Niagara Mohawk®

May 25, 2000
NMP2L 1965

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Washington, DC 20555

RE: Docket No. 50-410
Licensee Event Report 00-10

Gentlemen:

In accordance with 10 CFR 50.73 (a)(2)(i)(B) and 10 CFR 50.73(a)(2)(v), we are submitting Licensee Event Report 00-10, "Technical Specification Requirement Not Performed for the Reactor Core Isolation Cooling System High Steam Flow Instrumentation Due to an Inadequate Work Package."

Very truly yours,

Michael F. Peckham
Plant Manager - NMP2

MFP/CES
Attachment

cc: Mr. H. J. Miller, NRC Regional Administrator, Region I
Mr. G. K. Hunegs, NRC Senior Resident Inspector
Records Management

IE22

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES:

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Nine Mile Point Unit 2	05000410	01 OF 05

TITLE (4)
Technical Specification Requirement Not Performed for the Reactor Core Isolation Cooling System High Steam Flow Instrumentation Due to an Inadequate Work Package

EVENT DATE (5)			LER NUMBER (6)					REPORT DATE(7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR		SEQUENTIAL NUMBER		REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAMES	DOCKET NUMBER(S)
04	25	00	00		10		00	05	25	00	N/A	
											N/A	

OPERATING MODE (9)	1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: *(Check one or more of the following)* (11)

POWER LEVEL (10)				
100	☐ 20.2201(b)	☐ 20.2203(a)(2)(v)	☒ 50.73(a)(2)(i)	☐ 50.73(a)(2)(viii)
	☐ 20.2203(a)(1)	☐ 20.2203(a)(3)(i)	☐ 50.73(a)(2)(ii)	☐ 50.73(a)(2)(x)
	☐ 20.2203(a)(2)(i)	☐ 20.2203(a)(3)(ii)	☐ 50.73(a)(2)(iii)	☐ 73.71
	☐ 20.2203(a)(2)(ii)	☐ 20.2203(a)(4)	☐ 50.73(a)(2)(iv)	☐ OTHER
	☐ 20.2203(a)(2)(iii)	☐ 50.36(c)(1)	☒ 50.73(a)(2)(v)	*(Specify in Abstract below and in Text, NRC Form 366A)*
	☐ 20.2203(a)(2)(iv)	☐ 50.36(c)(2)	☐ 50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Don Bosnic - Manager Operations	(315) 349-7952

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO EPIX		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
☐ YES *(If yes, complete EXPECTED SUBMISSION DATE)*	☒ NO				

ABSTRACT *(Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines)* (16)

On April 25, 2000, with the plant at 100 percent power, Niagara Mohawk Power Corporation declared the reactor core isolation cooling system high steam flow instrumentation inoperable due to erratic indication. During the refueling outage, maintenance was performed on both divisions of the high steam flow instruments which inadvertently rendered them inoperable by introducing air into the lines. Technical Specification 3.3.2.c requires the reactor core isolation cooling system to be isolated from the steam supply within one hour with both high steam flow instruments inoperable in Operational Condition 1, 2, and 3. The plant was placed in Operational Condition 2 on April 18, 2000 and the reactor core isolation cooling system steam supply valves were subsequently opened. The system remained unisolated until April 23, 2000. Once the system was isolated, the system could no longer automatically fulfill the safety function to remove residual heat.

The causes were inadequate work package revision and inadequate worker knowledge and skills.

The reactor core isolation cooling system was isolated from the steam supply until the high steam flow instrumentation was restored to operability by backfilling and removing the entrapped air. Operations personnel involved in the approval of the revised work order will be counseled in accordance with the human resource department policy. Operations personnel will be briefed on the development and review of changes to existing work orders. In addition, this event will be reviewed with instrumentation and control personnel.

I. DESCRIPTION OF EVENT

On April 13, 2000, during the refueling outage, operations personnel were attempting to perform a surveillance test on the reactor core isolation cooling system steam isolation valves. A Division I reactor core isolation cooling system high steam flow isolation signal was preventing the opening of several steam isolation valves. In response to this condition, a step was added to the work order by field personnel to have the Division I high steam flow instrument lines drained. This action successfully cleared the isolation signal and the surveillance testing was completed. The work order did not include steps for refilling and venting the instrument lines.

On April 18, 2000, instrument and control technicians were correcting a discrepancy between the Division I and Division II reactor core isolation cooling system low pressure isolation instrument. This instrument utilizes the same sensing lines as the high steam flow instrumentation. The Division I instrumentation was indicating approximately 0 psia and the Division II instrumentation was indicating approximately 15 psia. Instrumentation and control personnel recognized that both indicators should be reading atmosphere pressure (0 psig) with the reactor shutdown. However, the indicator units are in absolute pressure. As such, the Division II instrumentation was indicating correctly at 15 psia. The instrumentation and control technicians did not realize that the instrument read in psia and incorrectly concluded that the Division II instrument was reading high. To correct the difference in the indication, the instrumentation and control technicians drained the Division II instrumentation lines until they were indicating 0 psia.

Shortly after the Division II instrumentation lines were drained, operators placed the plant in Operational Condition 2 and one hour after the reactor core isolation cooling system was unisolated, the plant was in violation of Technical Specification 3.3.2.c. During reactor startup, the high steam flow instrument lines were gradually refilled from reactor steam condensate. As the high steam flow instrument lines were refilled, air was entrapped in the lines. The air trapped in the lines resulted in erratic instrumentation behavior.

On April 22, 2000, one division of the reactor core isolation cooling system high steam flow instrumentation was declared inoperable due to erratic behavior and the requirements of Technical Specification 3.3.2 were met. After calibrating and testing the high steam flow instrumentation, the operators declared the instrumentation operable on April 25, 2000. Later on April 25, 2000, the operators declared both divisions of the instrumentation inoperable, isolated the steam supply, and declared the reactor core isolation cooling system inoperable. After backfilling and venting the reactor core isolation cooling system high steam flow instrument lines, the reactor core isolation cooling system was unisolated and declared operable on April 27, 2000.

CAUSE OF EVENT

The causes were inadequate work package preparation and inadequate worker knowledge and skills. A work order was revised to drain the reactor core isolation cooling system high steam flow instrumentation without steps to restore the instrumentation. The inadequate worker knowledge and skills caused the instrumentation and control technicians to mis-diagnose and drain the wrong instrument line.

ANALYSIS OF EVENT

This event is reportable in accordance with 10 CFR 50.73(a)(2)(i)(B) and 10 CFR 50.73(a)(2)(v). 10 CFR 50.73(a)(2)(i)(B) requires a report for any operation or condition prohibited by the plant's Technical Specifications. On April 18, 2000, after the plant was placed in Operational Condition 2, the reactor core isolation cooling system was placed in service. However, the high steam flow instrumentation had not been properly filled and vented, rendering the high steam flow instrumentation inoperable. Technical Specification 3.3.2.c requires that the steam supply to the reactor core isolation cooling system be isolated within 1 hour with the high steam flow instrumentation inoperable, which was not done. 10 CFR 50.73(a)(2)(v) requires a report when any event alone could have prevented the fulfillment of the safety function of a system to remove residual heat. The reactor core isolation cooling system was isolated from the steam supply and the system was declared inoperable from April 25, through April 27, 2000, at which time the system was unable to remove residual heat.

From April 18, until April 23, 2000, the reactor core isolation cooling system was available to perform its safety function of removing residual heat. Also, during this time period, the reactor core isolation cooling system steam supply could still be automatically isolated on high area temperatures signals from various locations if a steam leak occurred. Additionally, the control room operators perform shiftly checks on the indicators and if the indicators were above the steam supply isolation set point, the operators would have taken the appropriate actions.

The reactor core isolation cooling system is designed to assure sufficient reactor water inventory is maintained in the reactor vessel. Reactor vessel water is maintained or supplemented by the reactor core isolation cooling system during the following conditions: when the reactor vessel is isolated and maintained in the hot standby condition; when the reactor vessel is isolated and accompanied by a loss of normal coolant flow from the reactor feedwater system; and when a complete plant shutdown under conditions of loss of normal feedwater system is started before the reactor is depressurized. From the time the reactor core isolation cooling system was inoperable, April 23 through April 27, 2000, none of the above conditions occurred. If one of the conditions did occur when the reactor core isolation cooling system was inoperable, the high pressure core spray system and/or the low pressure emergency core cooling systems were operable to remove residual heat.

ANALYSIS OF EVENT (Cont'd)

From April 23, through April 27, 2000, when the reactor core isolation cooling system was inoperable, the operators could have unisolated the steam supply if the system was needed and could have manually or automatically (area temperatures) isolated the steam supply if a steam leak developed.

Niagara Mohawk Power Corporation (NMPC) performed a probablistic risk analysis for this condition and determined that it is non-risk significant. The analysis is based on the fact that the reactor core isolation cooling system was available and if a high steam flow isolation would have occurred, the system could be recovered.

Based on the information provided above, there were no adverse safety consequences as a result of this event. The erratic indications of the reactor core isolation cooling system posed no threat to the health and safety of the general public or plant personnel.

CORRECTIVE ACTIONS

1. NMPC declared the high steam flow instrumentation inoperable and isolated the steam supply to the reactor core isolation cooling system turbine.

2. NMPC backfilled and vented the instrumentation lines.

3. NMPC will counsel operations personnel involved in the approval of the revised work order in accordance with the human resource department policy by June 1, 2000.

4. NMPC will brief appropriate operations personnel and instrumentation and control supervisors on the requirements of Procedure GAP-PSH-01, "Work Control," relative to the development and review of changes to existing work orders by June 20, 2000.

5. NMPC will review this event with all appropriate instrumentation and control personnel during continuing training with emphasis on the errors surrounding the draining of the Division II instrumentation by July 7, 2000.

ADDITIONAL INFORMATION

A. Failed components: none

B. Previous similar events:

Licensee Event Reports 99-05, 99-10, and 00-02 documented failures of the reactor core isolation cooling system. The causes identified in these licensee event reports were different than the cause for this condition (Licensee Event Report 00-10). Therefore, the corrective actions described in these licensee event reports would not have prevented this condition from occurring.

C. Identification of components referred to in this license event report:

Components	IEEE 803A Function	IEEE 805 System ID
Reactor Core Isolation Cooling System	N/A	BN
Pressure Indicators	PI	BN
Turbine	TRB	BN
Valves	ISV	BN
Instrument Lines	N/A	BN
High Pressure Core Spray	N/A	BG
Reactor Vessel	RPV	AD
Feedwater System	N/A	SJ
Emergency Core Cooling Systems	N/A	BM & BO