

# ACCELERATED DISTRIBUTION DEMONSTRATION SYSTEM

## REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9010230008    DOC. DATE: 90/10/08    NOTARIZED: NO    DOCKET #  
 FACIL: 50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moha    05000410  
 AUTH. NAME    AUTHOR AFFILIATION  
 COLOMB, M.J.    Niagara Mohawk Power Corp.  
 FIRLIT, J.F.    Niagara Mohawk Power Corp.  
 RECIPIENT NAME    RECIPIENT AFFILIATION

SUBJECT: LER 90-001-01: on 900103, control room special filter train actuation due to breaker cycling. W/901008 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:

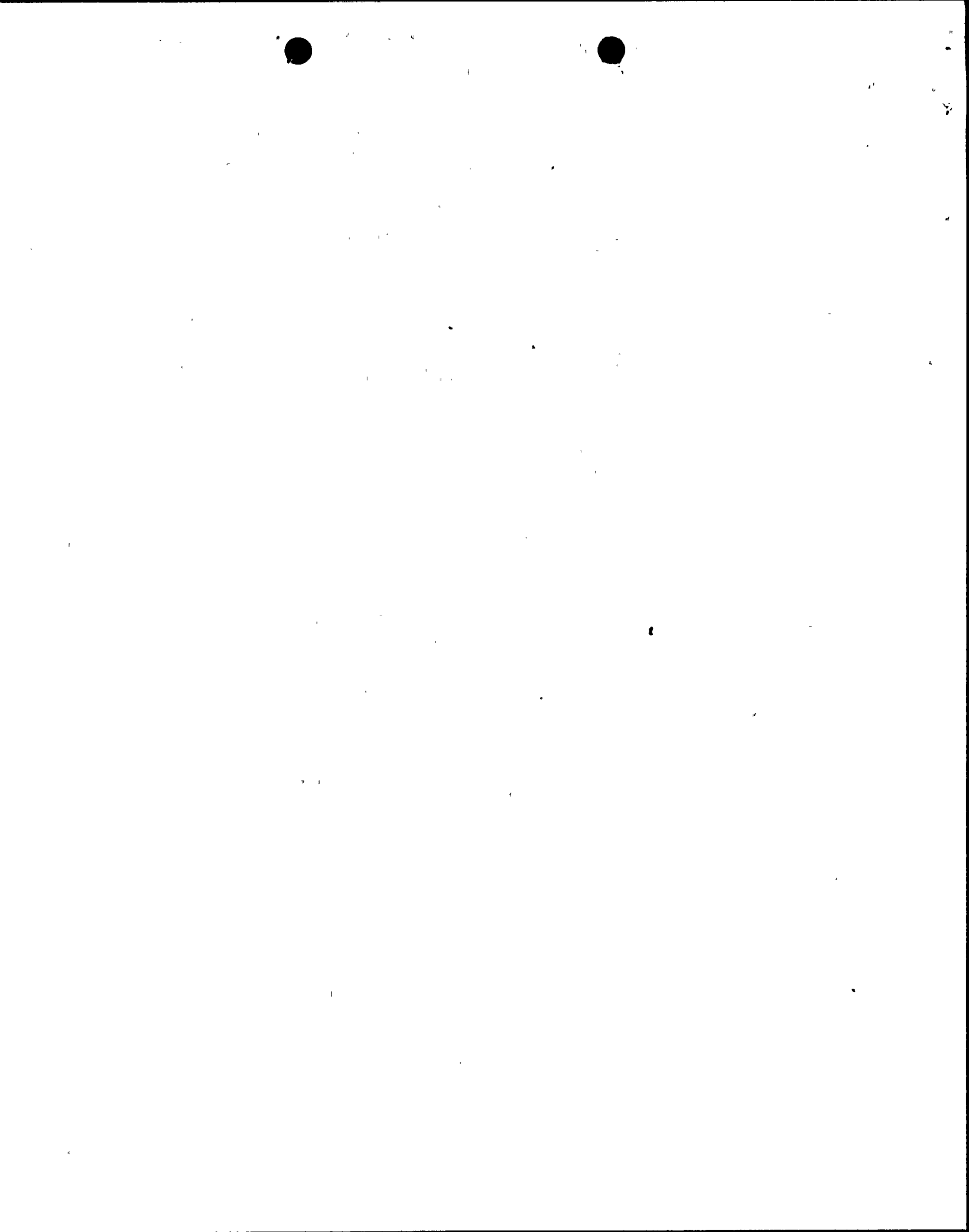
	RECIPIENT ID CODE/NAME	COPIES LTR ENCL	RECIPIENT ID CODE/NAME	COPIES LTR ENCL
	PD1-1 LA MARTIN, R.	1 1 1 1	PD1-1 PD	1 1
INTERNAL:	ACNW	2 2	ACRS	2 2
	AEOD/DOA	1 1	AEOD/DSP/TPAB	1 1
	AEOD/ROAB/DSP	2 2	NRR/DET/ECMB 9H	1 1
	NRR/DET/EMEB 7E	1 1	NRR/DLPQ/LHFB11	1 1
	NRR/DLPQ/LPEB10	1 1	NRR/DREP/PRPB11	2 2
	NRR/DST/SELB 8D	1 1	NRR/DST/SICB 7E	1 1
	<del>NRR/DST/SPLB8D1</del>	1 1	NRR/DST/SRXB 8E	1 1
	<del>REG FILE 02</del>	1 1	RES/DSIR/EIB	1 1
	RGN1 FILE 01	1 1		
EXTERNAL:	EG&G BRYCE, J.H	3 3	L ST LOBBY WARD	1 1
	NRC PDR	1 1	NSIC MAYS, G	1 1
	NSIC MURPHY, G.A	1 1	NUDOCS FULL TXT	1 1

NOTE TO ALL "RIDS" RECIPIENTS:

PLEASE HELP US TO REDUCE WASTE! CONTACT THE DOCUMENT CONTROL DESK, ROOM P1-37 (EXT. 20079) TO ELIMINATE YOUR NAME FROM DISTRIBUTION LISTS FOR DOCUMENTS YOU DON'T NEED!

FULL TEXT CONVERSION REQUIRED  
 TOTAL NUMBER OF COPIES REQUIRED: LTR 32 ENCL 32

R  
I  
D  
S  
/  
A  
D  
S  
/  
A  
D  
S



NMP73903

October 8 , 1990

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

RE: Docket No. 50-410  
LER 90-01 Supplement 1

Gentlemen:

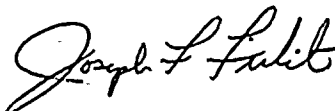
In accordance with 10CFR50.73, we hereby submit the following Licensee Event Report:

LER 90-01 Supplement 1 Is being submitted in accordance with 10CFR50.73 (a)(2)(iv), "Any event or condition that results in manual or automatic actuation of any Engineered Safety Feature (ESF), including the Reactor Protection System (RPS)".

A 10CFR50.72 (b)(2)(ii) report was made at 1028 hours on January 3, 1990.

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/DPS/lmc

ATTACHMENT

xc: Thomas T. Martin, Regional Administrator, Region I  
W. A. Cook, Sr. Resident Inspector

00307

JE22



LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) <b>Nine Mile Point Unit 2</b>	DOCKET NUMBER (2) <b>0 5 0 0 0 4 1 0</b>	PAGE (3) <b>1 OF 0 5</b>
--	---	-----------------------------

TITLE (4)  
**Control Room Special Filter Train Actuation Due To Breaker Cycling**

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 1 0	3 9 0	9 0	0 0	1 0	1 0	1 0 0	8 9 0		N/A		0 5 0 0 0

OPERATING MODE (9) <b>4</b>	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)									
POWER LEVEL (10) <b>0 0 0</b>	20.402(b)	20.405(c)	<input checked="" type="checkbox"/>	50.73(a)(2)(iv)	73.71(b)					
	20.405(a)(1)(i)	50.38(c)(1)	<input type="checkbox"/>	50.73(a)(2)(v)	73.71(c)					
	20.405(a)(1)(ii)	50.38(c)(2)	<input type="checkbox"/>	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)	<input type="checkbox"/>	50.73(a)(2)(viii)(A)						
	20.405(a)(1)(iv)	50.73(a)(2)(ii)	<input type="checkbox"/>	50.73(a)(2)(viii)(B)						
	20.405(a)(1)(v)	50.73(a)(2)(iii)	<input type="checkbox"/>	50.73(a)(2)(x)						

LICENSEE CONTACT FOR THIS LER (12)					
NAME <b>Michael J. Colomb, Superintendent Operations Unit 2</b>				TELEPHONE NUMBER	
				AREA CODE <b>3 1 5</b>	<b>3 4 9 - 7 9 5 2</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	

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)

On January 3, 1990, at approximately 0928 hours, Nine Mile Point Unit 2 experienced an actuation of an Engineered Safety Feature. Specifically, the Division 1 Control Room Special Filter Train was started automatically by a spurious trip of the Division 1 Control Building Ventilation Radiation Monitors. At the time of the event the plant was shutdown in Mode 4 with the vessel depressurized and reactor coolant temperature at approximately 122 degrees Fahrenheit and shutdown cooling in operation. The apparent cause of the event was the electrical interference associated with the cycling of a control building chiller breaker.

Based upon research and testing of the subject monitors and information secured from Arizona Public Service Company, Palo Verde Nuclear Generating Station, the most probable root cause for these actuations has been determined to be parasitic capacitance coupling of the radiation monitor beta scintillator's grounded outer housing and its preamplifier's signal ground.

The corrective actions include repair of the chiller and initiation of plant change PC 2-0004-90 to modify the detector grounding scheme.



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	LER NUMBER (8)			PAGE (3)	
		YEAR 9 0	SEQUENTIAL NUMBER 0 0 1	REVISION NUMBER 0 1	0 2	OF 0 5

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

I. DESCRIPTION OF EVENT

On January 2, 1990, at approximately 1245 hours, the Division 1 Control Room Special Filter Train was declared administratively inoperable in accordance with Tech. Spec. Interpretation #25 due to a failed surveillance (N2-OSP-HVK-Q002) on the Division 1 Control Building Chill Water Circ Pump (2HVK\*P1A). The Division 1 Control Building Chiller (2HVK\*CHL1A) was removed from service and a yellow hold out placed on the control switch for 2HVK\*CHL1A. A Work Request was generated to check the calibration of Division I Control Building Chiller Flow Transmitter (2HVK\*FT15A).

On January 3, 1990, at approximately 0928 hours, the operating shift attempted to start 2HVK\*CHL1A in accordance with Control Building Ventilation Procedure (N2-OP-53A), to perform a retest of surveillance N2-OSP-HVK-Q002. Upon the start attempt of 2HVK\*CHL1A, the chiller supply breaker (2EJS\*US1-4D) closed and opened four times in a period of approximately 26 seconds. The cause of the trip appeared to be low lube oil pressure. Concurrent with the cycling of 2EJS\*US1-4D breaker, Control Building Ventilation Radiation Monitors, 2HVC\*RE18A and 2HVC\*RE18C, tripped on a spurious high radiation signal and auto started the Division 1 Control Building Special Filter Train. At the time of the event the plant was shutdown in mode 4 with the vessel depressurized and reactor coolant temperature at approximately 122 degrees Fahrenheit with shutdown cooling in operation.

1

Concurrent with the cycling of 2EJS\*US1-4D breaker, Source Range Monitor (SRM) short period alarms were received on P603, investigation of the individual Source Range Monitor channels indicated short period trip on all SRM channels.

Operations personnel immediately verified the Reactor (Rx) was subcritical by checking for changes in Core power on the SRM and Intermediate Range Monitors (IRM) and verified the high radiation trip of 2HVC\*RE18A and 2HVC\*RE18C as spurious by checking the radiation monitors on the Digital Radiation Monitor System (DRMS) computer. The Control switch for 2HVC\*CHL1A was placed in Pull-to-Lock and the Control Building Ventilation system restored to normal operation using the Division 2 Control Building Chiller (2HVK\*CHL1B). No other components were inoperable which contributed to this event.

An inspection of the chiller revealed a low oil level condition that was the probable cause of the trip and cycling (the low oil level would cause a low oil pressure trip). The low oil level was not detected prior to the start attempt (no local inspection was performed, and the condition is not annunciated).





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 9   0   -   0   0   1   -   0   1	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		0	001	01	0	3 OF 05

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

II. CAUSE OF EVENT

The apparent cause of the event was the tripping and cycling of the chiller breaker due to low oil pressure (because of low oil level) and the sensitivity of the radiation monitors to electrical disturbances. The low oil level was caused by an oil leak from the sump to the refrigerant reservoir. The apparent cause of the chiller cycling was a sticking relay, (the cycling could not be reproduced during troubleshooting).

Based upon research and testing of the subject monitors and elimination of possible physical faults, (i.e., ground loops, floating of cable shields, cable separation, etc), the most probable root cause for the sensitivity of the radiation monitors to electrical disturbances is parasitic capacitance coupling of the radiation monitor beta scintillator's grounded outer housing and it's preamplifier's signal ground.

The following is retyped from the original supplement to Special Report 2-SR-88-009 submitted to the NRC by Arizona Public Service Company and is included here to explain the coupling effect:

...The low range monitors use beta scintillation detectors to monitor the process and generate an electrical pulse that is proportional to the particular type of radiation being monitored, i.e. particulate, gas, or iodine. The detector's outer housing is metal and is connected to plant ground by its mounting arrangements. The detector's preamplifier is referenced to an independent Radiation Monitoring System (RMS) instrument ground bus rather than plant ground. Due to potential differences between the detector preamplifier's signal ground and the detectors grounded outer housing, parasitic capacitance coupling exists between the preamplifier's signal ground and the detector's grounded outer housing. Noise on the plant ground is able to couple into the detector's preamplifier through these parasitic capacitance paths. These stray capacitances provide a feed back path from output to input of the preamplifier. Thus occasionally noise couples into the preamplifier and forces the preamplifier into oscillation due to the capacitive feedback path. This can result in the detector generating spurious output pulses of sufficient magnitude that the amp/discriminator circuit



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	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 0	0 0 1	0 1	0 4	OF 0 5

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

in the microcomputer treats them as valid signals resulting in the generation of spurious high readings.

III. ANALYSIS OF EVENT

This event is reportable under 10CFR50.73(a)(2)(iv), "Any event or condition that results in manual or automatic actuation of any Engineered Safety Feature (ESF)".

The Control Room Special Filter Trains are a part of the Habitability Systems identified in the Nine Mile Point 2 USAR Section 6.4. These Habitability Systems are provided to ensure that the plant operators can remain in the main Control Room and take actions to operate the plant safely under normal conditions and to maintain it in a safe condition under all accident conditions.

The Control Building Special Filter Trains are designed to remove radioiodines from the Control Room ventilation outdoor air supply during a design basis accident.

The spurious trip of 2HVC\*RE18A and 2HVC\*RE18C placed the Division 1 Control Building Special Filter Train in service when its operation was not required. This is a conservative action. The event was terminated with the return of the Control Building Ventilation System to normal operation at 0940. | 1

IV. CORRECTIVE ACTIONS

1. A replacement for the relay that is suspected of sticking has been received and will be installed.
2. Plant Change PC 2-0004-90 has been initiated to modify the detectors grounding scheme by isolating the detectors housing from plant ground and connecting it to the preamplifiers signal ground. | 1
3. The oil leakage problem is being investigated and will be repaired as required.
4. N2-OP-53A Section 1.0 has been changed to perform operational checks prior to starting an idle chiller.



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	LER NUMBER (6)			PAGE (3)	
		YEAR 9   0	SEQUENTIAL NUMBER -   0   0   1	REVISION NUMBER -   0   1	0   5 OF 0   5	

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

- A review of N2-ODI-5.08, 5.0, Operator Good Practices, with shift personnel stressing the reason and importance of prestart checks on idle equipment has been completed.

V. ADDITIONAL INFORMATION

- Identification of components referred to in this LER.

COMPONENT	FUNCTION		SYSTEM ID
	803	805	
2HVK*P1A - Division 1 Control Building Chiller Water Circ Pump			VI
2HVK*FT15A - Division 1 Control Building Chiller - Chilled Water Flow Transmitter	FIT		VI
2HVK*CHL1A - Division 1 Control Building Chiller	CHU		VI
2EJS*US1-4D- 600 VAC Supply Breaker for 2HVC*CHL1A	BKR		VI
2HVC*RE18A - Division 1 Control Building Ventilation Intake Radiation Monitors	MON		IL
2HVC&RE18C - Division 1 Control Building Ventilation Intake Radiation Monitors	MON		IL
SRM Channel- Source Range Monitors	MON		IG
IRM Channel- Intermediate Range Monitors A, B, C, D, E, F, G, H	MON		IG

- Previous Similar Events:

There have been two previous similar events. Details can be found in LER 88-35 and LER 88-20.

The corrective action for LER 88-20 corrected the cause of the electrical disturbance and did not address the DRMS system sensitivity issue.

The circuit sensitivity to noise was the subject of a Problem Report (PR) generated after LER 88-35. Due to the lack of sufficient data and the difficulties associated with troubleshooting the equipment, no action was taken on the PR.

LER 90-06 which reported a spurious actuation of the control room special filter train, caused by the investigation conducted for this LER, raised the question of interaction between monitor cabinets. Parasitic capacitance coupling would confirm this interaction. The corrective action stated in this supplement, when completed, should encompass LER 90-06.

