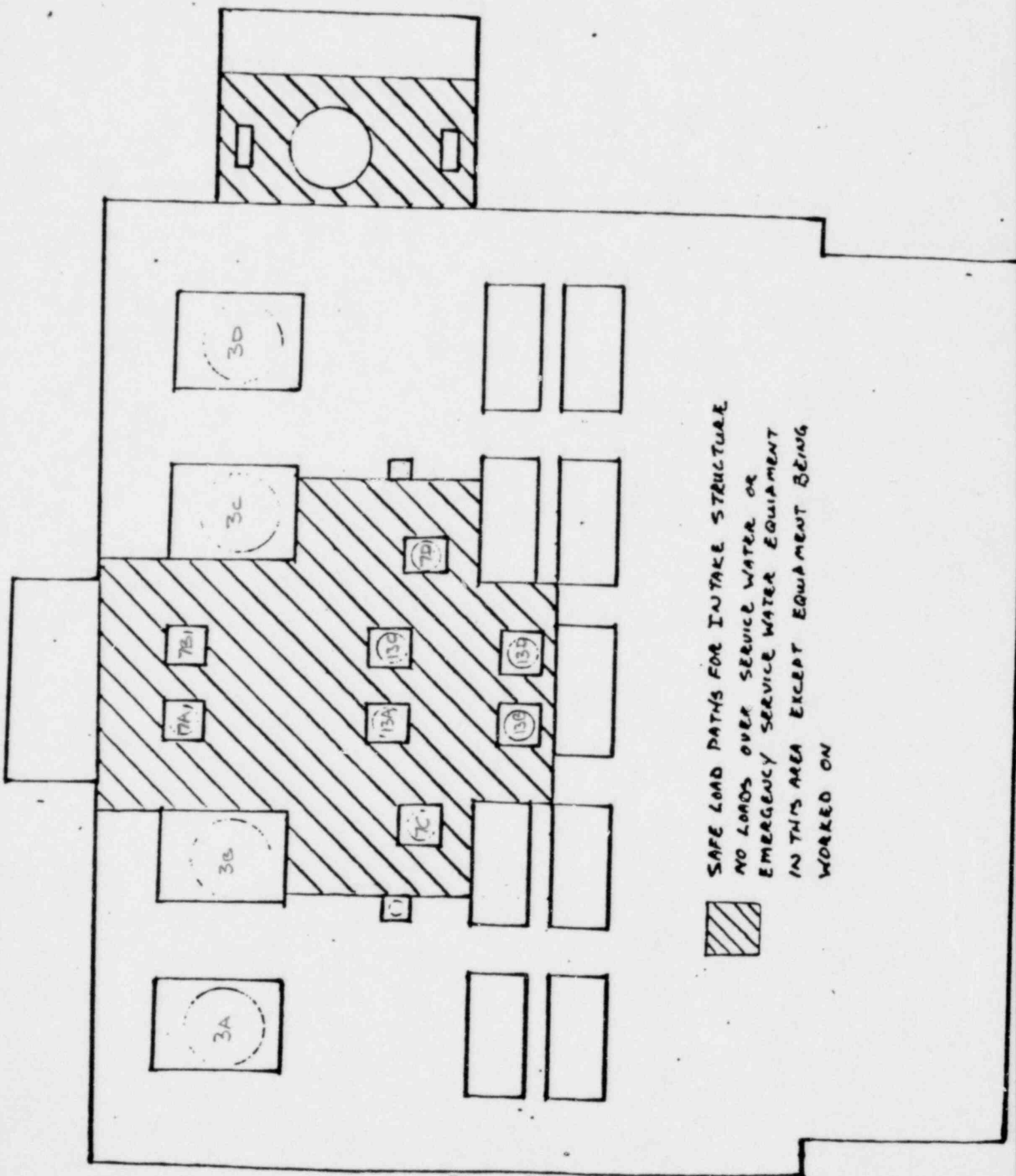

3D
3C
3B
3A
7D1
7B1
7A1
13A
13B
13B
7C
1
SAFE LOAD PATHS FOR INTAKE STRUCTURE
NO LOADS OVER SERVICE WATER OR
EMERGENCY SERVICE WATER EQUIPMENT
IN THIS AREA EXCEPT EQUIPMENT BEING
WORKED ON

Figure 8.1

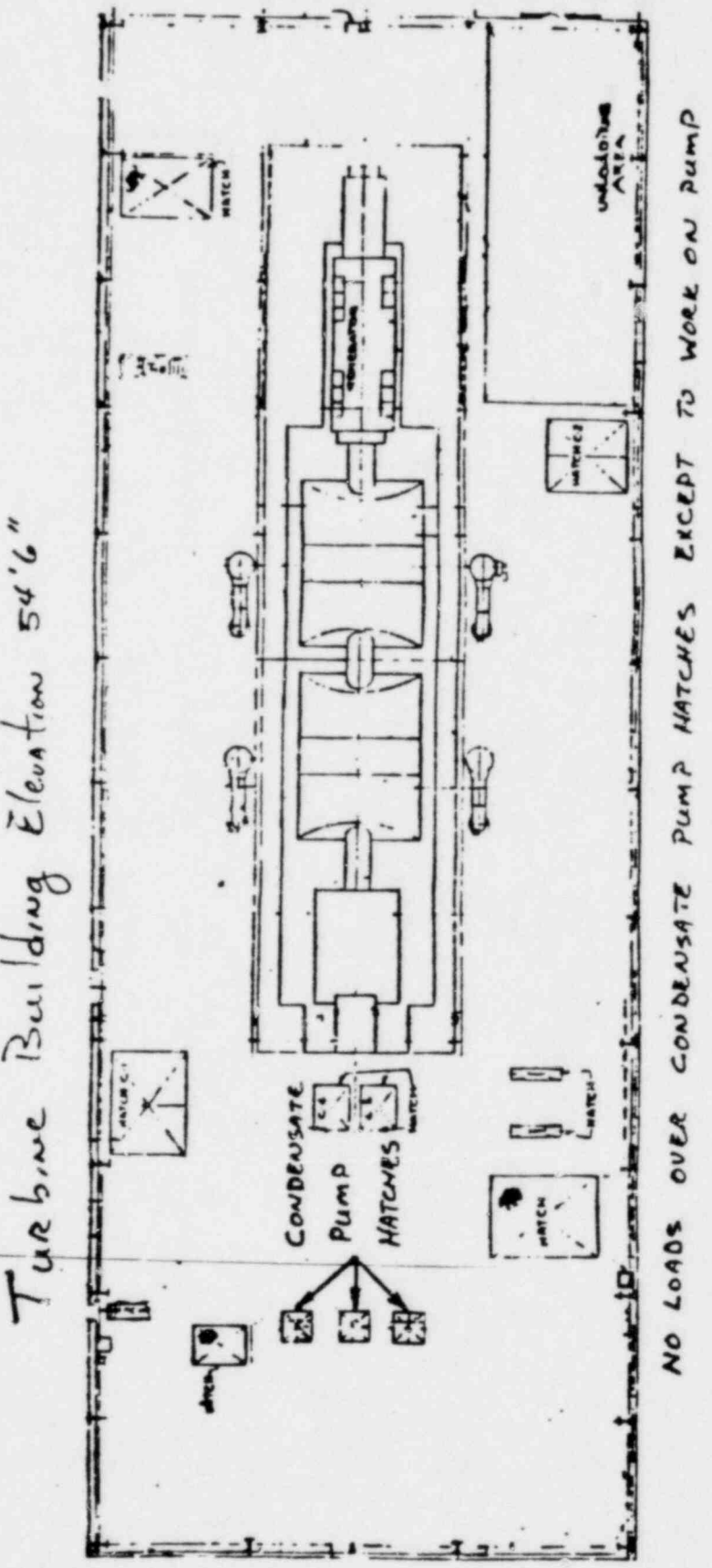
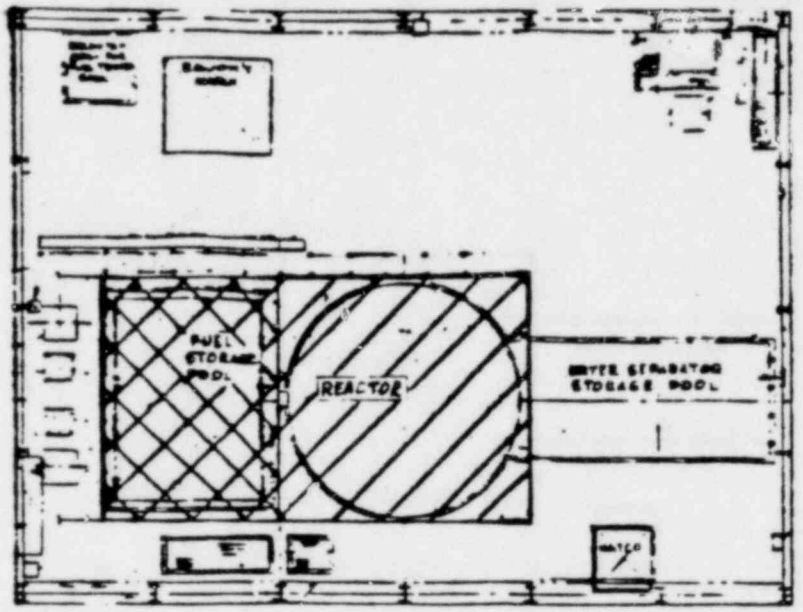

Turbine Building Elevation 54'6"
CONDENSATE PUMP HATCHES
NO LOADS OVER CONDENSATE PUMP HATCHES EXCEPT TO WORK ON PUMP

Figure 8.2

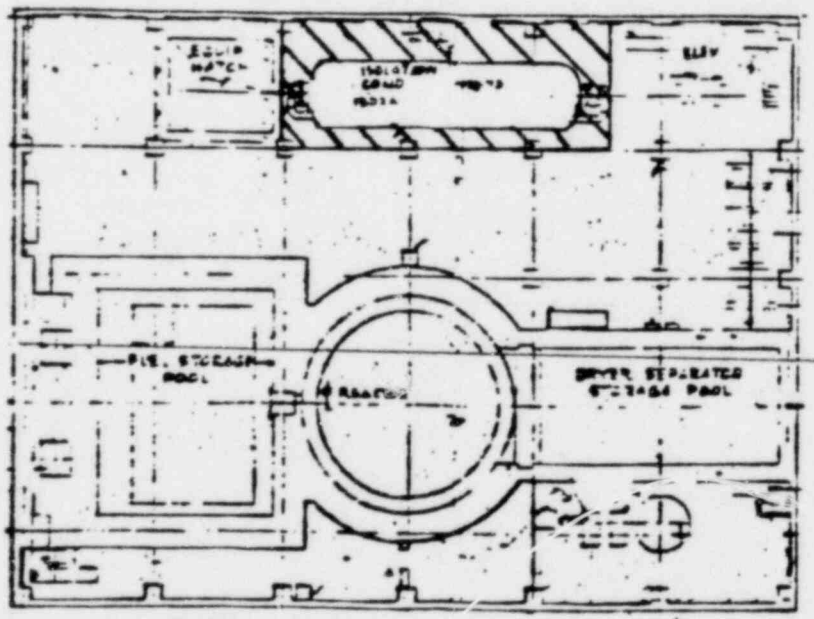
ELEVATION 108'6"



NO CRANE OPERATIONS IN THIS AREA WITH THE REACTOR HEAD REMOVED, EXCEPTIONS LISTED IN 5.9.5

NO CRANE OPERATIONS IN THIS AREA WITH IRRADIATED FUEL IN THE POOL. EXCEPTIONS LISTED IN 5.9.5

SAFE LOAD PATHS



ELEVATION 82'9"

Figure 8.3

Docket No. 50-336

Enclosure 3

to

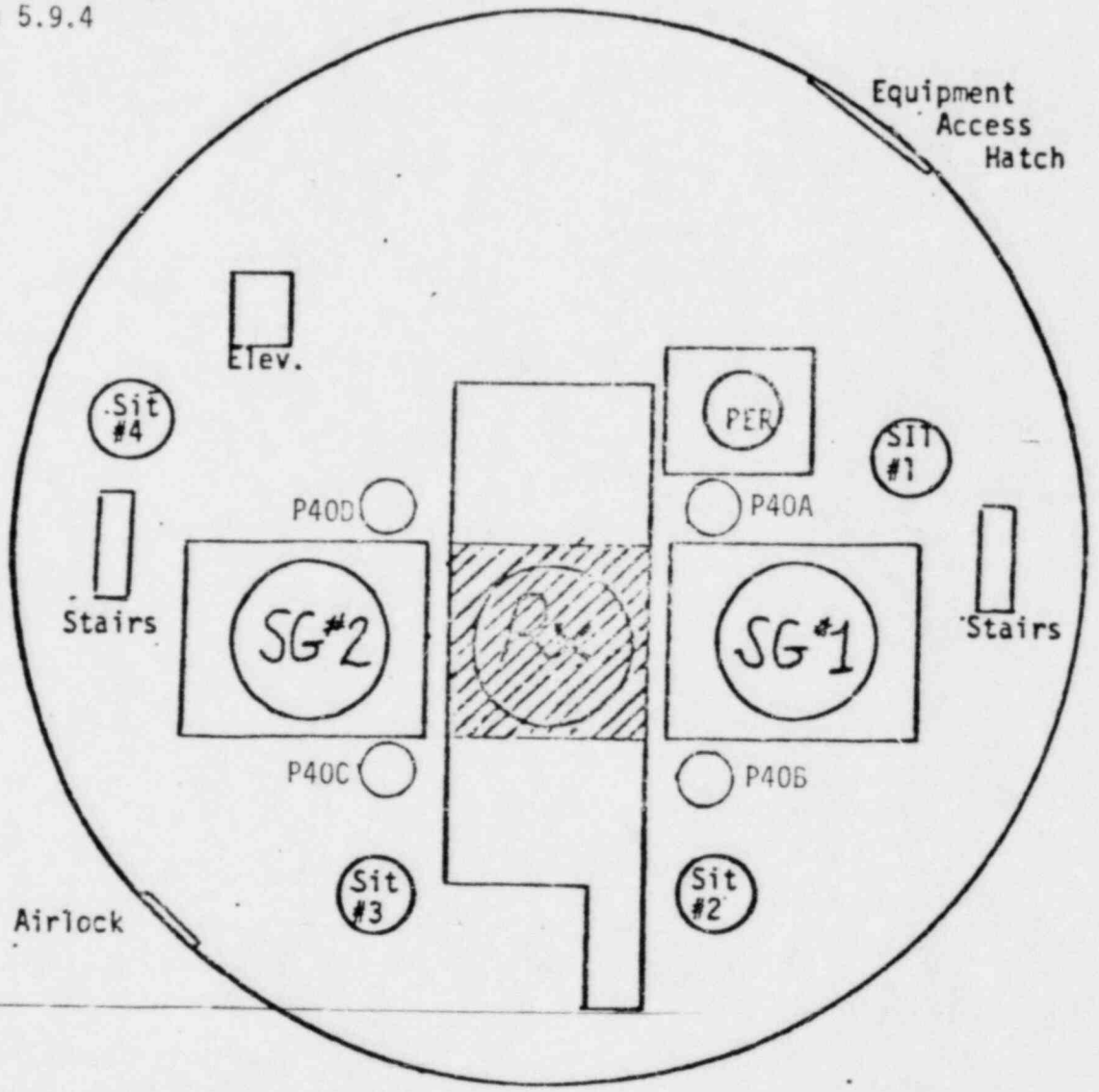
Attachment 2

Millstone Nuclear Power Station, Unit No. 2

Response to Item 3(a)

July, 1981

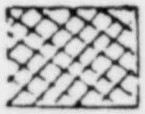
No Polar Crane Operation Allowed if Rx Head is off and UGS removed
Exceptions are listed in Section 5.9.4



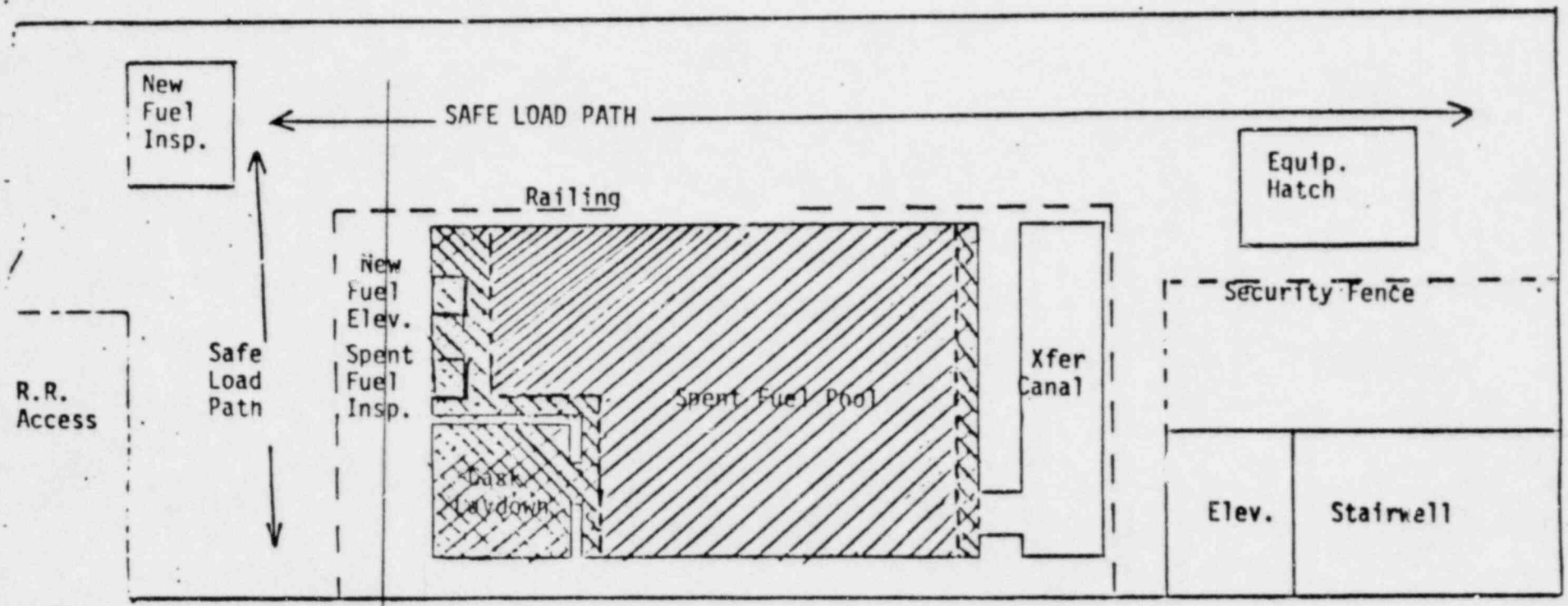
SAFE LOAD PATHS FOR THE POLAR CRANE

Figure 8.1

No Cask Crane Operation Allowed
with Irradiated Fuel in Pool

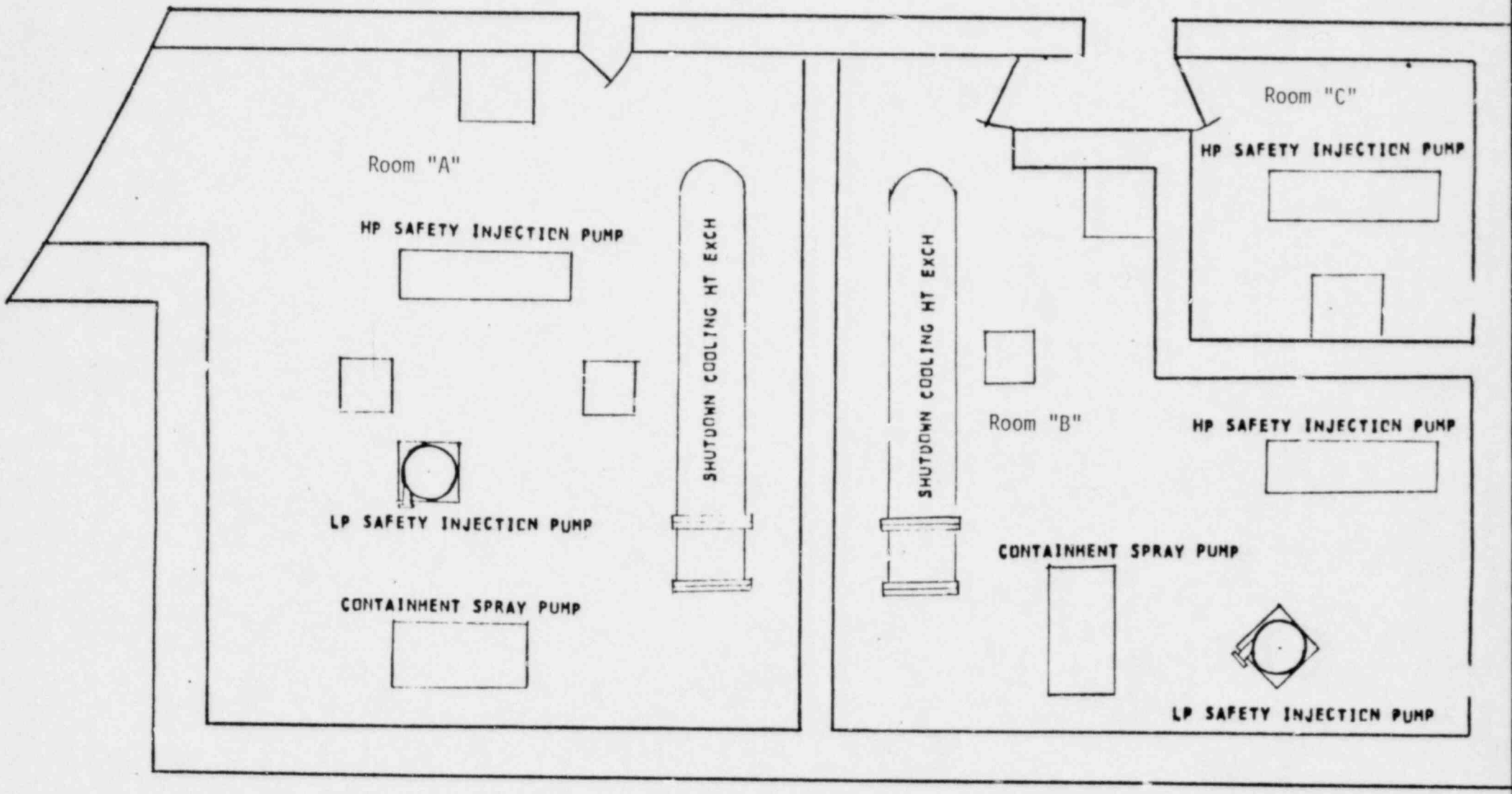


Cask Operating Area
New Fuel Inspection
Transfer Gate Operation



SAFE LOAD PATHS FOR THE CASK CRANE

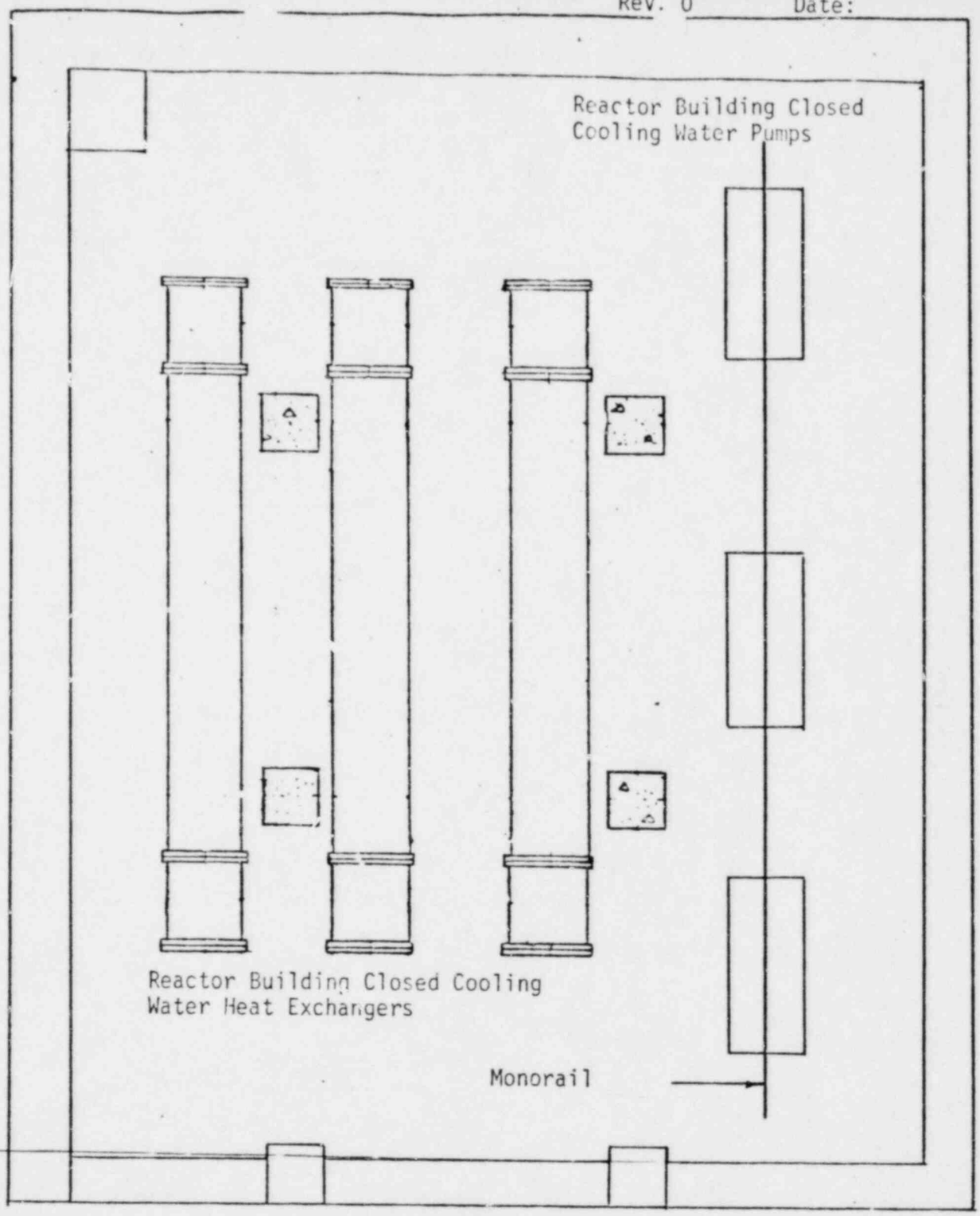
Figure 8.2



SAFE LOAD PATHS FOR EMERGENCY SAFEGUARDS ROOMS A. B. AND C

The open floor area around and the space directly over the equipment being worked on.

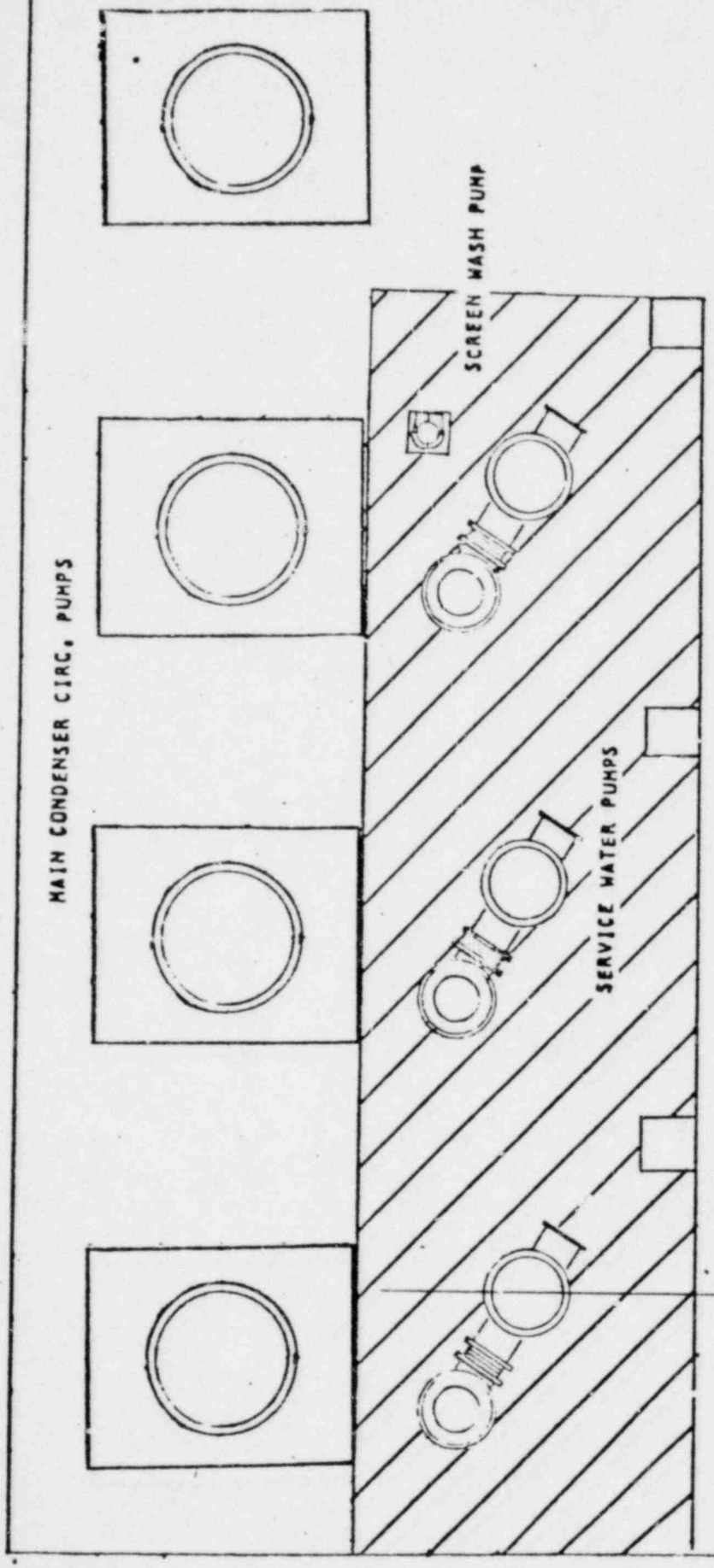
Figure 8.3



Safe Load Paths for the Reactor Building Closed Cooling Water Pump Area

All open floor area around and the space directly above the equipment being worked on.

Figure 8.4



SAFE LOAD PATHS FOR THE SERVICE WATER PUMP AREA.

The open floor area around and the space directly above the Service Water Pump being worked on.

Safe Load Path

Figure 8.5