



Northern States Power Company

Monticello Nuclear Generating Plant  
2807 West Hwy 75  
Monticello, Minnesota 55362-9637

May 8, 1996

Report Required by  
NRC Bulletin 96-02

U.S. Nuclear Regulatory Commission  
Attn: Document Control Desk  
Washington, DC 20555

Response To NRC Bulletin 96-02  
Movement Of Heavy Loads Over Spent Fuel, Over Fuel In  
the Reactor Core, Or Over Safety-Related Equipment

Following a review of the referenced Bulletin, we have concluded that Monticello is meeting the licensing basis for movement of heavy loads during power operations. Attachment A contains our response to Bulletin 96-02; Movement Of Heavy Loads Over Spent Fuel, Over Fuel In the Reactor Core, Or Over Safety-Related Equipment; dated April 11, 1996.

This letter contains no new NRC commitments.

Please contact Tom [unclear] at (612) 295-1014 if you require further information.

William J Hill  
Plant Manager  
Monticello Nuclear Generating Plant

c: Regional Administrator - III NRC  
Sr Resident Inspector, NRC  
NRR Project Manager, NRC  
State of Minnesota,  
Attn: Kris Sanda

Attachments:

Affidavit of William J Hill  
A - Response to NRC Bulletin 96-02

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UNITED STATES NUCLEAR REGULATORY COMMISSION

NORTHERN STATES POWER COMPANY

MONTICELLO NUCLEAR GENERATING PLANT

DOCKET NO. 50-263

Response To NRC Bulletin 96-02  
Movement Of Heavy Loads Over Spent Fuel, Over Fuel In  
the Reactor Core, Or Over Safety-Related Equipment

Northern States Power Company, a Minnesota corporation, hereby provides the required 30 day response to NRC Bulletin 96-02, "Movement Of Heavy Loads Over Spent Fuel, Over Fuel In the Reactor Core, Or Over Safety-Related Equipment." This letter contains no restricted or other defense information.

NORTHERN STATES POWER COMPANY

By

William J Hill

William J Hill

Plant Manager

Monticello Nuclear Generating Plant

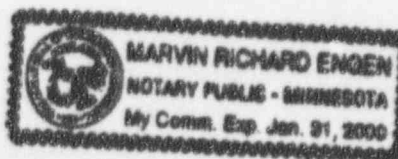
On this 8th day of May 1996 before me a notary public in and for said County, personally appeared William J Hill, Plant Manager, Monticello Nuclear Generating Plant, and being first duly sworn acknowledged that he is authorized to execute this document on behalf of Northern States Power Company, that he knows the contents thereof, and that to the best of his knowledge, information, and belief the statements made in it are true and that it is not interposed for delay.

Marvin R Engen  
Marvin R Engen

Notary Public - Minnesota

Sherburne County

My Commission Expires January 31, 2000



Response To NRC Bulletin 96-02  
Movement Of Heavy Loads Over Spent Fuel, Over Fuel In  
the Reactor Core, Or Over Safety-Related Equipment

References:

- 1) Letter dated July 7, 1982, from David Musolf to the Director of NRR titled: "Control of Heavy Loads (Revised Six Month Submittal)"
- 2) Letter dated January 12, 1982, from L O Mayer to the Director of NRR titled: "Control of Heavy Loads (Nine Month Submittal)"
- 3) Letter dated December 22, 1980, from the Darrell Eisenhut, Director of Licensing, NRR, to All Licensees of Operating Plants, titled: "Control of Heavy Loads"
- 4) Letter dated March 19, 1984, from Domenic B. Vassallo, NRC, to D. M. Musolf, titled "Control of Heavy Loads (Phase I)"

Request 1:

*Address the licensee's review of its plans and capabilities to handle heavy loads while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) in accordance with existing regulatory guidelines. The report should also indicate whether the activities are within the licensing basis and should include, if necessary, a schedule for submission of a license amendment request. Additionally, the report should indicate whether changes to Technical Specifications will be required.*

Response to Request 1:

Overhead Handling Systems

Monticello has two overhead handling systems from which a heavy load drop may result in damage to plant systems required for safe shutdown or decay heat removal. These overhead handling systems are:

Overhead Handling System	Capacity (Tons)		Single Failure Proof Crane?
	Main Hook	Auxiliary Hook	
Reactor Building Crane	85	2.5 <sup>1</sup>	Yes
Turbine Building Crane	125	25	No

<sup>1</sup> The Auxiliary Hook is designed to carry up to 5 tons. If it is used to carry heavy loads over spent fuel or safety related equipment, the capacity is reduced to 2.5 tons to provide a safety factor of 10.

All other overhead handling devices not included in the above list are provided in Figure 1. These either were excluded in accordance with our response to Generic Letter 81-07 (See Reference 1) or have been excluded subsequently using similar justifications.

#### Plans to Handle Heavy Loads While the Reactor is at Power

All heavy load lifts over spent fuel and safe shutdown equipment are administratively controlled.

There are no administrative prohibitions on the Reactor Building Crane heavy load lifts at power, since the Reactor Building Crane has satisfied the "single failure proof" criteria<sup>2</sup>. Some of the loads that could be lifted at power are:

Cask	Weight (lbs)
IF-300	161,000
CNS 8-120B	74,000
CNS 3-55	70,000
CNS 8-120A	70,000
NUPAC 10-142	68,000
FSV-1	47,600
CNS 1-13G	34,000
CNS 1-13C	26,000

In the turbine building, the areas above safe shutdown equipment are marked with a pattern painted<sup>3</sup> on the turbine operating floor. Administrative restrictions on lifting heavy loads in this area limit the loads to less than 100,000 lbs and restrict the height to less than 6" above the floor during power operations.

#### Are Activities Planned Within the Licensing Basis?

All activities planned are within the Monticello licensing basis. The pertinent referenced licensing documents are referenced in the Monticello Updated Safety Analysis Report, Section 12.2.5.

The licensing basis of movement of heavy loads above safe shutdown equipment in the Turbine Building should be clarified. The following bracketed statement in the Technical Evaluation Report, prepared by Franklin Research

<sup>2</sup> Technical Specification 3.7.C.2.d requires secondary containment when a fuel cask is being moved within the Reactor Building.

<sup>3</sup> Referred to as "crosshatched" in previous submittals.

Institute, containing the evaluation of safe load paths, is not considered part of the Monticello licensing basis (the brackets have been added):

Exclusion areas which have been developed in the turbine building are acceptable on the basis that they are well defined, well marked, and normally exclude movements of all heavy loads. The licensee should ensure, however, that adequate instructions and warnings are included in formal administrative or load handling procedures to prevent non-approved movements into this exclusion area. In addition, the instance noted (1984 maintenance outage) by the Licensee in which movements into this area will occur appears to be acceptable on the basis that the deviation has been reviewed and approved by the Operations Committee and a formal procedure has been prepared for use. [However, the Licensee should ensure that, following completion of the major maintenance, movements of heavy loads into the exclusion area are again prohibited and that the procedure is removed from use. Future movements of heavy loads into the turbine building exclusion area should be identified and approved by the Operations Committee on a case-by-case basis so that the movements are clearly identified and individually approved].

The conclusion and recommendation section states: "implementation of safe load paths and exclusion areas at the Monticello Nuclear Generating Plant is consistent with Guideline 1 of NUREG-0612." No recommendations were made.

Movement of heavy loads over safe-shutdown equipment is permitted per the NRC guidance on responding to the Control of Heavy Loads issue Enclosure 4 of Reference 3, which states:

Where safe-shutdown equipment has a ceiling or wall separating it from an overhead handling system, provide an evaluation to demonstrate that postulated load drops do not penetrate the ceiling or cause secondary missiles that could prevent a safe-shutdown system from performing its safety function.

Monticello had an analysis performed to demonstrate that load drops up to 100,000 lb from 6" on the Turbine Operating floor would not generate secondary missiles that could prevent a safe-shutdown system from performing its safety function. This analysis is the current at power licensing basis.

The NRC Safety Evaluation Report (Reference 4) stated: "The staff has reviewed the Technical Evaluation Report and concurs with its findings that the guidelines in NUREG-0612, Sections 5.1.1 and 5.3 have been satisfied. We therefore conclude that Phase I for Monticello is acceptable." Typically, NRC Safety Evaluation Reports will identify any additional actions needed to be taken by the licensee. None were identified in this Safety Evaluation Report. The action mentioned in the Technical Evaluation Report was not a commitment made by NSP nor was it identified in the NRC Safety Evaluation Report. Therefore, Monticello does not consider it part of the plant licensing basis.



Generally, when Monticello identifies statements in Safety Evaluation Reports that need clarification, this is communicated to the NRR Project Manager. In this case, the licensing engineer failed to communicate this clarification to the NRC. This was an oversight.

The procedure referenced by the Technical Evaluation Report was not deleted and is in use today. It has been revised 5 times and each revision was reviewed by the Operations Committee. No loads in excess of 100,000 lbs have been lifted over this area at power. In summary, all past activities and planned activities are within the Monticello licensing basis.

Are Changes to the Technical Specifications Required?

No changes are needed to the Monticello Technical Specifications.

Request 2:

*For licensees planning to perform activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) and that involve a potential load drop accident that has not previously been evaluated in the FSAR, submit a license amendment request in advance (6-9 months) of the planned movement of the loads so as to afford the staff sufficient time to perform an appropriate review.*

Response to Request 2:

The handling of heavy loads by the Turbine and Reactor Building Crane has been reviewed by the NRC Safety Evaluation Report (Reference 4).

Request 3:

*For licensees planning to move dry storage casks over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled) include in item 2 above, a statement of the capability of performing the actions necessary for safe shutdown in the presence of radiological source term that may result from a breach of the dry storage cask, damage to the fuel, and damage to safety-related equipment as a result of a load drop inside the facility.*

Response to Request 3:

Monticello is not licensed to handle dry storage casks.

Request 4:

*For licensees planning to perform activities involving the handling of heavy loads over spent fuel, fuel in the reactor core, or safety-related equipment while the reactor is at power (in all modes other than cold shutdown, refueling, and defueled), determine whether changes to Technical Specifications will be required in order to allow the handling of heavy loads (e.g., the dry storage canister shield plug) over fuel assemblies in the spent fuel pool and submit the appropriate information in advance (6-9 months) of the planned movement of the loads for NRC review and approval.*

Response to Request 4:

No changes are needed to the Monticello Technical Specifications.

Figure 1: Handling Devices Not Requiring  
Heavy Loads Movement Procedures  
as of May 1996

Handling Device	Capacity (LBs)
<b>Reactor Building</b>	
Reactor Recirc Pumps Monorail Motor Hoist	32,000
Radwaste Storage Bridge Crane	20,000
New Shipping Building Crane	20,000
Radwaste Conveyor Load-Out Monorail	12,000
RWCU Filter Shield Block Monorail	10,000
HPCI Turbine Monorail	8,000
Radwaste Building Monorail	6,000
Radwaste Building Sump Monorail	6,000
Rx Building Closed Clg Wtr Heat Exchanger Lifting Lugs	6,000
MSIV Area Monorail	6,000
HPCI Pump Monorail	6,000
Radwaste Centrifuge Hoist A	4,000
Radwaste Centrifuge Hoist B	4,000
Drywell Equipment Hatch Monorail and Lifting Device	3,000
Reactor Building Elevator	2,100
Radwaste Devices Entrance Monorail	2,000
H-26-Hoist Rx Bldg 896' Tank Room Jib Crane	2,000
Refueling Facilities Motor Drive Jib Crane A	1,500
Refueling Facilities Motor Drive Jib Crane B	1,500
Reactor Vessel Service Platform	1,500
Torus Monorail at AZ 300°	1,500
Lifting Lugs in Torus Room over Ring Header Snubbers (9)	1,500
Torus Room Lifting Lug above AO-2381	1,500
Torus Room Lifting Lug above AO-2377 (2)	1,500
Torus Room Lifting Lug above AO-2378 (3)	1,500
Torus Room Lifting Lug above AO-2380 (3)	1,500
HPCI Jib Crane 2000 LB Lifting Lugs above Drywell Hatch (4)	1,500
CRD Rebuild Area Monorail	1,000
Low Level Contamination Work Area Monorail	1,000
MSIV Area Lifting Lug	1,000
Radwaste Capping Station Monorail	1,000
Rx Refueling Platform Handling Device	1,000
Radwaste Barrel Compactor Monorail	1,000
Jib Crane over RBCCW Pump P-6A	1,000
Jib Crane over RBCCW Pump P-6B	1,000
Jib Crane over Snubber Rebuild Shop	1,000
962 Tool Storage Jib Crane	1,000
Torus Room Lifting Lug above MO-2110	800
Torus Room Lifting Lug above MO-3502	500
Refueling Facilities Channel Handling Jib Boom	50
Channel Handling Overhead Rigging	50



Handling Device	Capacity (LBs)
<b>Diesel Generator Building</b>	
Diesel Generator A Monorail, A and B Lifting Lugs	470
Diesel Generator B Monorail, A and B Lifting Lugs	470
<b>Turbine Building</b>	
"A" Turbine Floor Portable A-Frame and Monorail	10,000
"B" Turbine Floor Portable A-Frame and Monorail	10,000
Hot Machine Shop Monorail	4,000
Rx Feedwater Pump A Monorail	2,000
Rx Feedwater Pump B Monorail	2,000
Hot Machine Shop Jib Crane and Lifting Lug	2,000
C Turbine Building Portable A Frame Monorail C	1,500
Condensate Demin Holding Pump A Hatch Monorail	1,500
Condensate Demin Holding Pump B Hatch Monorail	1,500
Condensate Demin Holding Pump C Hatch Monorail	1,500
Condensate Demin Holding Pump D Hatch Monorail	1,500
Condensate Demin Holding Pump E Hatch Monorail	1,500
Turbine Floor Lifting Beam (Over Tool Crib and Lathe)	1,500
No. 11 Air Compressor Jib Crane	1,500
No. 12 Air Compressor Jib Crane	1,500
No. 13 Air Compressor Jib Crane	1,500
No. 14 Air Compressor Jib Crane	1,500
Electric Breakers Bridge Hoist Room A	1,000
Electric Breakers Bridge Hoist Room B	1,000
Jib Crane (above F.W. heaters 15A & 15B)	1,000
Heating Boiler Room Monorail	500
<b>Intake Structure</b>	
Screen House Bridge Crane	10,000
Trash Basket Jib Crane	4000
<b>OffGas Storage Building</b>	
Off-Gas Storage Building Jib Crane	15,000
Off-Gas Stack Monorail	6,000
Off-Gas Storage Building Monorails	1000