CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR:9709090249 DOC.DATE: 97/09/02 NOTARIZED: NO DOCKET #
FACIL:50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moha 05000410
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RECIP.NAME RECIPIENT AFFILIATION

SUBJECT: LER 97-006-00:on 970804,plant shutdown was due to rising unidentified leakage.Caused by failed flexible hose connection in RRS.Mod installed which eliminated flexible connection.W/970902 ltr.

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CATEGORY 1 DOCUMENT

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A04

NIAGARA MOHAWK
GENERATION
BUSINESS GROUP

NINE MILE POINT NUCLEAR STATION/LAKE ROAD, P.O. BOX 63, LYCOMING, NEW YORK 13093

September 2, 1997
NMP2L 1723

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

RE: Docket No. 50-410
LER 97-06

Gentlemen:

In accordance with 10CFR50.73 (a)(2)(i), we are submitting LER 97-06, "Plant Shutdown Due to Rising Unidentified Leakage".

Very truly yours,

KADahlberg

Kim A. Dahlberg
Plant Manager - NMP2

KAD/GJG/cmk
Attachment

xc: Mr. H. J. Miller, Regional Administrator, Region I
Mr. B. S. Norris, Senior Resident Inspector
Records Management

NRC FORM 366 U.S. NUCLEAR REGULATORY COMMISSION

APPROVED OMB NO. 3150-0104
EXPIRES: 4/30/92

LICENSEE EVENT REPORT (LER)

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

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

TITLE (4)
Plant Shutdown due to Rising Unidentified Leakage

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)
08	04	97	97		006		00	09	02	97	N/A	0 5 0 0 0
											N/A	0 5 0 0 0

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): 95

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

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
K. D. Ward - Technical Support Manager NMP2	(315) 349-1043

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

CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS		CAUSE	SYSTEM	COMPONENT	MANUFAC-TURER	REPORTABLE TO NPRDS
B	AD	PSX	M270	No						

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
☒ YES *(If yes, complete EXPECTED SUBMISSION DATE)*	☐ NO		1	15	98

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

On August 4, 1997, while operating at 95 percent power, Nine Mile Point Unit 2 (NMP2) experienced a rapid rise in unidentified drywell leakage. Operators immediately commenced an orderly shutdown.

The cause of the excessive leakage was determined to be a failed flexible hose connection in the Reactor Recirculation System. The cause of the failed flexible hose connection is being evaluated.

A modification was installed which eliminated the flexible connection.

I. DESCRIPTION OF EVENT

On August 4, 1997, at 0557 hours, while operating at 95 percent power, operators of Nine Mile Point Unit 2 (NMP2) noted a rise in drywell pressure with an unidentified leakage rate of 7.2 gallon per minute (gpm). At 0615 hours, reactor shutdown was initiated and at approximately 0715 hours the reactor was placed in hot shutdown. At 0728 hours, an Unusual Event was declared after the drywell unidentified leak rate increased above 10 gpm.

Subsequently, the reactor was placed in cold shutdown, and the drywell entered to determine the cause of the unidentified leakage. On August 4, 1997, flex hose (2RCS*HOSE40) was found to be leaking. This flex hose is a 3/4 inch drain line from the Reactor Recirculation System flow control valve 2RCS*HYV17B. The leak was located at the end of the flexible portion of the hose farthest from 2RCS*HYV17B adjacent to the end ferrule.

II. CAUSE OF EVENT

The failed flex hose (2RCS*HOSE40) will undergo metallurgical evaluation to determine the cause of failure. A supplement to this LER will be submitted when the evaluation is complete.

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." NMP2 Technical Specifications (TS) 3.4.3.2.b states Reactor Coolant System (RCS) leakage shall be limited to 5 gallons per minute (gpm) UNIDENTIFIED LEAKAGE and TS 3.4.3.2.e states that the rise in Reactor Coolant System (RCS) leakage shall be limited to 2 gpm in unidentified leakage within any 24 hour period in Mode 1. TS 3.4.3.2 Action Statements "b" and "f" both require "... or be in at least HOT SHUTDOWN within the next 12 hours and in COLD SHUTDOWN within the following 24 hours," if it is not IDENTIFIED or reduced.

Since the failed hose is a 3/4 inch inside diameter, the failure is similar to the Instrument Line Pipe Break accident discussed in the NMP2 USAR Section 15.6.2. The effects described in Section 15.6.2 indicate that this type of failure would not result in fuel damage or core uncovering. The radiological consequences of this type of failure are also comparable to those of an instrument line failure, which are significantly below 10CFR100 limits. Control room doses for such an event are a small fraction of the GDC 19 limit.

III. ANALYSIS OF EVENT (cont'd)

The only dose associated with this event was that which was received during the repair. This type of failure is within the spectrum considered in ECCS performance calculations described in USAR Section 6.3.3. For this event, there were no ECCS Systems initiations.

In summary, due to the rapid response of operators and the minimal impact of a small leak event such as the instrument line discussed above, the consequences of this event were minimal. There was no adverse impact on public or station personnel.

IV. CORRECTIVE ACTIONS

1. Flex hose 2RCS*HOSE40 has been removed. The valve body connection has been plugged and pipe connection sealed with a welded end cap.

2. Accessible flex hoses in the primary containment have been inspected for evidence of bulging, kinking or braid deterioration. Deficiencies noted were corrected and/or evaluated as acceptable prior to restart of the plant.

3. An evaluation was completed on the affect of water spray from 2RCS*HOSE40 on adjacent equipment with results being satisfactory.

4. A failure analysis on 2RCS*HOSE40 will be completed by January 15, 1998. This evaluation will include assessment of 10CFR21 reportability.

Additional corrective and preventive actions will be developed after the failure analysis is complete and will be reported in the supplement to the LER.

V. ADDITIONAL INFORMATION

A. Failed component description:

Component description	:	Flexible Metallic Hose 3/4 Inch Stainless Steel
Component Manuf. No.	:	2RCS*H0SE40
Manufacturer	:	Metal Bellows Corporation
Material	:	SA 312 TP316L Schedule 80

B. Previous similar events: NMP2 LER 91-006, Supplement 1, "Unusual Event Classification and Reactor Shutdown due to an Unisolable Reactor Coolant System Pressure Boundary Leak," describes the failure of 2RCS*HOSE44 which is a similar component to that being reported in this LER. The results of the metallurgical evaluation performed on 2RCS*HOSE44 and reported in Supplement 1 concluded that localized contamination of the weld seam produced a region of questionable material properties which, combined with the existence of elevated hardness, reduced the pitting resistance of the seam. Cracking probably initiated at a shallow pit in the welded seam and propagated by fatigue into the adjacent wrought metal. Based on the recent failure of 2RCS*HOSE40, NMPC will reevaluate the root cause reported in NMP2 LER 91-006, Supplement 1 in conjunction with the root cause evaluation of 2RCS*HOSE40.

C. Identification of components referred to in this LER:

COMPONENT	IEEE 803 FUNCTION	IEEE 805 SYSTEM ID
Reactor Recirculation System (RCS)	NA	AD
2RCS*HOSE40	PSX	AD