



June 25, 2010

L-PI-10-065
10 CFR 50.73

U S Nuclear Regulatory Commission
ATTN: Document Control Desk
Washington, DC 20555-0001

Prairie Island Nuclear Generating Plant Unit 1
Docket 50-282
License No. DPR-42

LER 50-282/2010-002-00, Postulated Flooding of Unit 1 Fuel Oil Transfer Pump Motor Starters Could Have Resulted In Reduced Fuel Oil Inventory

Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, herewith encloses Licensee Event Report (LER) 50-282/2010-002-00.

Historically, Prairie Island Nuclear Generating Plant (PINGP) Unit 1 relied on the total fuel oil stored in six Fuel Oil Storage Tanks (FOSTs) to meet the required minimum Technical Specification fuel oil inventory. The postulated loss of two (of the six) fuel oil transfer pumps' motor starters would have resulted in the loss of two FOSTs inventory and the total fuel oil inventory falling below the amount required by Technical Specifications LCO 3.8.3 Condition A.

On April 26, 2010, it was determined that a postulated flooding event in the Plant Screenhouse resulting in flooding of two FOSTs fuel oil transfer pumps' motor starters was reportable.

Summary of Commitments

This letter contains no new commitments and no changes to existing commitments.

Brad J. Sawatzke
Director Site Operations, Prairie Island Nuclear Generating Plant
Northern States Power Company - Minnesota

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Prairie Island, USNRC
Resident Inspector, Prairie Island, USNRC
Department of Commerce, State of Minnesota

ENCLOSURE

LICENSEE EVENT REPORT 50-282/2010-002-00

4 Pages Follow

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

Estimated burden per response to comply with this mandatory collection request: 80 hours. Reported lessons learned are incorporated into the licensing process and fed back to industry. Send comments regarding burden estimate to the Records and FOIA/Privacy Service Branch (T-5 F52), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202, (3150-0066), Office of Management and Budget, Washington, DC 20503. If a means used to impose an information collection does not display a currently valid OMB control number, the NRC may not conduct or sponsor, and a person is not required to respond to, the information collection.

1. FACILITY NAME Prairie Island Nuclear Generating Plant Unit 1	2. DOCKET NUMBER 05000282	3. PAGE 1 of 4
--	------------------------------	-------------------

4. TITLE
Postulated Flooding of Unit 1 Fuel Oil Transfer Pump Motor Starters Could Have Resulted In Reduced Fuel Oil Inventory

5. EVENT DATE			6. LER NUMBER			7. REPORT DATE			8. OTHER FACILITIES INVOLVED	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REV NO	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	26	2010	2010	- 002 -	00	06	25	2010	FACILITY NAME	DOCKET NUMBER

9. OPERATING MODE Mode 1	11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)			
10. POWER LEVEL 100%	<input type="checkbox"/> 20.2201(b)	<input type="checkbox"/> 20.2203(a)(3)(i)	<input type="checkbox"/> 50.73(a)(2)(i)(C)	<input type="checkbox"/> 50.73(a)(2)(vii)
	<input type="checkbox"/> 20.2201(d)	<input type="checkbox"/> 20.2203(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(viii)(A)
	<input type="checkbox"/> 20.2203(a)(1)	<input type="checkbox"/> 20.2203(a)(4)	<input type="checkbox"/> 50.73(a)(2)(ii)(B)	<input type="checkbox"/> 50.73(a)(2)(viii)(B)
	<input type="checkbox"/> 20.2203(a)(2)(i)	<input type="checkbox"/> 50.36(c)(1)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(iii)	<input type="checkbox"/> 50.73(a)(2)(ix)(A)
	<input type="checkbox"/> 20.2203(a)(2)(ii)	<input type="checkbox"/> 50.36(c)(1)(ii)(A)	<input type="checkbox"/> 50.73(a)(2)(iv)(A)	<input type="checkbox"/> 50.73(a)(2)(x)
	<input type="checkbox"/> 20.2203(a)(2)(iii)	<input type="checkbox"/> 50.36(c)(2)	<input type="checkbox"/> 50.73(a)(2)(v)(A)	<input type="checkbox"/> 73.71(a)(4)
	<input type="checkbox"/> 20.2203(a)(2)(iv)	<input type="checkbox"/> 50.46(a)(3)(ii)	<input type="checkbox"/> 50.73(a)(2)(v)(B)	<input type="checkbox"/> 73.71(a)(5)
	<input type="checkbox"/> 20.2203(a)(2)(v)	<input type="checkbox"/> 50.73(a)(2)(i)(A)	<input type="checkbox"/> 50.73(a)(2)(v)(C)	<input type="checkbox"/> OTHER
	<input type="checkbox"/> 20.2203(a)(2)(vi)	<input checked="" type="checkbox"/> 50.73(a)(2)(i)(B)	<input type="checkbox"/> 50.73(a)(2)(v)(D)	<input type="checkbox"/>

Specify in Abstract below or in NRC Form 366A

12. LICENSEE CONTACT FOR THIS LER

NAME Sam J DiPasquale, P.E.	TELEPHONE NUMBER (Include Area Code) 651.388.1121 x7350
--------------------------------	--

13. COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT

CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANU-FACTURER	REPORTABLE TO EPIX

14. SUPPLEMENTAL REPORT EXPECTED			15. EXPECTED SUBMISSION DATE		MONTH	DAY	YEAR
<input type="radio"/> YES (If yes, complete 15. EXPECTED SUBMISSION DATE). <input checked="" type="radio"/> NO							

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines)

Historically, Prairie Island Nuclear Generating Plant's (PINGP) Unit 1 relied on the total fuel oil stored in six Fuel Oil Storage Tanks (FOSTs) to meet the required minimum Technical Specification fuel oil inventory for the Diesel Driven Cooling Water Pumps (DDCLP) and the Unit 1 Emergency Diesel Generators. The postulated loss of two FOSTs fuel oil transfer pumps' motor starters could have resulted in the total fuel oil inventory falling below the amount required by Technical Specifications LCO 3.8.3 Condition A.

On April 26, 2010, it was determined that a postulated flooding event in the Plant Screenhouse affecting the two DDCLP FOSTs fuel oil transfer pump's motor starters was reportable.

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER			3. PAGE
		YEAR	SEQUENTIAL NUMBER	REV NO	
Prairie Island Nuclear Generating Plant Unit 1	05000282	2010	- 002	- 00	2 of 4

EVENT DESCRIPTION

During original plant construction, the Unit 1 Diesel Driven Cooling Water Pumps¹ (DDCLP) Fuel Oil Storage Tank² (FOST) fuel oil transfer pump starter motors³ were installed in the lower level of the Plant Screenhouse at the approximately 674 foot elevation. This elevation is below the calculated flood depth in the Plant Screenhouse.

In a postulated internal flood event in the Plant Screenhouse, a common mode failure of the redundant safety equipment (DDCLP fuel oil pump motor starters) could occur. On April 26, 2010, it was determined that this postulated flooding event was reportable.

EVENT ANALYSIS

Historically, Prairie Island Nuclear Generating Plant (PINGP) Unit 1 relied on the total fuel oil stored in six FOSTs to meet the required minimum Technical Specification fuel oil inventory for the DDCLPs and the Unit 1 Emergency Diesel Generators⁴ (EDG). In 1972 and 1985, the Plant Screenhouse equipment was incorrectly reviewed and the postulated flooding common mode failure of redundant safety related equipment was not identified.

In 1998, further review identified that internal flooding in the Plant Screenhouse could result in water covering the DDCLP FOST transfer pumps' motor starters. The review incorrectly resolved the issue by stating that, "the Diesel Driven Cooling Water Pumps Fuel Oil Day Tanks have capacity for eight hours of cooling water pump operation below the low level alarm point. Also, the DDCLP Fuel Oil Day Tanks can be supplied from the other safety related interconnected fuel oil storage tanks for the Unit 1 Diesel Generators by manual alignment, as per USAR section 2.4.3.5." The resulting common mode failure of redundant safety related equipment was not recognized. This analysis resulted in an October 7, 1998, letter to the NRC to update the 1985 response to Generic Issue 77.

In 2001, a calculation (ENG-ME-203) identified that the "electrical box that starts the pumps that transfer fuel to the Diesel Driven Cooling Water Pumps" would quickly flood in the postulated event that a Circulating Water pipe failed. The consequences would be a loss of ability to use the fuel oil stored in the DDCLPs FOST. It was not recognized that this would cause a common mode failure of redundant safety related equipment and not meet PINGP licensing basis.

On February 8, 2010, with Unit 1 at 100% power, the location of the safety related DDCLP FOST fuel oil transfer pump motor starters was reviewed again. The evaluation recognized the potential for a common mode failure of redundant safety related equipment due to internal flooding. Immediate actions were taken to transfer fuel oil to the unaffected safety related FOSTs to ensure the required fuel oil inventory was available in the four FOSTs not susceptible to this issue. On April 26, 2010, it

¹ EIS System Code: BI

² EIS System Code: DE

³ EIS System Code: EC

⁴ EIS System Code: EK

**LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET**

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER			3. PAGE
Prairie Island Nuclear Generating Plant Unit 1	05000282	YEAR	SEQUENTIAL NUMBER	REV NO	3 of 4
		2010	- 002	- 00	

was determined that the postulated flooding event in the Plant Screenhouse resulting in flooding the Diesel Driven Cooling Water Pumps (DDCLP) FOSTs fuel oil transfer pump's motor starters was reportable. The postulated loss of two FOSTs fuel oil transfer pumps' motor starters could have resulted in the total fuel oil inventory falling below the amount required by Technical Specifications LCO 3.8.3 Condition A.

PINGP had procedures and training in place to transfer fuel oil from other FOSTs to the DDCLP fuel oil Day Tank if the DDCLP FOST transfer pumps were unavailable to operate. A walkthrough was performed on February 10, 2010 to perform the steps required to transfer fuel oil to the DDCLP Day Tanks. This walkthrough was completed in eighty-two minutes under adverse winter conditions. The eighty-two minutes may be compared to the approximately seven hours of fuel available below the low level alarm on the DDCLP Day Tanks. Therefore, this event does not represent a safety system functional failure.

SAFETY SIGNIFICANCE

This issue had no nuclear, radiological, industrial, or environmental impact. Internal flooding of the Plant Screenhouse did not occur, so the fuel oil transfer pumps did not fail. Therefore, this event did not affect the health and safety of the public.

CAUSE

The causal evaluation determined that the apparent cause is inadequate design for the location of the DDCLP FOST fuel oil transfer pumps' motor starters.

A contributing cause is that the site had less than adequate knowledge of the licensing basis for internal flooding.

CORRECTIVE ACTION

Fuel oil was transferred to the 121, 122, 123, and 124 EDG FOSTs to ensure the correct amount of fuel oil was available to meet the requirements of both the DDCLPs and the EDGs.

The Operable but Nonconforming condition of the Unit 1 Fuel Oil System was documented.

Additional Corrective Actions:

1. An Engineering Change (EC-15988), RELOCATE DDCLP FUEL OIL STORAGE TANK (FOST) PUMP MOTOR STARTERS, was created to relocate the motor starters out of the calculated flood zone.

LICENSEE EVENT REPORT (LER)
CONTINUATION SHEET

1. FACILITY NAME	2. DOCKET NUMBER	6. LER NUMBER	3. PAGE
Prairie Island Nuclear Generating Plant Unit 1	05000282	YEAR 2010 - SEQUENTIAL NUMBER 002 - REV NO 00	4 of 4

2. Procedure H36 (Plant Flooding) was revised to state that the licensing basis included the need to prevent common mode failure of redundant safety related equipment due to internal flooding. The improved knowledge of the licensing basis was shown by the fact that the severity of this issue was correctly determined when it was revisited in 2010.

PREVIOUS SIMILAR EVENTS

Other flooding events are currently under review at PINGP. However a LER search was conducted and no similar LER events at PINGP involving flooded motor starters were identified in the last three years.