

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8711240182 DOC. DATE: 87/11/18 NOTARIZED: NO DOCKET #
 FACIL: 50-220 Nine Mile Point Nuclear Station, Unit 1, Niagara Powe 05000220
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 MAZZAFERRO, P. Niagara Mohawk Power Corp.
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 87-016-00: on 871019, full reactor scram, turbine trip signal actuation & HPCI actuation occurred. Caused by spurious actuation of intermediate range monitor trip due to noise. Noise problem investigated. W/871118 ltr.

DISTRIBUTION CODE: IE22D COPIES RECEIVED: LTR 1 ENCL 1 SIZE: 5
 TITLE: 50.73 Licensee Event Report (LER), Incident Rpt, etc.

NOTES:

	RECIPIENT ID CODE/NAME	COPIES L TTR ENCL	RECIPIENT ID CODE/NAME	COPIES L TTR ENCL
	PD1-1 LA	1 1	PD1-1 PD	1 1
	BENEDICT, R	1 1	HAUGHEY, M	1 1
INTERNAL:	ACRS MICHELSON	1 1	ACRS MOELLER	2 2
	AEOD/DQA	1 1	AEOD/DSP/NAS	1 1
	AEOD/DSP/ROAB	2 2	AEOD/DSP/TPAB	1 1
	ARM/DCTS/DAB	1 1	DEDRO	1 1
	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/GAB	1 1	NRR/DOEA/EAB	1 1
	NRR/DREP/RAB	1 1	NRR/DREP/RPB	2 2
	NRR/DRIS/SIB	1 1	NRR/PMAS/ILRB	1 1
	<u>REG FILE</u> 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



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LICENSEE EVENT REPORT (LER)

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TITLE (4) Reactor Scram, Turbine Trip, and High Pressure Coolant Injection Mode of Feedwater Signals due to Spurious Trip of Neutron Monitor Caused by Noise

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)
10	19	87	87	016	00	11	18	87			0 5 0 0 0
DOCKET NUMBER(S) 0 5 0 0 0											

OPERATING MODE (9) N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) 0 0 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input checked="" type="checkbox"/> 60.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 60.38(c)(1)	<input type="checkbox"/> 60.73(a)(2)(v)	<input type="checkbox"/> 73.71(c)						
	<input type="checkbox"/> 20.405(a)(1)(ii)	<input type="checkbox"/> 60.38(c)(2)	<input type="checkbox"/> 60.73(a)(2)(vii)	OTHER (Specify in Abstract below and in Text NRC Form 366A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input type="checkbox"/> 60.73(a)(2)(i)	<input type="checkbox"/> 60.73(a)(2)(viii)(A)							
	<input type="checkbox"/> 20.405(a)(1)(iv)	<input type="checkbox"/> 60.73(a)(2)(ii)	<input type="checkbox"/> 60.73(a)(2)(viii)(B)							
	<input type="checkbox"/> 20.405(a)(1)(v)	<input type="checkbox"/> 60.73(a)(2)(iii)	<input type="checkbox"/> 60.73(a)(2)(ix)							

LICENSEE CONTACT FOR THIS LER (12)			TELEPHONE NUMBER	
NAME Mr. Peter Mazzaferro, Assistant Supervisor, Technical Support		AREA CODE 315	349-2190	

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	

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
<input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO				

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

ABSTRACT

On October 19, 1987, the Nine Mile Point Unit 1 reactor was in a shutdown condition and being prepared for a vessel hydrostatic test. The reactor was at 150 psig and 173 degrees F. The mode switch was in the "REFUEL" position and all control rods were fully inserted. At 1111 hours the unit experienced a full reactor scram, turbine trip signal actuation, and High Pressure Coolant Injection (HPCI) mode of feedwater initiation logic actuation.

The root cause of the scram was spurious actuation of an Intermediate Range Monitor (IRM) trip on Reactor Protection System (RPS) channel 12 due to noise. In this case a one-half scram was already present on RPS channel 11 due to a surveillance being conducted on the main steam line radiation monitor #111.

No adverse safety consequences resulted from this event. There was no feedwater injection initiated because the HPCI feedwater pumps were locked out. Immediate corrective actions included resetting the scram, turbine trip, and HPCI mode of feedwater logic. Subsequent corrective actions involved conducting a post-scram review and initiating a further investigation into noise on IRM channels via a Problem Report.

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

DESCRIPTION OF THE EVENT

On October 19, 1987, the Nine Mile Point Unit 1 (NMP1) reactor was in a cold shutdown condition and was being prepared for a vessel hydrostatic test. The reactor was at 150 psig and 173 degrees F. All control rods were fully inserted and the mode switch was in the "REFUEL" position.

A main steam line radiation monitor surveillance was being conducted on Reactor Protection System (RPS) channel 11 by Instrument and Control Department personnel. As part of the procedure (N1-ISP-Q-PM-7, MAIN STEAM LINE HIGH RADIATION MONITORS INSTRUMENT CHANNEL CALIBRATION) a one-half scram was being generated on RPS 11. At 1111 hours, with a one-half scram existing on RPS channel 11, a spurious high neutron flux trip was generated on RPS channel 12 by Intermediate Range Monitor (IRM) #16. Subsequently, NMP1 experienced a full reactor scram, turbine trip and High Pressure Coolant Injection (HPCI) mode of feedwater initiation signal actuations.

NMP1 was in a cold shutdown condition with all control rods fully inserted, prior to the time of the scram. The turbine group trip relays had been operated as a result of the scram and a subsequent turbine trip and HPCI mode of feedwater initiation signal had been generated. However, the turbine was not in service at the time and did not physically change state. In addition, the HPCI/feedwater pumps were locked out at the time (as allowed by Technical Specifications section 3.1.8). Therefore, no feedwater injection occurred and no turbine transient was observed. The operators reset the scram, turbine trip, and the HPCI mode of feedwater initiation logic.

The chart recordings of the neutron flux instrumentation channels showed indications of noise, with spikes occurring at the time of the trip. Also initiated were Source Range Monitor (SRM) short period alarms. The SRM alarms were not a factor, but under the shutdown conditions they were indicative of noise.

CAUSE OF THE EVENT

The most probable root cause of the event was spurious actuation as a result of noise. This caused a high neutron flux RPS trip. This conclusion was reached per NMP1 procedure N1-RAP-6, POST REACTOR SCRAM ANALYSIS AND EVALUATION.

Noise is, and has been, commonly experienced during outages when numerous activities are taking place. The chart recordings of the neutron flux instrumentation channels showed indications of noise, with spikes occurring at the time of the trip.



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ANALYSIS OF THE EVENT

There were no adverse safety consequences as a result of this event since the reactor was in a safe shutdown condition and all control rods were already fully inserted. The only system actions experienced during this event were an operation of the RPS reactor trip and turbine group relays, and initiation of a HPCI mode of feedwater actuation signal. No feedwater injection occurred, nor was it required, because the HPCI feedwater pumps were locked out. There was an accompanying reactor vessel pressure increase of about 50 psig attributed to scram water injection. However, the pressure transient was expected under these conditions and caused no additional problem. No turbine transient was observed because the turbine was not in operation.

The SRM and IRM rod block and scram functions are utilized for reactor protection during startup, shutdown, and low power operation. These trips are bypassed under power generating conditions when the mode switch is in "RUN". Therefore, an event of the type discussed in this LER would not occur during full power operation. During startup and low power operation, however, a spurious high neutron flux trip signal on both channels of IRMs would scram the plant. However, since this would be a low power event all steam could be bypassed to the condenser. A trip of the turbine group relays would also occur, along with a simultaneous HPCI initiation signal actuation. Under this scenario there would be control rod insertion and an initial increase in feedwater injection.

CORRECTIVE ACTIONS

Immediate operator corrective action involved resetting the scram, turbine trip and HPCI mode of feedwater logic. Subsequent corrective action included initiating an investigation into the cause of the scram per NMP1 procedure N1-RAP-6, "Post Reactor Scram Analysis And Evaluation". Since a similar event occurred two days earlier (LER 87-15), the Problem Report generated for that event will also review this event to determine the source of IRM noise.

ADDITIONAL INFORMATION

Similar events of this type have been experienced at NMP1. NMP1 LERs on those events are listed in the below table.

<u>LER #</u>	<u>DESCRIPTION OF EVENT</u>
87-15	Reactor Scram, Turbine Trip, And High Pressure Coolant Injection Mode Of Feedwater Signals Due To Spurious Trip Of Neutron Monitor Caused By Noise



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ADDITIONAL INFORMATION (Cont'd)

<u>LER #</u>	<u>DESCRIPTION OF EVENT</u>
86-21	Reactor Scram and HPCI Mode Of Feedwater Initiation Due to IRM Spike
84-05	Scram Resulting from Spurious IRM Trips on Different Channels of RPS

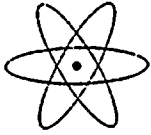
All of these previous events occurred during shutdown, refuel, or startup conditions.

The chart below identifies the components of the NMP1 IRM system as referred to in this LER.

DESCRIPTION OF EQUIPMENT

<u>COMPONENT</u>	<u>MODEL</u>	<u>COMPONENT CODE</u>	<u>VENDOR/MFG</u>	<u>NPRDS VENDOR CODE</u>
IRM Detector	112C3144G	DET	General Electric Co.	G080
Connector	101-50C-1S2	CON	D. G. O'Brien, Inc.	0005
Connector	UG-1213/U	CON	Amphenol	A380
Receptacle	UG496/U(HN)	RCP	Amphenol	A380
Preamp	112C2218G1	AMP	General Electric Co.	G080
Connector	UG59B/U HN W	CON	Amphenol	A380
Cable	167A2509 P1	CBL	General Electric Co.	G080
Cable	RG-6 A/U	CBL	Rockbestos Co.	R352
Monitor	194X67263G4	MON	General Electric Co.	G080





NIAGARA MOHAWK POWER CORPORATION

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THOMAS E. LEMPGES
VICE PRESIDENT—NUCLEAR GENERATION

NMP29097

November 18, 1987

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

RE: Docket No. 50-220
LER 87-16

Gentlemen:

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

LER 87-16 Which 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."

The 10 CFR 50.72 report was made at 1238 hours on October 19, 1987.

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

Very truly yours,

Thomas E. Lempges
Vice President
Nuclear Generation

TEL/meh

Attachment

cc: William T. Russell
Regional Administrator

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