

ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9111060344 DOC. DATE: 91/10/29 NOTARIZED: NO DOCKET #
 FACIL: 50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moha 05000410
 AUTH. NAME AUTHOR AFFILIATION
 COLOMB, M. Niagara Mohawk Power Corp.
 FIRLIT, J.F. Niagara Mohawk Power Corp.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 91-020-00: on 910929, HPCS sys declared inoperable following failed channel check of HPCS initiation trip logic. Caused by defective wide-range reactor vessel water level transmitter. Transmitter replaced. W/911029 ltr.

DISTRIBUTION CODE: IE22T COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

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INTERNAL:	ACNW	2		2	ACRS	2		2
	AEOD/DOA	1		1	AEOD/DSP/TPAB	1		1
	AEOD/ROAB/DSP	2		2	NRR/DET/ECMB 9H	1		1
	NRR/DET/EMEB 7E	1		1	NRR/DLPQ/LHFB10	1		1
	NRR/DLPQ/LPEB10	1		1	NRR/DOEA/OEAB	1		1
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	RES/DSIR/EIB	1		1	RGNI FILE 01	1		1
EXTERNAL:	EG&G BRYCE, J.H	3		3	L ST LOBBY WARD	1		1
	NRC PDR	1		1	NSIC MURPHY, G.A	1		1
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R I D S / A D S



Joseph F. Firlit
Vice President
Nuclear Generation

NMP83122

October 29 , 1991

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

RE: Docket No. 50-410
LER 91-20

Gentlemen:

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

LER 91-20 Is being submitted in accordance with 10CFR50.73 (a)(2)(v), "Any event or condition that alone could have prevented the fulfillment of the safety function of structures or systems that are needed to: (A) Shutdown the reactor and maintain it in a safe shutdown condition; (B) Remove residual heat; (C) Control the release of radioactive material; or (D) Mitigate the consequences of an accident".

A 10CFR50.72(b)(2)(iii)(A) Report was made at 0705 hours on September 29, 1991.

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

Very truly yours,



Joseph F. Firlit
Vice President - Nuclear Generation

JFF/GB/lmc
ATTACHMENT

xc: Thomas T. Martin, Regional Administrator Region I
Wayne L. Schmidt, Sr. Resident Inspector

9111040344 911029
PDR AMOCK 05000410
PDR

Cont No
P850906975
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11



LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) Nine Mile Point Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 1 0	PAGE (3) 1 OF 0 5
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TITLE (4)
High Pressure Core Spray System Inoperable due to Failed Instrument

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)																																		
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<table border="1" style="width:100%; border-collapse: collapse;"> <tr> <td style="width:15%;">OPERATING MODE (9)</td> <td style="width:15%;">1</td> <td colspan="10">THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)</td> </tr> <tr> <td rowspan="6">POWER LEVEL (10) 0 5 5</td> <td>20.402(b)</td> <td>20.405(e)</td> <td>50.73(a)(2)(iv)</td> <td>73.71(b)</td> </tr> <tr> <td>20.405(a)(1)(i)</td> <td>50.38(e)(1)</td> <td>X 50.73(a)(2)(v)</td> <td>73.71(c)</td> </tr> <tr> <td>20.405(a)(1)(ii)</td> <td>50.38(e)(2)</td> <td>50.73(a)(2)(vii)</td> <td rowspan="4">OTHER (Specify in Abstract below and in Text, NRC Form 366A)</td> </tr> <tr> <td>20.405(a)(1)(iii)</td> <td>50.73(a)(2)(i)</td> <td>50.73(a)(2)(viii)(A)</td> </tr> <tr> <td>20.405(a)(1)(iv)</td> <td>50.73(a)(2)(ii)</td> <td>50.73(a)(2)(viii)(B)</td> </tr> <tr> <td>20.405(a)(1)(v)</td> <td>50.73(a)(2)(iii)</td> <td>50.73(a)(2)(ix)</td> </tr> </table>												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) 0 5 5	20.402(b)	20.405(e)	50.73(a)(2)(iv)	73.71(b)	20.405(a)(1)(i)	50.38(e)(1)	X 50.73(a)(2)(v)	73.71(c)	20.405(a)(1)(ii)	50.38(e)(2)	50.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)	20.405(a)(1)(iii)	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)(ix)
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LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER
Mr. Michael Colomb, Manager Operations NMP2	3 1 5 3 4 9 - 7 9 5 2

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

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS
X	B, G	L, T	R 3, 6, 9	Y					

SUPPLEMENTAL REPORT EXPECTED (14)

<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15) MONTH: DAY: YEAR:
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ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)

On September 29, 1991, at 0341 hours, the High Pressure Core Spray (HPCS) System was declared inoperable following a failed channel check of a HPCS initiation logic trip unit. Further investigation identified a defective wide range reactor vessel water level transmitter. At the time this condition was discovered, Nine Mile Point Unit 2 (NMP2) was operating at 55 percent rated thermal power with the reactor mode switch in the "RUN" position (Operational Condition 1).

The root cause for this event was determined to be equipment failure.

Corrective actions included: Replacing the defective transmitter; completing calibration on the new transmitter; declaring HPCS System operable; and making preparations to return the failed instrument to the manufacturer for failure analysis.



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

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) Nine Mile Point Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 1 0 9 1 - 0 2 0 - 0 0 0 2 OF 0 5	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		

TEXT (If more space is required, use additional NRC Form 366A's) (17)

I. DESCRIPTION OF EVENT

On September 29, 1991, at 0341 hours, the High Pressure Core Spray (HPCS) System was declared inoperable following a failed shift channel check of a HPCS initiation logic trip unit. Further investigation identified a defective wide range reactor vessel water level transmitter. At the time this condition was discovered, Nine Mile Point Unit 2 (NMP2) was operating at 55 percent rated thermal power with the reactor mode switch in the "RUN" position (Operational Condition 1).

Immediately prior to entering this condition, Control Room operators were completing Technical Specification (T.S.) required 12 hour channel check surveillances on Emergency Core Cooling System (ECCS) actuation instrumentation, specifically, the Division III HPCS System. During the performance of these surveillances, one of the four trip units (2ISC*LIS1673G) monitoring Level 2 (Low, Low) and Level 8 (High) reactor vessel water levels failed its range verification (readings 11 to 12 inches below other three trip units). The T.S. Limiting Condition for Operation (LCO) ACTION statement was then entered by declaring the HPCS System inoperable.

A Work Request (WR 196227) was initiated to determine the cause for the low scale indication on trip unit 2ISC*LIS1673G. During these activities, a calibration check of HPCS Level Transmitter 2ISC*LT10D (instrument supplying signal to the trip unit) identified the transmitter to be defective.

A new level transmitter was installed and the HPCS System was returned to service on October 2, 1991.

During the period the HPCS System was declared inoperable, Division I and II ECCS, and the Reactor Core Isolation Cooling (RCIC) System were operable.

II. CAUSE OF EVENT

A root cause investigation was performed utilizing Nuclear Division Procedure NDP-16.01, "Root Cause Evaluation".

The immediate cause for declaring the HPCS System inoperable was the failure of the "D" channel trip unit to pass Operations Surveillance Procedure N2-OSP-LOG-S@ALL, "Comprehensive Shift Checks".



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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 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) Nine Mile Point Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 1 0	LER NUMBER (6)			PAGE (3)		
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		9 1	- 0 2 0	- 0 0	0 3	OF	0 5

TEXT (If more space is required, use additional NRC Form 366A's) (17)

II. CAUSE OF EVENT (cont.)

The root cause of this event was determined to be equipment failure. During follow-up troubleshooting efforts to determine the cause for the trip unit channel check failure, I&C technicians discovered that Rosemount Level Transmitter 2ISC*LT10D would not calibrate.

The defective transmitter is being returned to the vendor for a failure analysis.

III. ANALYSIS OF EVENT

This event is considered reportable under 10CFR50.73(a)(2)(v), "Any event or condition that alone could have prevented the fulfillment of the safety function of. . .systems that are needed to: (A) Shutdown the reactor and maintain it in a safe shutdown condition; (B) Remove residual heat; (C) Control the release of radioactive material; or (D) Mitigate the consequences of an accident".

The Emergency Core Cooling Systems are designed to provide core cooling for all postulated Loss-of-Coolant Accidents (LOCAs) caused by ruptures in any Reactor Coolant Pressure Boundary. ECCS actuation instrumentation is provided to initiate actions to mitigate the consequences of accidents that are beyond the ability of the operator to control. Division III of ECCS, the High Pressure Core Spray System, is designed to maintain reactor vessel inventory following small breaks which do not depressurize the reactor vessel. The HPCS consists of a single motor driven pump with associated piping/valves/instrumentation.

The HPCS System initiates automatically on either high drywell pressure or low-low reactor vessel water level (108.8 inches, Level 2 initiation). Vessel level is monitored by two independent, functionally identical trip systems. Additionally, the level monitoring devices are designed to monitor and initiate on high vessel water levels (203.3 inches, Level 8 initiation). This logic is designed to automatically close the HPCS injection valve to prevent vessel overflow.

Prior to operators declaring the system inoperable, the HPCS System was capable of performing it's design function with level transmitter 2ISC*LT10D inoperative. The three remaining redundant level monitoring channels would have satisfied system logic and allowed the HPCS System to initiate on an ECCS signal.

With the HPCS System inoperable, adequate core cooling is assured by operability of the: (1) Division I and II ECCS Systems; and (2) Reactor Core Isolation Cooling System. All ECCS T.S. Limiting Conditions for Operation (ACTION statements) were met during the



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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 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) Nine Mile Point Unit 2	DOCKET NUMBER (2) 0 5 0 0 0 4 1 0	LER NUMBER (6)			PAGE (3)		
		YEAR 9 1	SEQUENTIAL NUMBER - 0 2 0	REVISION NUMBER - 0 0	0	4	OF 0 5

TEXT (If more space is required, use additional NRC Form 366A's) (17)

III. ANALYSIS OF EVENT (cont.)

inoperability of the HPCS System.

This condition did not jeopardize the health and safety of the general public or site personnel, nor did it degrade the ability to safely operate or shutdown the plant.

IV. CORRECTIVE ACTIONS

The immediate actions taken following the trip unit channel check failure were for Operations to verify ECCS Division I and II Systems, and the Reactor Core Isolation Cooling System, operable and enter the required T.S. ACTION statement by declaring the HPCS System inoperable.

Additional corrective actions included:

1. Initiating a Work Request to troubleshoot the cause for the channel check failure.
2. Replacing Rosemount transmitter 2ISC*LT10D, completing calibration and channel check surveillance procedures, and returning HPCS System to operable status.
3. Preparing to return the failed Rosemount transmitter to the vendor for failure analysis.

V. ADDITIONAL INFORMATION

A. Failed component:

Component description	-	Reactor Vessel Water Level Transmitter
Mark Number	-	2ISC*LT10D
Manufacturer	-	Rosemount
Model Number	-	1153DB5
Serial Number	-	406577

B. Previous similar events:

NMP2 has experienced previous Rosemount Transmitter failures (LER 88-29, and LER 88-14).



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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 60.0 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.

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TEXT (If more space is required, use additional NRC Form 366A's) (17)

V. ADDITIONAL INFORMATION (cont.)

B. Continued

Monitoring programs have been implemented (I.E. Bulletin 90-01) to diagnose and establish early detection of deteriorating measurement capabilities in Rosemount Transmitters. These programs have been effective and will continue to be used.

Upon receipt of results of the vendor's failure analysis, in place monitoring programs will be evaluated for potential enhancements. Additionally, NPRDS will be updated to provide cause(s) for transmitter failure.

C. Identification of components referred to in this LER:

COMPONENT	IEEE 803 EIS FUNCTION	IEEE 805 SYSTEM ID
High Pressure Core Spray System	N/A	BG
Reactor Core Isolation Cooling System	N/A	BN
Level Transmitter	LT	BG
Trip Unit		BG



10-1-10