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AUTH.NAME AUTHOR AFFILIATION
CONWAY,J. Niagara Mohawk Power Corp.
MCCORMICK,M.J. Niagara Mohawk Power Corp.
RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-006-00:on 910331,unusual event classification & reactor shutdown due to unisolable reactor coolant sys pressure boundary leak.Cause unknown.Generating modification to repair/revise sample sys piping.W/910429 ltr.

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NIAGARA MOHAWK

NINE MILE POINT—UNIT 2/P.O. BOX 63, LYCOMING, NY 13093/TELEPHONE (315) 343-2110

NMP80510

April 29, 1991

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

RE: Docket No. 50-410
LER 91-06

Gentlemen:

In accordance with 10CFR50.73, we hereby submit the following Licensee Event Report:

LER 91-06 Is being submitted in accordance with 10CFR50.73 (a)(2)(i)(A), "The completion of any nuclear plant shutdown required by the plant's Technical Specifications".

A 10CFR50.72 report was made at 1420 hours on March 30, 1991.

This report was completed in the format designated in NUREG 1022, Supplement 2, dated September 1985.

Very truly yours,

Martin J. McCormick Jr.
Plant Manager - NMP2

MJM/GB/lmc

ATTACHMENT

xc: Thomas T. Martin, Regional Administrator Region I
William A. Cook, Sr. Resident Inspector

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1/1

NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Nine Mile Point Unit 2	0 5 0 0 0 4 1 0	1 OF 0 6

TITLE (4) Unusual Event Classification and Reactor Shutdown due to an Unisolable Reactor Coolant System Pressure Boundary Leak

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)
									N/A	0 5 0 0 0
0 3	3 0	9 1	9 1	— 0 0 6	— 0 0	0 4	2 9	9 1	N/A	0 5 0 0 0

OPERATING MODE (9): 1

POWER LEVEL (10): 0 1 4

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

20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
20.405(a)(1)(ii)	50.36(c)(2)	50.73(a)(2)(vii)	OTHER *(Specify in Abstract below and in Text, NRC Form 366A)*
20.405(a)(1)(iii)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
20.405(a)(1)(iv)	50.73(a)(2)(ii)	50.73(a)(2)(viii)(B)	
20.405(a)(1)(v)	50.73(a)(2)(iii)	50.73(a)(2)(x)	

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (AREA CODE)
Mr. John Conway, Manager Technical Support NMP2	3 1 5 3 4 9 - 2 6 9 8

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPRDS
B	A D	P S X	M 2 7 0	No					

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
X YES *(If yes, complete EXPECTED SUBMISSION DATE)*	NO		0 8	3 1	9 1

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

On March 30, 1991, while performing a Drywell inspection to identify the cause for an increased leakage rate from the plant's Primary Containment Drywell floor drains, an unisolable Reactor Coolant System Pressure Boundary leak was discovered. At 1401 hours, an Unusual Event emergency classification was declared and operators commenced plant shutdown. Nine Mile Point Unit 2 (NMP2) was operating at a power level of approximately 14 percent with the mode switch in the "RUN" position (Operational Condition 1) at the time the event was declared.

The cause for the stainless steel flex hose failure is under investigation and will be submitted as a supplement to this LER.

Corrective actions include: generating a modification to repair/revise Sample System piping; reviewing similar plant flex hose applications; and performing a failure analysis on the damaged flex hose.

I. DESCRIPTION OF EVENT

On March 30, 1991, while performing a Drywell inspection to identify the cause for an increased leakage rate from the plant's Primary Containment Drywell floor drains, an unisolable Reactor Coolant System Pressure Boundary leak was discovered. Specifically, the leak was identified as coming from a 3/4 inch stainless steel flex hose which connected Sample System piping to the discharge piping from Reactor Recirculation Pump A. At 1401 hours an Unusual Event emergency classification was declared and operators commenced plant shutdown in accordance with Technical Specification Section 3.4.3.2. Nine Mile Point Unit 2 (NMP2) was operating at a power level of approximately 14 percent with the mode switch in the "RUN" position (Operational Condition 1) at the time the event was declared.

Sequence of Events

Five (5) days prior to declaring the Unusual Event (March 25, 1991), Control Room operators observed a slowly rising Drywell floor drain leakage rate. The following provides recorded rates for that time period:

DATE	TIME	POWER LEVEL (PERCENT)	LEAK RATE GALLONS PER MINUTE (GPM)
March 25, 1991	2400 hours	99	0.40
March 26, 1991	2400 hours	99	0.60
March 27, 1991	2400 hours	100	1.25
March 28, 1991	2400 hours	99	1.95
March 29, 1991	2400 hours	99	2.90

During this period, Operations and the Chemistry Departments attempted to identify and isolate the source of the leakage, but were unsuccessful.

At 0001 hours on March 30, 1991, as a conservative response to the steadily increasing leakage rate, station management directed the Station Shift Supervisor (SSS) to commence power reduction to below 15 percent to allow Drywell de-inerting and prepare for Drywell entry. The following identifies Control Room activities of March 30 and 31, 1991, up to and including termination of the Unusual Event.

I. DESCRIPTION OF EVENT (cont.)

Date		
3/30/91	0802 hours -	Power level reduced to approximately 14 percent.
	1313 hours -	Commenced entry into Primary Containment Drywell to investigate the cause for the high leakage rate.
	1401 hours -	The Drywell investigation identified an unisolable leak in a flex hose used to connect Sample System piping to the discharge piping from Reactor Recirculation Pump A. The SSS, upon notification of the leak, declared an Unusual Event (UE) in accordance with the Emergency Action Procedures and entered T.S. Section 3.4.3.2 action statement (a.) - (any Reactor Coolant Pressure Boundary leakage requires HOT SHUTDOWN within 12 hours).
	1420 hours -	Initial notification of the Unusual Event to the NRC was complete with continuing 30 minute updates.
	1534 hours -	Reactor mode switch was placed in the "STARTUP" position (mode 2).
3/31/91	0129 hours -	Reactor mode switch was placed in the "SHUTDOWN" position (mode 3), which satisfied T.S. 3.4.3.2 action statement (a.) requirement of being in HOT SHUTDOWN within 12 hours.
	0518 hours -	Reactor achieved "COLD SHUTDOWN" condition, (mode 4), which satisfied T.S. 3.4.3.2 action statement (a.) requirement of being in COLD SHUTDOWN within 24 hours.
	0930 hours -	NRC notified that the Unusual Event had been terminated. The leakage rate from the Recirculation System sample line had been reduced to approximately 0.7 gpm.

II. CAUSE OF EVENT

The cause for the failed 3/4 inch stainless steel flex hose is under investigation and will be reported as a supplement to this LER.

III. ANALYSIS OF EVENT

This event is reportable in accordance with 10CFR50.73 (a)(2)(i)(A), "The completion of any nuclear plant shutdown required by the plant's Technical Specifications". Technical Specification 3.4.3.2 states that Reactor Coolant System (RCS) leakage shall be limited to no known Pressure Boundary leakage during Operational Conditions 1, 2, and 3. T.S. Section 3.4.3.2 action statement (a.) requires "with any pressure boundary leakage, be in at least HOT SHUTDOWN within 12 hours and in COLD SHUTDOWN within the next 24 hours".

Operator actions taken during the event were appropriate and in compliance with T.S. requirements. Upon Drywell entry and discovery of the flex hose leak, the plant was taken to the shutdown condition, which reduced reactor heat/pressure and reversed the leakage trend.

The event did not in any way affect any other safety system, did not impair the station's capability to achieve a safe shutdown, nor was there any impact to the plant or public safety stemming from this event.

IV. CORRECTIVE ACTIONS

The immediate corrective action taken following the Unusual Event declaration was to place the plant in the "COLD SHUTDOWN" condition.

Additional follow-up corrective actions included:

1. Designing and installing a plant modification (No. PN2Y91MX011), which included removing the flex hose and replacing it with a stainless steel pipe configured to support movement/displacement between the Sample System and Reactor Recirculation Pump A discharge piping.

IV. CORRECTIVE ACTIONS (cont.)

2. The flex hose vendor representative was brought to the site to inspect the damaged hose in its as-installed location. Initial evaluation indicated that the flex hose failure was not due to improper installation.

3. Prior to plant restart, Engineering and Mechanical Maintenance personnel inspected the remaining flex hoses in the drywell. The inspection noted apparent discrepancies in some of the flexible hoses. Engineering, with the assistance of the manufacturer's representative, concluded there was no need for immediate action. One flex hose on a closed loop cooling line to a recirc pump cooler will be replaced at the next refueling outage. The remaining hoses with noted discrepancies will be reinspected during the next refueling outage, and evaluated for possible replacement.

4. The damaged 3/4 inch stainless steel flex hose will be sent to an off site metallurgical laboratory to receive a failure analysis. Results of the analysis will be reported in a supplement to this LER.

V. ADDITIONAL INFORMATION

A. Previous similar events: None.

B. Failed component identification:

Component Description	-	3/4 inch Stainless Steel Flex Hose
Component Mark No.	-	2RCS*Hose 44
Manufacturer	-	Metal Bellows Corporation
Part Number	-	77692
Material	-	SA312 TP316L Schedule 80
Niagara Mohawk Drawing	-	DP-370L
Niagara Mohawk Spec.	-	C071V

V. ADDITIONAL INFORMATION (cont.)

C. Identification of components referred to in this LER:

COMPONENT	IEEE 803 FUNCTION	IEEE 805 SYSTEM ID
Reactor Recirculation System (RCS)	N/A	AD
Sample System (SSP)	N/A	KN
Containment Atmosphere Monitoring System (CMS)	N/A	IL
Drywell Drains System (DFR)	N/A	WK
Containment Inerting System (CSN)	N/A	LK
Closed Loop Cooling Water System (CCP)	N/A	CC
Main Turbine	TG	EL
Pump	P	AN
Level Recorder	LR	WK
Flow Recorder	FR	WK
Radiation Recorder	RR	IL
Primary Containment	N/A	NH
Reactor Building	N/A	NG