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FACIL:50-410 Nine Mile Point Nuclear Station, Unit 2, Niagara Moha 05000410
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SUBJECT: LER 88-020-00:on 880407,ESF actuation caused by high radiation signals due to electrical noise.

DISTRIBUTION CODE: IE22D COPIES RECEIVED:LTR 1 ENCL 1 W/8 ltr. SIZE: 6
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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 0 410	1 OF 05

TITLE (4) Engineered Safety Feature Actuation Caused by High Radiation Signals Due to Electrical 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)
											N/A	0 5 0 0 0
04	07	88	88	—	020	—	00	05	04	88	N/A	0 5 0 0 0

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)	100	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 E. Jenkins, Assistant Supervisor Technical Support	315	349-4220

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
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

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

On April 7, 1988 at 0952 hours and at 1026 hours with the reactor at approximately 100% power and the mode switch in "RUN", Nine Mile Point Unit 2 (NMP2) experienced Engineered Safety Feature (ESF) actuations. Both events consisted of a secondary containment isolation and the automatic initiation of the Standby Gas Treatment System (SBGTS), an emergency recirculation unit cooler, and reactor building unit coolers. Both events occurred while attempting to perform surveillance procedure N2-OSP-HCS-SA001, "DBA Hydrogen Recombiner Functional and Electrical Continuity Test".

The ESF actuations occurred, as designed, on a spurious high radiation signal. The immediate cause of the spurious radiation signal has been determined to be electrical noise. The noise was a result of "chattering" at the contactor associated with recombiner inlet valve 2HCS*MOV25B. 2HCS*MOV25B is throttled per steps in N2-OSP-HCS-SA001. The cause of the contactor "chattering" has been determined to be an increased valve torque requirement since the previous torque switch setting.

Corrective actions consist of the following:

1. Adjustment of 2HCS*MOV25B's torque switch to a higher setting.
2. Electrical preventive maintenance procedure N2-EPM-GEN-V522, "Limitorque Motor Operated Valve Testing Utilizing MOVATS-2000" has been scheduled to verify the settings of 2HCS*MOV25A and 2HCS*MOV25B.
3. A problem report will be submitted to Engineering to reverify the torque switch settings and calculate the recommended and maximum valve thrust.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
Nine Mile Point Unit 2	0 5 0 0 0 410	88	— 020	— 00	02 OF 05

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

I. DESCRIPTION OF EVENTS

On April 7, 1988 at 0952 hours with the reactor at approximately 100% power and the mode switch in "RUN", Nine Mile Point Unit 2 (NMP2) experienced an Engineered Safety Feature (ESF) actuation. At 1026 the same day, with the reactor at approximately 100% power and the mode switch in "RUN", NMP2 experienced a second ESF actuation. Both events consisted of a secondary containment isolation and the automatic initiation of the Standby Gas Treatment System (SBGTS), an emergency recirculation unit cooler, and reactor building unit coolers.

On April 7, 1988 at 0952 hours a "spike" occurred on reactor building ventilation exhaust radiation monitors 2HVR*RE14B and 2HVR*RE32B. As designed, the following occurred on a high radiation signal: 1) Secondary Containment Isolation, 2) SBGTS Train "A" and Train "B" auto start, 3) Emergency Recirculation Unit Cooler 2HVR*UC413B auto start, 4) Reactor Building Unit Coolers auto start. Containment monitoring system radiation monitor 2CMS*RE10B also "spiked".

After verifying a high radiation condition did not exist, Operations personnel secured the ESF equipment which had started and restored reactor building ventilation to normal. The duration of this event was approximately 32 minutes.

On April 7, 1988 at 1026 hours a second "spike" occurred on radiation monitors 2HVR*RE14B, 2HVR*RE32B and 2CMS*RE10B. As designed, the following occurred on a high radiation signal: 1) Secondary Containment Isolation, 2) SBGTS Train "A" and Train "B" auto start, 3) Unit Cooler 2HVR*UC413B auto start, 4) Reactor Building Unit Coolers auto start.

At this time it became apparent the high radiation spikes and subsequent ESF actuations were occurring simultaneously with the performance of surveillance test N2-OSP-HCS-SA001, "DBA Hydrogen Recombiner Functional and Electrical Continuity Test". Specifically, the high radiation spikes appeared to coincide with the throttling of Recombiner "B" inlet flow valve 2HCS*MOV25B. Troubleshooting activities were then performed by Operations and other station personnel. The duration of the second event was approximately 47 minutes.

Operations issued work request WR 135995 to troubleshoot 2HCS*MOV25B, aborted further performance of N2-OSP-HCS-SA001 to prevent further isolations and declared Recombiner "B" inoperable. ESF equipment which started earlier was secured and normal reactor building ventilation restored.

There were no components or systems which were inoperable and/or out of service which contributed to the event. No plant system or component failures resulted from the event.

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

II. CAUSE OF EVENT

The ESF actuations occurred, as designed, on a high radiation signal. 2HVR*RE14A(B) and 2HVR*RE32A(B) provide for Division I(II) above and below refueling floor radiation monitoring, respectively.

The immediate cause of the high radiation spikes in 2HVR*RE14B and 2HVR*RE32B have been attributed to electrical noise produced when throttling recombiner inlet valve 2HCS*MOV25B. (See attached electrical schematic.) The electrical noise was reflected back to emergency load center 2EJS*US3, reflected through uninterruptible power supply 2VBA*UPS2B and fed to the input power of the radiation monitors. The noise was a result of "chattering" at the contactor associated with inlet valve 2HCS*MOV25B. The cause of the contactor "chattering" has been determined to be an increased valve torque requirement since the previous torque switch setting. Per N2-OSP-HCS-SA001, Operations personnel throttled the recombiner inlet valve to bring about a desired flow rate. With the valve torque switch set low, the torque generated during normal valve movement was near valve dropout torque. Further investigation of the valve showed the torque switch was arcing and causing the contactor to rapidly drop out and then pick up again.

III. ANALYSIS OF EVENTS

In reference to both events, the secondary containment isolations and initiations of the standby gas treatment system and recirculation unit coolers are conservative actions and pose no adverse safety consequences at any reactor power level. The events did not in any way adversely affect any other safety systems nor the operators ability to achieve safe shutdown.

This event analysis is considered reportable via 10CFR50.73(a)(2)(iv), any event or condition that resulted in automatic actuation of any Engineered Safety Feature (ESF).

IV. CORRECTIVE ACTIONS

Corrective actions consist of the following:

1. Adjustment of recombiner inlet valve 2HCS*MOV25B open torque switch from a setting of 1 1/2 to a setting of 3 1/2. EP-410H, "Motor Operated Valve Setpoints and Operation Data" list the recommended torque switch setting for 2HCS*MOV25B as 1.5 and the maximum setting at 3.5.

2. Electrical preventive maintenance procedure N2-EPM-GEN-V522, "Limitorque Motor Operated Valve Testing Utilizing MOVATS-2000" has been scheduled to verify the settings of 2HCS*MOV25A and 2HCS*MOV25B. This work will be performed during the NMP2 May, 1988 outage.

3. A problem report will be submitted to Engineering to reverify the torque switch settings and calculate the recommended and maximum valve thrust.

NOTE: N2-OSP-HCS-SA001 Train "B" was performed successfully on April 21, 1988.

V. ADDITIONAL INFORMATION

Identification of Components Referred to in this LER

Component	IEEE 803 EIIS Funct	IEEE 805 System ID
Radiation Monitor	MON	VA
Reactor Building Ventilation (HVR)	N/A	VA
Standby Gas Treatment System	N/A	VA
Reactor Building	N/A	NG
Emergency Recirculation Unit	FAN	V

Component Failures - None

There have been no previous similar events. There has been an SBGTS initiation event resulting from a spurious high radiation signal. However, the cause of this event was not similar. Details can be found in LER 86-11.

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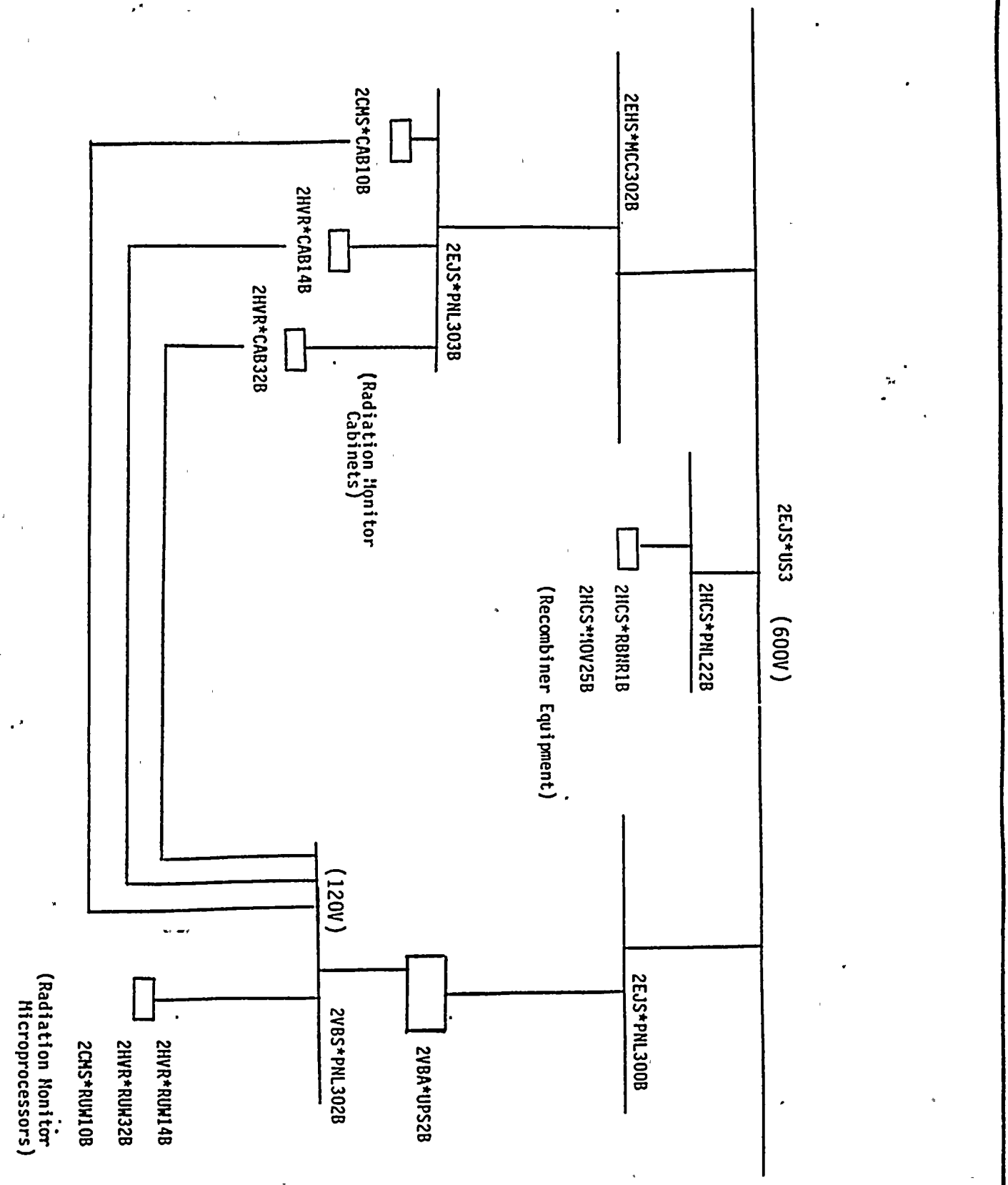
Nine Mile Point Unit 2	0 5 0 0 0 410	88	— 020	— 00	05 OF 05

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

ATTACHMENT 1



NIAGARA MOHAWK

NMP32838

NINE MILE POINT NUCLEAR STATION / P.O. BOX 32 LYCOMING, NEW YORK 13093 / TELEPHONE (315) 343-2110

May 4, 1988

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

RE: Docket No. 50-410
LER 88-20

Gentlemen:

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

LER 88-20 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 1236 hours on April 7, 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/JMT/mjd

Attachments

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

IE22
1/1