

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 8812060234      DOC. DATE: 88/11/29      NOTARIZED: NO      DOCKET #  
 FACIL: 50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moho      05000410  
 AUTH. NAME      AUTHOR AFFILIATION  
 LAGOE, L.J.      Niagara Mohawk Power Corp.  
 WILLIS, J.L.      Niagara Mohawk Power Corp.  
 RECIP. NAME      RECIPIENT AFFILIATION

SUBJECT: LER 88-061-00: on 881030, ESF actuation due to equipment malfunction 0 undetermined cause.

W/8      ltr.

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EXTERNAL:	EG&G WILLIAMS, S	4	4		FORD BLDG HOY, A	1	1	
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Nine Mile Point Unit 2</b>	DOCKET NUMBER (2) <b>0   5   0   0   0   410</b>	PAGE (3) <b>1   OF   04</b>
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TITLE (4) **Engineered Safety Feature Actuation due to Equipment Malfunction - Undetermined Cause**

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	30	88	88	061	00	11	29	88	N/A		0   5   0   0   0
OPERATING MODE (8)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
4		20.402(b)			20.405(c)			<input checked="" type="checkbox"/> 60.73(a)(2)(iv)			73.71(b)
POWER LEVEL (10) 000		20.406(a)(1)(i)			60.38(c)(1)			60.73(a)(2)(v)			73.71(c)
		20.405(a)(1)(ii)			60.38(c)(2)			60.73(a)(2)(vi)			OTHER (Specify in Abstract below and in Text, NRC Form 366A)
		20.405(a)(1)(iii)			60.73(a)(2)(i)			60.73(a)(2)(vii)(A)			
		20.405(a)(1)(iv)			60.73(a)(2)(ii)			60.73(a)(2)(vii)(B)			
		20.405(a)(1)(v)			60.73(a)(2)(iii)			60.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)

NAME <b>L. J. Lagoe, Superintendent Maintenance</b>	TELEPHONE NUMBER
	AREA CODE <b>315</b> <b>349-2497</b>

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	BH	PDS	KAMAN	YES					

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)       NO

EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On October 30, 1988 at 1344 hours with the reactor mode switch in SHUTDOWN (Operational Condition 4), Nine Mile Point Unit 2 (NMP2) experienced an Engineered Safety Feature (ESF) actuation. During troubleshooting of the Standby Gas Treatment (GTS) system, an unplanned isolation of the Group 9 Containment Purge Valves occurred after GTS radiation monitor 2GTS-RE105 received a spurious high radiation signal.

The root cause of this event was an equipment malfunction. The cause of the equipment malfunction is unknown. A contributing factor was that the technician worked outside of the scope of the SSS instructions received.

The immediate corrective action for this event was to stop work on the GTS system and verify that there were no actual high radiation signals. A temporary modification was issued to lift the leads to GTS radiation monitor 2GTS-RE105 to allow for the replacement of the defective differential pressure switch. Additional corrective actions were: (1) the I&C technician received disciplinary action, (2) I&C management held meetings to discuss this event and prevent a future recurrence, and (3) a Lessons Learned document will be written.

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (8)			PA	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
Nine Mile Point Unit 2	0   5   0   0   0   410	88	061	00	02	04

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

I. DESCRIPTION OF EVENT

On October 30, 1988 at 1344 hours with the reactor mode switch in SHUTDOWN (Operational Condition 4), and with the reactor at 0% rated thermal power, Nine Mile Point Unit 2 (NMP2) experienced an Engineered Safety Feature (ESF) actuation. During troubleshooting of the Standby Gas Treatment (GTS) system, an unplanned isolation of the Group 9 Containment Purge Valves occurred after GTS radiation monitor 2GTS-RE105 received a spurious high radiation signal. The NMP2 licensed operators immediately ordered the troubleshooting work to be stopped until the cause of the spurious high radiation signal could be determined and repaired. At the time of the event the reactor pressure and temperature were at 3 pounds per square inch gauge and 103 degrees Fahrenheit, respectively.

The sequence of events for this event is as follows:

On October 30, 1988 an Instrument and Control (I&C) technician was assigned Work Request Number 135513 to perform work on standby gas treatment radiation monitoring cabinet 2GTS-CAB105. A radiation monitor inside the cabinet was experiencing spurious radiation signals above the alert setpoint levels whenever the sample pump was running. The radiation monitor sets off an alert alarm when radiation levels exceed 1.6EE-3 microcuries per cubic centimeter and a trip signal when radiation levels exceed 1.6EE-2 microcuries per cubic centimeter. At 0710 hours, the I&C technician received permission from the Station Shift Supervisor (SSS) to perform a hands off inspection of cabinet 2GTS-CAB105.

At 1320 hours, the I&C technician troubleshooting the GTS system contacted Radiation Protection personnel to start the GTS sample pump. The sample pump was started at 1336 hours and the control room Chief Shift Operator (CSO) began receiving several alert signals from radiation monitor 2GTS-RE105. The CSO, aware that the I&C technician was only to be performing a hands off inspection, unsuccessfully tried to contact him.

At 1344 hours radiation monitor 2GTS-RE105 received a spurious high radiation activity signal above the trip setpoint. This triggered a high radiation alarm and a trip signal which isolated the Group 9 containment isolation valves.

The NMP2 licensed operators instructed the I&C technician to stop all troubleshooting. In addition, the NMP2 licensed operators verified that there were no actual high radiation levels.

At 2215 hours, after lifting the leads to radiation monitor 2GTS-RE105, the NMP2 licensed operators reset the Group 9 isolation signal.



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		YEAR 88	SEQUENTIAL NUMBER - 061	REVISION NUMBER - 00	03	OF 04

TEXT (If more space is required, use additional NRC Form 368A's) (17)

II. CAUSE OF EVENT

The root cause of this event was an equipment malfunction. A defective differential vacuum pressure switch (located on the GTS pump suction filter train) was chattering and generating electronic noise spikes. These noise spikes were misinterpreted as radiation activity signals by the radiation monitor's microprocessor. These electronic noise spikes produced enough spurious signals to first set off the alert level alarm and then the trip level alarm. Once the trip level alarm was set off it generated a trip signal, initiating the Group 9 isolation. The cause of the pressure switch malfunction is unknown.

A significant contributing factor of this event was a personnel error in that the I&C technician worked outside the scope of the SSS's instructions. Per administrative procedure (AP) 3.3.2, "Control of Equipment, Temporary Modifications", Section 3.7.4.1, "Trouble Shooting", personnel performing troubleshooting activities are to review the nature, extent, effects to be produced, etc., with the SSS prior to commencement of work. During this review with the SSS, the I&C technician troubleshooting the GTS system was instructed to perform a hands off inspection only. By deviating from the SSS's instructions and instructing the RP technician to start the GTS sample pump, the I&C technician put the system in a condition whereby an ESF actuation could occur. Had the SSS been notified of the I&C technician's intent to start the pump, he could have possibly taken compensatory action.

III. ANALYSIS OF EVENT

An undesirable challenge to a plant Engineered Safety Feature system occurred as a result of this event. However, the ESF actuation that occurred was a conservative safety response, and is intended to preclude the uncontrolled release of radioactivity during any operational or emergency condition. Had an accident occurred during this event, the GTS and secondary containment ventilation systems would have performed their designed safety functions, regardless of plant power level, by limiting radioactive releases to the public during an accident. At no time did this event impact plant or public health or safety.

The duration of this event, from the time the ESF actuation occurred at 1344 hours, until the Group 9 isolation was reset at 2215, was eight hours and thirty one minutes.

IV. CORRECTIVE ACTIONS

The immediate corrective action was for the NMP2 licensed operators to instruct the I&C technician to stop all troubleshooting activities. In addition, the NMP2 licensed operators verified that there were no actual high radiation signals.



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FACILITY NAME (1)  Nine Mile Point Unit 2	DOCKET NUMBER (2)  0   5   0   0   0   410	LER NUMBER (6)			PAGE (3)	
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		88	- 061	- 00	04	OF 04

TEXT (If more space is required, use additional NRC Form 368A's) (17)

As additional corrective actions, temporary modification number 88-211 was issued to lift the leads to radiation monitor 2GTS-RE105. The temporary modification disabled the isolation function of 2GTS-RE105, preventing further unnecessary ESF actuations during replacement of the differential pressure switch and any additional troubleshooting of the GTS system. The Group 9 isolation was reset at 2215 hours.

The differential pressure switch was replaced and the lifted leads were relanded under Work Request No. 135513. The work request was closed out on November 6, 1988.

Additional corrective actions are as follows:

1. The I&C technician has received disciplinary action;
2. I&C management held a series of meetings to discuss this event and to prevent future recurrence; and
3. A Lessons Learned transmittal will be written to notify departments that troubleshooting is not to exceed the scope of control room supervision's instructions without obtaining further approval.

V. ADDITIONAL INFORMATION

RELATED EVENTS

LERs 86-11, 88-20, 88-24, 88-34, 88-42, and 88-49 are related to this LER because they all involve unplanned GTS actuations. These spurious signals occurred for various reasons; design deficiencies, electrical noise, and microprocessor failure; but in none of these cases did a malfunctioning component cause the chattering and the subsequent electrical noise. Therefore, none of these events are similar to LER 88-61.

Failed Component: Differential Pressure Switch  
 MFGR Kaman Instrumentation Corporation  
 Part No. 824063-B002

Identification of Components Referred to in this LER

Component	IEEE 803 EIIS Funct	IEEE 805 System ID
Switch, Differential Vacuum Pressure	PDS	BH
Radiation Monitor	MON	BH
Standby Gas Treatment System	N/A	BH
Pump, Sample	P	BH



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November 29, 1988

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

RE: Docket No. 50-410  
LER 88-61

Gentlemen:

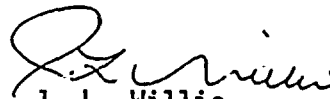
In accordance with 10 CFR 50.73, we hereby submit the following  
Licensee Event Report:

LER 88-61 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)."

A 10CFR50.72 report was made at 1534 hours on October 30, 1988.

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

Very truly yours,

  
J. L. Willis  
General Superintendent  
Nuclear Generation

JLW/PCJB/mjd

Attachments

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

Cent No  
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