REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8707150661 DOC. DATE: 87/07/10 NOTARIZED: NO DOCKET #
FACIL: 50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moha 05000410
AUTH. NAME AUTHOR AFFILIATION
RANDALL, R. G. Niagara Mohawk Power Corp.
LEMPGES, T. E. Niagara Mohawk Power Corp.
RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-031-00: on 870612, scram occurred due to cold water excursion when feedwater level control valve failed open. Caused by feedback arm unbolting which allow valve to ramp open. Valve repaired & bolt lockwired. W/870710 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 6
TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL	RECIPIENT ID CODE/NAME	COPIES LTTR	COPIES ENCL
	PD1-1 LA	1	1	PD1-1 PD	1	1
	NEIGHBORS, D	1	1	MINER, S	1	1
INTERNAL:	ACRS MICHELSON	1	1	ACRS MOELLER	2	2
	AEOD/DOA	1	1	AEOD/DSP/ROAB	2	2
	AEOD/DSP/TPAB	1	1	DEDRO	1	1
	NRR/DEST/ADE	1	0	NRR/DEST/ADS	1	0
	NRR/DEST/CEB	1	1	NRR/DEST/ELB	1	1
	NRR/DEST/ICSB	1	1	NRR/DEST/MEB	1	1
	NRR/DEST/MTB	1	1	NRR/DEST/PSB	1	1
	NRR/DEST/RSB	1	1	NRR/DEST/SGB	1	1
	NRR/DLPQ/HFB	1	1	NRR/DLPQ/QAB	1	1
	NRR/DOEA/EAB	1	1	NRR/DREP/RAB	1	1
	NRR/DREP/RPB	2	2	NRR/PMAS/ILRB	1	1
	NRR/PMAS/PTSB	1	1	REG FILE 02	1	1
	RES DEPY GI	1	1	RES TELFORD, J	1	1
	RES/DE/EIB	1	1	RGN1 FILE 01	1	1
EXTERNAL:	EG&G GROH, M	5	5	H ST LOBBY WARD	1	1
	LPDR	1	1	NRC PDR	1	1
	NSIC HARRIS, J	1	1	NSIC MAYS, G	1	1

TOTAL NUMBER OF COPIES REQUIRED: LTTR 45 ENCL 43

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 5

TITLE (4) Scram due to Cold Water Excursion when Feedwater Level Control Valve Failed Open

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 6	1 2	8 7	8 7	— 0 3 1	— 0 0	0 7	1 0	8 7	N/A	0 5 0 0 0

OPERATING MODE (9)	2
POWER LEVEL (10)	0 0 3

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)	X 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)	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
Robert G. Randall, Supervisor Technical Support	3 1 5 — 3 4 9 - 2 4 4 5

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	
X	SJ	I L O V	V 0 3 7	N							

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

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

On June 12, 1987 with Nine Mile Point Unit 2 in "STARTUP" (Mode 2) and at less than three percent power, Operations personnel observed reactor water level rising and neutron flux levels increasing rapidly. Feedwater level control valve 2FWS-LV55A was observed full open. Operations personnel placed the controller in manual and attempted to close the valve. 2FWS-LV55A failed to respond. The resulting cold water injection caused Intermediate Range Monitor (IRM) channels B, C, and D to exceed their high flux scram points due to positive reactivity addition. The subsequent scram occurred on June 12, 1987 at 20:56 with the reactor at 842 pounds per square inch gauge (psig) and 523°F.

The cause of the event has been attributed to the feedback arm from the valve stem to the valve positioner unbolting allowing the valve to ramp open. FWS-LV55A has been repaired and the subject bolt lockwired.

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

I. DESCRIPTION OF EVENT

On June 12, 1987 with Nine Mile Point Unit 2 in "STARTUP" (Mode 2) and at less than three percent power, Operations personnel observed reactor water level rising and neutron flux levels increasing rapidly. Feedwater level control valve 2FWS-LV55A was observed full open. Operations personnel placed the controller in manual and attempted to close the valve. 2FWS-LV55A failed to respond. The resulting cold water injection caused Intermediate Range Monitors (IRM) channels B, C, and D to exceed their high flux scram points due to positive reactivity addition. The subsequent scram occurred on June 12, 1987 at 20:56 with the reactor at 842 pounds per square inch gauge (psig) and 523°F.

Reactor water level rose high enough to exceed the Level 8 (hi level) trip setpoint. The only operating feedwater pump, 2FWS-P1A, tripped automatically. The Level 8 trip also caused a turbine trip signal and feedwater pump 2FWS-P1B, P1C trip signals.

Operations then conducted an inspection of 2FWS-LV55A to determine the cause of failure. The inspection revealed that the mounting bolt securing the feedback arm to the valve stem had fallen out allowing the feedback arm greater freedom of movement. The feedback arm was found "caught-up" on the position mounting bracket prohibiting both movement and an accurate feedback signal. The inaccurate signal, thus, caused the valve to ramp open. (NOTE: A mechanical linkage is provided between the valve positioner and valve stem to provide a position feedback signal - See Attachment One).

A reactor shutdown was initiated in accordance with Operating Procedure N2-OP-101C, "Plant Shutdown". Operations then issued a work request (WR 120932) to repair the feedback arm and check the positioner for damage. A problem report (PR 6967) was also issued recommending the linkage be readjusted to provide the proper clearance between the bracket and linkage and to cut off the portion of the mounting bracket causing the interference.

There were no systems or components which were inoperable at the start of the event which contributed to the event.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
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TEXT *(If more space is required, use additional NRC Form 366A's)* (17)

II. CAUSE OF EVENT

The mechanism by which the feedback arm mounting bolt became loose and eventually fell out is uncertain. With information gathered from involved plant staff, the following is the most probable sequence leading to valve failure.

1. Vibration allowed the mounting bolts (one from feedback arm to valve stem - one from feedback arm to support bracket) to loosen slightly allowing some rotation of the feedback arm.

2. Due to the small clearance between the positioner mounting bracket and feedback arm motion, this additional rotation caused the feedback arm to rub and bind against the bracket. Additional vibration and stress could have been placed on the bolt every time the valve was repositioned. Paint scraped off the positioner bracket supports this theory.

3. The mounting bolt (from feedback arm to valve stem) eventually loosens to the point where it fell out and allowed greater movement of the feedback arm and stem. The arm then became bound under the positioner support bracket prohibiting both movement and an accurate feedback signal rendering the valve inoperable.

III. ANALYSIS OF EVENT

The reactor scram which occurred as a result of the Intermediate Range Monitor (IRM) trip is a conservative action and poses no adverse safety consequences at any reactor power level. The event did not in any way adversely affect any other safety systems or the operators ability to achieve safe shutdown.

2FWS-LV55A and 2FWS-LV55B are air operated Valtek valves used for feedwater control at startup and low power operations, not at full power. Using information provided through the NMP2 Material Equipment Listing (MEL) system no Valtek air operated or level control valves are used in a safety-related capacity.

IV. CORRECTIVE ACTION

Corrective action has been taken to repair 2FWS-LV55A per work request (WR 120932). The mechanical linkage parts were realigned and retightened and the valve verified operable by Operations. The feedback arm of 2FWS-LV55B was inspected and found to be satisfactory. The bolt which came loose on 2FWS-LV55A (from feedback arm to valve stem) has been lockwired on both 2FWS-LV55A and LV55B to prevent a similar event from occurring. The mounting bolt securing feedback arm to support bracket has been "double nutted".

The mounting bracket will be modified by cutting a portion of it that protrudes beyond the edge of the valve yoke. This work will be completed per FDDR K61-0807 and preclude a similar event from occurring.

As stated in the "Analysis of Event" section, no Valtek air operated or level control valves are used in a safety-related capacity. Further corrective action is therefore deemed unnecessary.

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

V. ADDITIONAL INFORMATION

Identification of Components Referred to in this LER

Component	IEEE 803 EIIS Funct	IEEE 805 System ID
Feedwater Level Control Valve (FWS-LV55A)	LCV	SJ
Intermediate Range Monitors (IRM)	MON	IG

No previous events of this type have occurred at Nine Mile Point Unit 2.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
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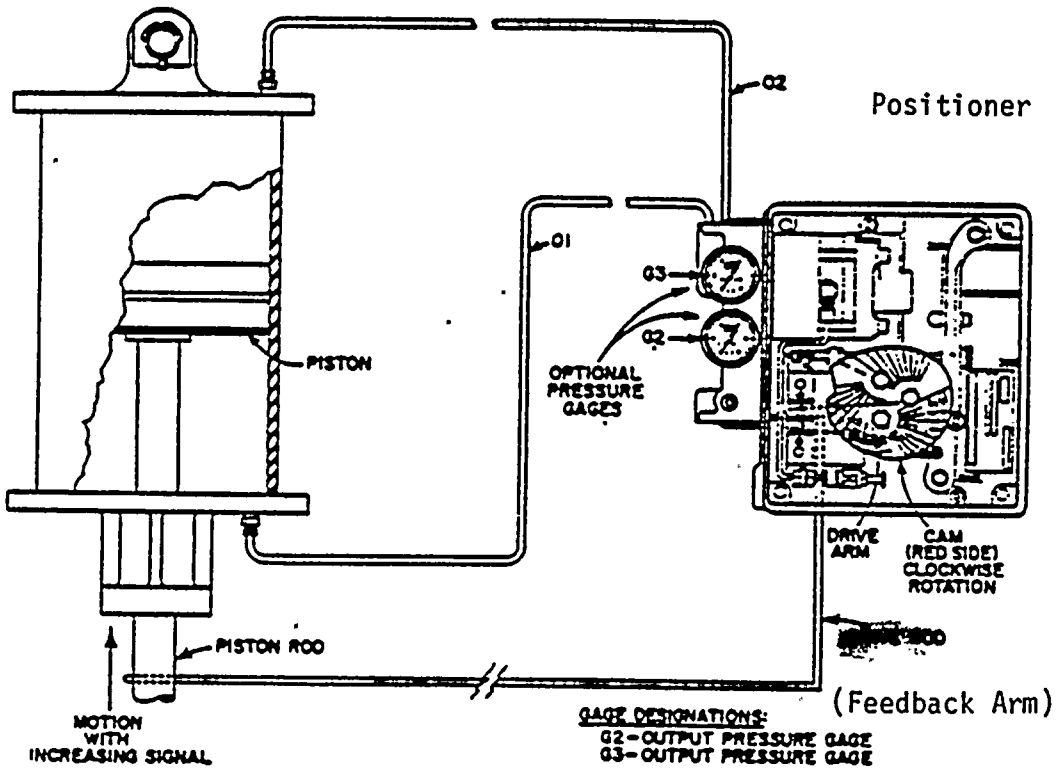
Nine Mile Point Unit 2	0 5 0 0 0 4 1 0	8 7	— 0 3 1	— 0 0	0 5 OF 0 5

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

ATTACHMENT 1



NMP26416

NIAGARA MOHAWK POWER CORPORATION

NIAGARA MOHAWK

301 PLAINFIELD ROAD
SYRACUSE, NY 13212

THOMAS E. LEMPGES
VICE PRESIDENT—NUCLEAR GENERATION

July 10, 1987

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

RE: Docket No. 50-410
LER 87-31

Gentlemen:

In accordance with 10 CFR 50.73, we hereby submit the following Licensee Event Report:

LER 87-31 Is being submitted in accordance with 10 CFR 50.73 (a) (2) (iv), "Any event or condition that resulted in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS). However, actuation of an ESF, including the RPS, that resulted from and was part of the preplanned sequence during testing or reactor operation need not be reported."

A 10 CFR 50.72 report was made at 22:50 on June 12, 1987.

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

Very truly yours,

Thomas E. Lempges

Thomas E. Lempges
Vice President
Nuclear Generation

TEL/JMT/mjd

Attachments

cc: Regional Administrator, Region 1
Sr. Resident Inspector, W. A. Cook

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