Xcel Energy®

April 12, 2012

L-PI-12-025
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
Renewed License No. DPR-42

LER 50-282/2012-001-00, Non-Conservative Calculation Of Diesel Fuel Storage Requirements

Northern States Power Company, a Minnesota corporation (NSPM), doing business as Xcel Energy, herewith encloses Licensee Event Report (LER) 50-282/2012-001-00.

On February 15, 2012, a reportability review was completed regarding an error identified in the pre-operation test records for the Unit 1 diesel generators (D1 and D2). The error, along with the subsequent discovery of an additional error regarding fuel oil energy content assumptions, affected the fuel oil storage calculation, which increased the volume of stored diesel fuel required to operate D1 or D2 and a diesel-driven cooling water pump for 14 days in the event of a postulated maximum probable flood. A review using the corrected values determined that for a single period of up to 738 continuous hours and 2202 total hours in 2010 the revised requirements were not met, rendering D1 and D2 inoperable.

Compensatory measures were updated to ensure a minimum 14-day supply of diesel fuel oil until a previously submitted Technical Specification amendment to revise LCOs 3.7.8 and 3.8.3 is approved.

Summary of Commitments

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

Mark A. Schimmel
Site Vice President, Prairie Island Nuclear Generating Plant
Northern States Power Company – Minnesota

Enclosure

cc: Administrator, Region III, USNRC
Project Manager, Prairie Island Nuclear Generating Plant (PINGP), USNRC
Resident Inspector, PINGP, USNRC
Department of Commerce, State of Minnesota

ENCLOSURE

LICENSEE EVENT REPORT 50-282/2012-001-00

3 Pages Follow

NRC FORM 366 (10-2010) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104 EXPIRES 10/31/2013

Estimated burden per response to comply with this mandatory information 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 FOIA/Privacy Section (T-5 F53), U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001, or by internet e-mail to infocollects.resource@nrc.gov, and to the Desk Officer, Office of Information and Regulatory Affairs, NEOB-10202 (3150-0104), 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.

LICENSEE EVENT REPORT (LER)

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

1. FACILITY NAME	2. DOCKET NUMBER	3. PAGE
Prairie Island Nuclear Generating Plant	05000 - 282	1 OF 3

4. TITLE

Non-Conservative Calculation Of Diesel Fuel Storage Requirements

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
										05000
02	15	2012	2012	- 001 -	00	04	12	2012	FACILITY NAME	DOCKET NUMBER 05000

9. OPERATING MODE: 1

10. POWER LEVEL: 100%

11. THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check all that apply)

☐ 20.2201(b)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(i)(C)	☒ 50.73(a)(2)(vii)
☐ 20.2201(d)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(ii)(A)	☐ 50.73(a)(2)(viii)(A)
☐ 20.2203(a)(1)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(ii)(B)	☐ 50.73(a)(2)(viii)(B)
☐ 20.2203(a)(2)(i)	☐ 50.36(c)(1)(i)(A)	☐ 50.73(a)(2)(iii)	☐ 50.73(a)(2)(ix)(A)
☐ 20.2203(a)(2)(ii)	☐ 50.36(c)(1)(ii)(A)	☐ 50.73(a)(2)(iv)(A)	☐ 50.73(a)(2)(x)
☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(v)(A)	☐ 73.71(a)(4)
☐ 20.2203(a)(2)(iv)	☐ 50.46(a)(3)(ii)	☐ 50.73(a)(2)(v)(B)	☐ 73.71(a)(5)
☐ 20.2203(a)(2)(v)	☐ 50.73(a)(2)(i)(A)	☐ 50.73(a)(2)(v)(C)	☐ OTHER Specify in Abstract below or in NRC Form 366A
☐ 20.2203(a)(2)(vi)	☒ 50.73(a)(2)(i)(B)	☒ 50.73(a)(2)(v)(D)	

12. LICENSEE CONTACT FOR THIS LER

NAME	TELEPHONE NUMBER (*Include Area Code*)
Lenny Sueper, Licensing Engineer	612-330-6917

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

☐ YES (If yes, complete 15. EXPECTED SUBMISSION DATE) ☒ NO

15. EXPECTED SUBMISSION DATE	MONTH	DAY	YEAR

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

On February 15, 2012, a reportability review was completed regarding an error identified in the pre-operation test records for the Unit 1 diesel generators (D1 and D2). The error, along with the subsequent discovery of an additional error regarding fuel oil energy content assumptions, affected the fuel oil storage calculation, which increased the volume of stored diesel fuel required to operate D1 or D2 and a diesel-driven cooling water pump for 14 days in the event of a postulated maximum probable flood. A review using the corrected values determined that for a single period of up to 738 continuous hours and 2202 total hours in 2010 the revised requirements were not met, rendering D1 and D2 inoperable.

Compensatory measures were updated to ensure a minimum 14-day supply of diesel fuel oil until a previously submitted Technical Specification amendment to revise LCOs 3.7.8 and 3.8.3 is approved.

Energy industry identification system (EIIS) codes are identified in the text within brackets [xx].

EVENT DESCRIPTION

On October 27, 2011, an error was identified in the Pre-Operational (Pre-Op) test records for the Unit 1 diesel generators (EDGs) [EK], D1 and D2. The records calculated the net brake horsepower with the equation BHPn=(KWa X Efficiency)/0.746. The correct equation would have the efficiency term in the denominator, BHPn=(KWa)/(Efficiency X 0.746). This error, along with the subsequent discovery of an additional error regarding fuel oil energy content assumptions, had downstream effects on the values calculated elsewhere, including the Fuel Oil (FO) Storage calculation (ENG-ME-020). As a result, the required volume of stored diesel fuel oil to operate D1 or D2 and a diesel-driven Cooling Water [BI] pump [P] for 14 days in the event of a postulated maximum probable flood increased. A past operability review using the corrected requirement was performed for the period from November 3, 2008, to December 21, 2011. During 2010 there were multiple times where the fuel oil volume maintained on site was below the revised requirement (2202 hours total with a longest continuous timeframe of 738 hours).

EVENT ANALYSIS

Four Design Class I FO storage tanks [TK] supply fuel oil to D1 and D2. Each tank is equipped with a submersible transfer pump [P] to pump fuel oil from the tank to the nominal capacity 500 gallon day tank of either EDG. For the two diesel-driven cooling water pumps, fuel oil supply is from two Design Class 1 FO storage tanks. Each tank is provided with a submersible transfer pump to transfer fuel oil to either diesel-driven cooling water pump nominal capacity 500 gallon day tank. Procedures, piping and valving are provided to transfer fuel oil from any one fuel oil storage tank to any other FO storage tank by using the proper valve lineup. The submersible pump associated with each FO storage tank has the capability to pump fuel oil to the transfer house where the oil is then routed to the desired fuel oil storage tank.

The Unit 1 design minimum storage capacity of diesel fuel oil is based on one EDG (D1 or D2), plus one diesel-driven cooling water pump for 14 days. To meet this requirement Unit 1's Technical Specification (TS) Limiting Condition for Operation (LCO) 3.7.8 Condition D requires a minimum diesel-driven pump stored fuel oil supply of 19,500 gallons. TS 3.8.3 Condition A requires a minimum EDG fuel oil supply of 42,000 gallons for a combined minimum total diesel fuel oil storage requirement of 61,500 gallons. A revised total diesel fuel oil storage requirement, which used the corrected diesel generator brake horsepower and corrected for additional calculation errors resulted in a minimum requirement of 67,370.76 gallons. This value was used in assessing past operability from November 3, 2008, to December 21, 2011. This past operability assessment determined that for a single period of up to 738 continuous hours and 2202 total hours the revised requirements were not met, rendering D1 and D2 inoperable.

On February 15, 2012, with Unit 1 in Mode 1 at 100% power, a reportability review was completed. It determined that this event was reportable under 10 CFR 50.73(a)(2)(i)(B) as an operation or condition prohibited by TS. In addition, the event is reportable under 10 CFR 50.73(a)(2)(vii) as a common-cause inoperability of independent trains or channels and 10 CFR 50.73(a)(2)(v)(D), an event or condition that could have prevented fulfillment of a safety function needed to mitigate the consequences of an accident.

CAUSE

The causal evaluation determined that calculation errors that resulted in non-conservative requirements for TS LCOs 3.7.8 and 3.8.3 were caused by a lack of technical rigor in the design process.

SAFETY SIGNIFICANCE

The minimum available fuel oil during the periods of inoperability was approximately 64,630 gallons without crediting day tank volumes, compared to the required 67,370.76 gallons. Although not available to be credited during a plant screenhouse internal flooding event at the time, two safety-related diesel-driven cooling water pump storage tanks were also available. The stored diesel fuel in either tank, in addition to the diesel fuel credited in the four Design Class I fuel oil storage tanks, would have been sufficient to meet the revised requirements. As a result, there were no radiological, environmental or industrial impacts associated with this event. Therefore, this event did not affect the health and safety of the public.

CORRECTIVE ACTIONS

A major revision to ENG-ME-020 will be completed, which requires all design inputs to be verified.

Compensatory measures were updated to ensure a minimum 14-day supply of diesel fuel oil until a previously submitted Technical Specification amendment to revise LCOs 3.7.8 and 3.8.3 is approved.

PREVIOUS SIMILAR EVENTS

No similar licensee event reports at the Prairie Island Nuclear Generating Plant involving calculation errors leading to non-conservative Technical Specifications were identified in the past three years.