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August 27, 1984

Director
Office of Nuclear Reactor Regulation
U S Nuclear Regulatory Commission
Washington, DC 20555

PRAIRIE ISLAND NUCLEAR GENERATING PLANT
Docket Nos. 50-282 License Nos. DPR-42
50-306 DPR-60

Response to the Heavy Loads Phase II
Technical Evaluation Report

Attached are the responses requested in a July 25, 1984 phone conversation concerning the Phase II Heavy Loads Technical Evaluation Report.

If additional information is necessary please contact us.

David Musolf
Manager - Nuclear Support Services

DMM/TMP/bd

c: Regional Administator-III, NRC
NRR Project Manager, NRC
Resident Inspector, NRC
G Charnoff

Attachments

A039
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PRAIRIE ISLAND NUCLEAR GENERATING PLANT

August 28, 1984

Response to The Heavy Loads Phase II
Technical Evaluation Report

Reference: 1. Prairie Island Updated Safety Analysis Appendix 14A
2. Letter dated July 11, 1984 from D M Musolf to the Director of Nuclear Reactor Regulation

1. Addition information concerning spent fuel pool divider gates and spent fuel pool covers:

Clarification was requested on the methods used to handle the spent fuel pool divider gates and the spent fuel pool covers.

Figure 1 illustrates the method used to handle the pool divider gates. As shown, two separate trolleys are used to handle the gate. Each trolley has a 3-ton capacity. Failure of one trolley system will not result in the dropping of the divider gate.

Figure 2 shown the details of a spent fuel cover. Each cover has 4 lifting rings. As with the divider gates, two trolleys are also used to lift the cover. An additional design feature is that the cover is longer than the spent fuel pool is wide, further assuring the cover isn't dropped in the pool. Each trolley (same trolleys as used for the divider gates) is of sufficient capacity to handle the cover weight in the event one trolley system fails.

2. Offsite Doses

The maximum predicted offsite doses for Postulated LOCA and Fuel Handling Accident (FHA) are listed below (Reference 1):

Event	Exposure Time	Organ	Radiological Dose (rem)
LOCA	2 hr	Thyroid	3.3
		Whole Body	2.6
	30 day	Thyroid	2.5
		Whole Body	6.4
FHA in Aux. Bldg During Purge	2 hr	Thyroid	4.3
		Whole Body	0.7

The FHA doses are below 25% of the 10 CFR Part 100 guidelines.

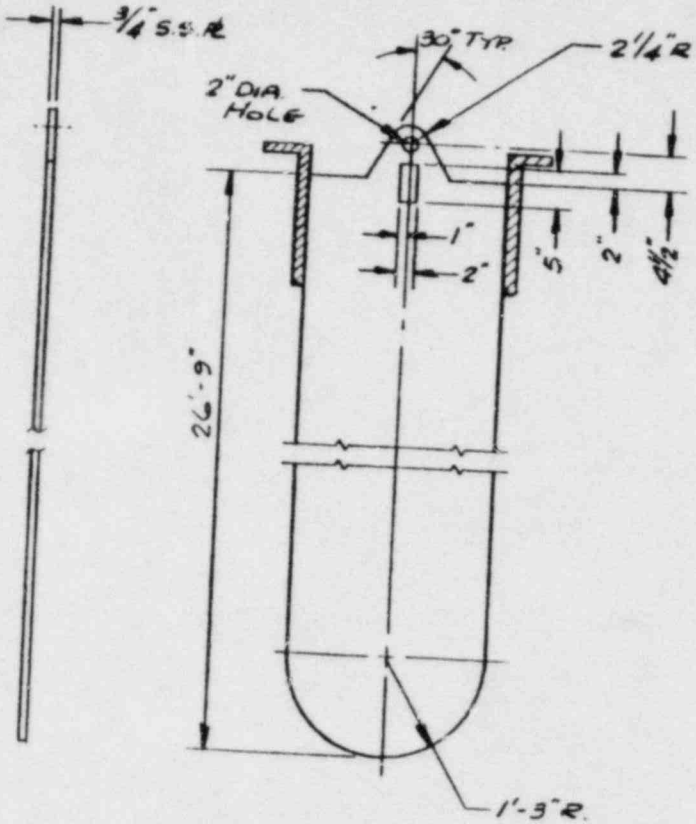
The offsite doses resulting from any load drop in the containment are bounded by the LOCA if containment leakage is restricted to operational limits. The LOCA analysis assumes failure of all fuel and the subsequent release of all fission gases and a large fraction of the particulates and iodines. Currently, the Technical Specifications (Section 3.8.A.1) during refueling operations require:

> The equipment hatch and at least one door in each personnel air lock shall be closed. In addition, at least one isolation valve shall be operable or locked closed in each line which penetrates the containment and provides a direct path from containment atmosphere to the outside.

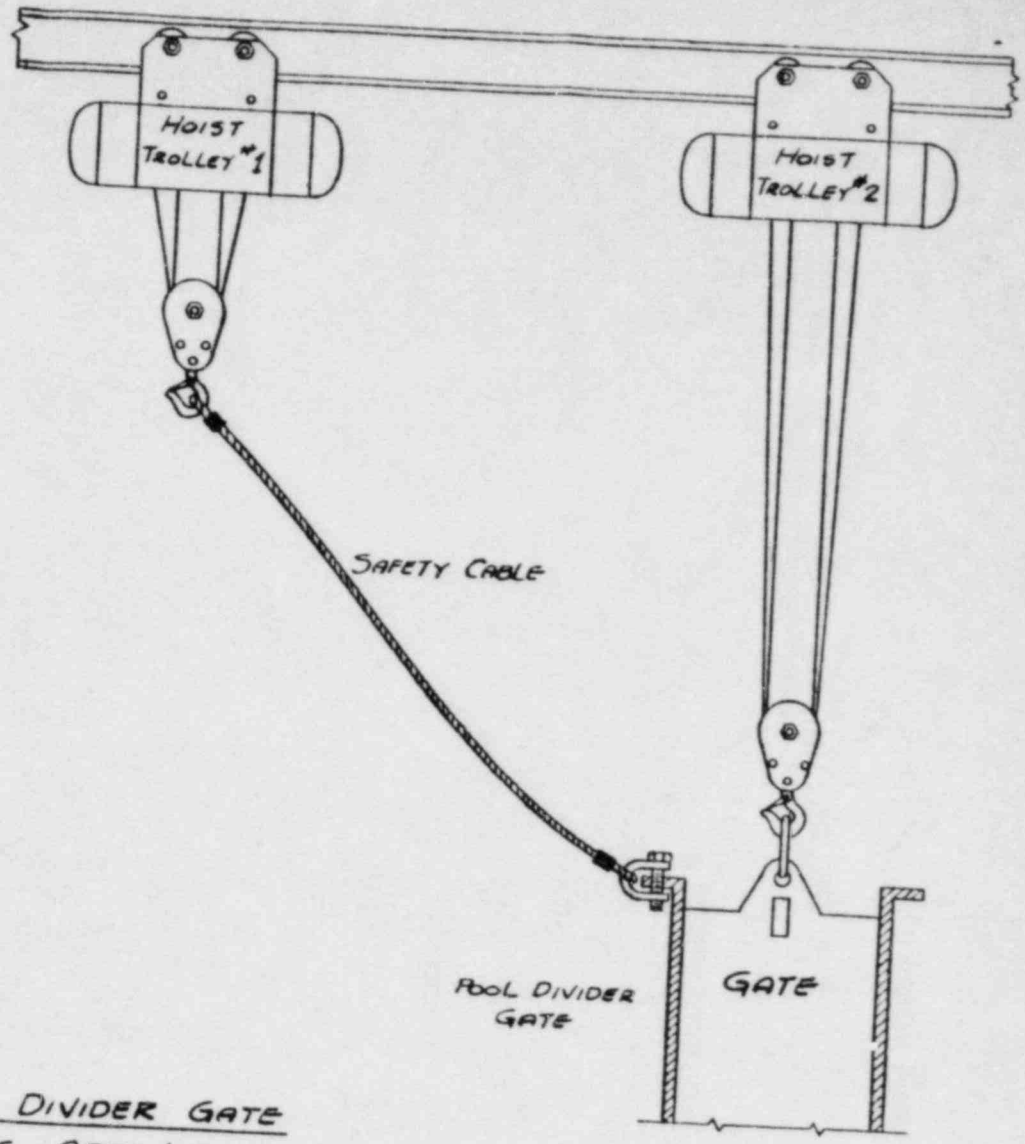
Administratively, during heavy load lifts over the reactor vessel, at least one isolation valve is closed in each line which penetrates the containment and provides a direct path from the containment atmosphere to the outside. Therefore, the offsite dose resulting from any heavy load drop over the reactor vessel will be bounded by the doses predicted following a LOCA. In fact, the maximum doses would be significantly less during any heavy load drop on the vessel since the containment would not pressurize as in a LOCA.

3. Boron Concentration during Reactor Vessel Head Movement

Currently, a 2000 ppm boron concentration is required by Technical Specification 3.8.A.4 during reactor vessel head movement and fuel loading. A request has been made (see Reference 2) to change this requirement to 10% shutdown margin. This change will continue to require sufficient shutdown margin.



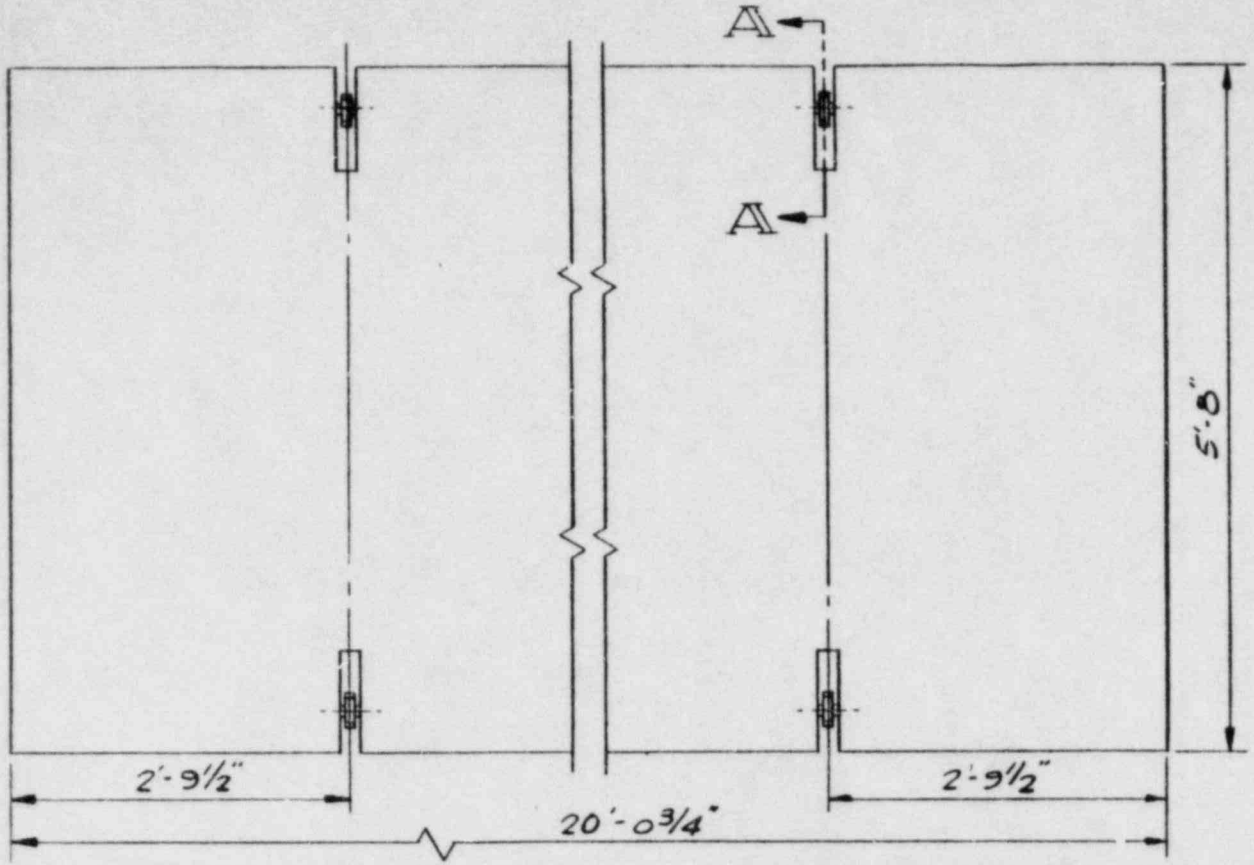
DETAIL OF GATE



POOL DIVIDER GATE
RIGGING ARRANGEMENT

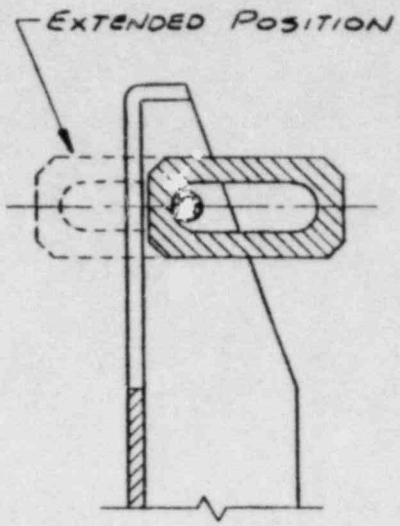
FIGURE 1

(NO SCALE)

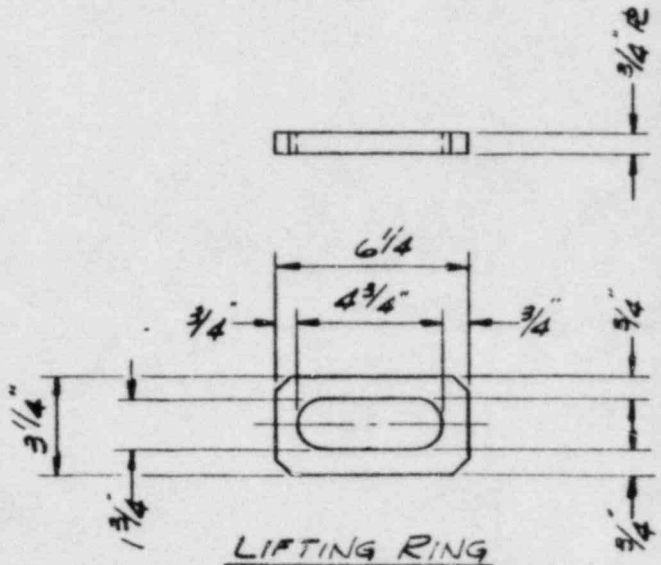


FUEL POOL - PROTECTIVE COVER
FOR SPENT FUEL POOL #1
TYPICAL OF THREE

SCALE 1"=1'



SECTION A-A
SCALE 3"=1'



LIFTING RING
DETAIL
SCALE 3"=1'

FIGURE 2