



Northern States Power Company

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April 5, 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

Information in Support of Exemption Requests Submitted
January 23, 1984 and Request for Exemption from the
Requirements of Section III.0 of Appendix R to 10 CFR Part 50

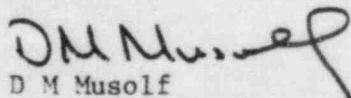
Reference (a) Letter from D M Musolf to Director of NRR dated January
23, 1984 "Exemption Requests to the Requirements of
Appendix R to 10 CFR 50"

Attached for Commission review and approval is a request for exemption from
Section III.0 of Appendix R to 10 CFR Part 50 and supplemental information
in support of exemption requests submitted on January 23, 1984 which the Staff
requested.

Attachment 1 contains a Technical Exemption Request from the requirements of
III.0 of Appendix R to 10 CFR 50 to have a closed vented container inside
containment which can hold the entire contents of the Reactor Coolant Pump
lube oil collection system.

Attachment 2 contains supplemental information in support of Reference (a)
as requested by the Staff.

Please contact us if you have any questions or if additional information is
required.


D M Musolf
Manager - Nuclear Support Services

DMM/TAP/dab

c: Sec of the Commission (Original and 2 copies)
Resident Inspector, NRC
Project Manager, NRR, NRC
Regional Administrator-III, NRC
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UNITED STATES NUCLEAR REGULATORY COMMISSION

NORTHERN STATES POWER COMPANY

PRAIRIE ISLAND NUCLEAR GENERATING PLANT

Docket No. 50-282
50-306

LETTER DATED APRIL 5, 1984
REQUEST FOR RELIEF FROM THE REQUIREMENTS OF
10 CFR PART 50, APPENDIX R, III.0, FIRE PROTECTION

Northern States Power Company, a Minnesota corporation, by this letter dated April 5, 1984 hereby submits a request for exemption from the requirements of 10 CFR Part 50, Appendix R, Section III.0.

This letter contains no restricted or other defense information.

NORTHERN STATES POWER COMPANY

By /s/ David Musolf
David Musolf
Manager - Nuclear Support Services

On this 5th day of April, 1984 before me a notary public in and for said County, personally appeared David Musolf, Manager - Nuclear Support Services, 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.

/s/ Dody A Brose
Dody A Brose
Notary Public Minnesota
Hennepin County
My commission expires Dec 26, 1989

April 5, 1984
Director of NRR
Prairie Island Nuclear Generating Plant

Attachment 1

Exemption Request to the Specific Requirements
of Section III.0 of Appendix R to 10 CFR 50
Reactor Coolant Pump Lube Oil Collection System

Per the provisions of 10 CFR Part 50, Section 50.12, Northern States Power requests exemption from the specific requirement of Section III.0 of Appendix R to 10 CFR Part 50 to have a closed vented container inside containment capable of holding the entire inventory of the Reactor Coolant Pump Lube Oil Collection System.

Following is a description of the lube oil collection system that is currently installed at the plant:

Description

Prairie Island Units 1 and 2 have two Reactor Coolant Pumps each. For purposes of this description the units are identical. Each Reactor Coolant Pump contains 265 gallons of lube oil for a total of 530 gallons per unit. The lube oil is Mobile Synthetic lube oil which has a flash point of 480°F and an ignition point of 520°F. A series of drip pans and deflectors are located around the pump such that leakage from all potential pressurized and unpressurized leakage sites in the Reactor Coolant Pump lube oil systems are collected and piped to the adjacent floor drain which empties into Sump A in the basement of the containment. Sump A is a concrete open pit, covered with grating, built into the floor which has a capacity of 990 gallons. There is no Safe Shutdown Equipment in the area surrounding the Reactor Coolant Pumps or Sump A. Sump A is designed to automatically pump down when the level of the tank reaches the 695'-9" elevation. (The bottom of the sump is at 693'-6".) This is at approximately the 555 gallon point. If level continued to rise due to failure of the automatic pump function, an alarm would sound in the Control room at the 696'-9" level of the sump, approximately 800 gallons. An operator can then initiate manual control of the sump pump for pumping down. The top of the sump pit is at floor level, the 697'-6" elevation which represents the 990 gallon maximum capacity point of the sump. In addition to the automatic function, operators may at any level manually control the pump to pump down the sump. The sump is normally lined up to pump to the aerated sump tank in the Auxiliary Building which has a capacity of 600 gallons. The aerated sump tank is a vented closed tank. The aerated sump tank then pumps to the aerated drain tanks in the Auxiliary Building. Each aerated drain tank has a capacity of 1000 gallons for a total capacity of 2000 gallons. The aerated sump tank and drain tanks serve both units. The aerated drain tanks are vented closed tanks. The capability also exists to pump from the aerated sump tank to the 25,000 gallon waste hold-up tank which is also a vented closed tank.

In support of the system as is currently installed it should be noted:

- 1) The Lube Oil Collection System is seismically designed.
- 2) High flash point Mobile Synthetic lube oil is being utilized.
- 3) There is no safety related equipment in the vicinity of the Reactor Coolant Pump or Sump A inside containment.
- 4) Safe shutdown equipment and cabling is separated from the Reactor Coolant Pumps and Sump A by the shield wall and 18" thick concrete floors.
- 5) During the design and installation (1978) of the collection system a decision was made to not install a vented closed collection tank inside containment because, in addition to its function as a lube oil collection system, the drip pans serve to collect seal leakage to prevent the spread of contaminated water. If a tank was utilized, its capacity to accept lube oil could be limited because of water from seal leakage being present in the tank. If a large quantity of oil was introduced quickly into the tank with water present, it would overflow through the vent onto the floor into the floor drains to the sump. It was therefore determined it would be better to deliver the leakage directly to the sump via the floor drain system since the sump automatically pumped down to a vented closed tank, this option was chosen. The floor drain is adequately sized to handle the flow from the leakage collection system.

In summary, Northern States Power has made an extensive effort to comply with the requirements of Appendix R. In comparing the lube oil collection system to the requirements of Section III.0, concerns were voiced over the use of a closed vented container inside containment because of the need for it to also act as a collection point for seal leakage. Northern States Power believes that the existing configuration meets the intent of Appendix R in that all lube oil is collected to a common point which will prevent its contact with not piping in the area and is isolated from electrical power cable which might cause ignition.

April 5, 1984
Director of NRR
Prairie Island Nuclear Generating Plant

Attachment 2

Supplemental Information in Support
of Exemption Requests Submitted January 23, 1984

Question: How much of the fire loading inside containment is comprised of lube oil from the reactor Coolant Pump? Of the remaining fire loading (i.e., combustible cables) what is the fire severity on an elevation by elevation basis.

Reply: Of the 22,520 Btu/ft² fire loading on Unit 1 and 22,915 Btu/ft² fire loading on Unit 2 approximately 11,450 Btu/ft² is comprised of lube oil from the Reactor Coolant Pumps. The Reactor Coolant Pumps are separated from the areas of cable concentration by the shield wall and 18" thick floors which will act as radiant energy shields in the unlikely event of a lube oil fire. The remaining 11,070 Btu/ft² for Unit 1 and 11,465 Btu/ft² for Unit 2 is comprised primarily of cabling. Following is a break down of the cabling on an elevation by elevation basis.

UNIT 1

<u>Elevation</u>	<u>App. Max % Cable</u>	<u>Btu/ft²</u>	<u>Fire Severity (minutes)</u>
698' - 712'	40	4430	3.3
712' - 735'	35	3875	2.9
735' - 755'	15	1660	1.3
755' - 770'*	10	1110	0.8
		<u>11,075</u>	

UNIT 2

<u>Elevation</u>	<u>App. Max % Cable</u>	<u>Btu/ft²</u>	<u>Fire Severity (minutes)</u>
698' - 712'	40	4585	3.4
712' - 735'	35	4015	3.0
735' - 755'	15	1720	1.3
755' - 770'*	10	1150	0.9
		<u>11,470</u>	

*No safe shutdown components or cabling are located on this elevation.

Even if one were to conservatively consider all of the cabling to be massed together within the twenty foot separation area dictated by Appendix R the resulting fire severity is limiting. As has been discussed with the staff the actual situation is that only a limited amount of the cable inside containment is located within the twenty foot zone which is required to be free of combustibles. One copy of pictures and drawings has been forwarded to the Prairie Island Project Manager, in the Division of Licensing, under separate cover.

For the one set of redundant components which is not separated 20 feet (the pressurizer level transmitters) Northern States Power will commit to wrapping the associated cable of one division in an approved one hour barrier for both Units 1 and 2.

Question: What instrumentation is being considered inside containment in NSP's review of equipment necessary to achieve and maintain hot/cold shutdown?

Reply: 1) Pressurizer Level
 2) Steam Generator Level
 3) Reactor Coolant System Temperature Hot and Cold Legs
 4) Reactor Coolant System Pressure

Question: What is the status of Appendix R modifications other than the cable wrapping modifications for fire areas 58, 59, 73 and 74?

Reply: All are complete.