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NewYorkPower Authority

Michael J. Colomb
Site Executive Officer

March 9, 2000
JAFP-00-0065

United States Nuclear Regulatory Commission
Attn: Document Control Desk
Mail Station P1-137
Washington, D.C. 20555

Subject: **Docket No. 50-333**
LICENSEE EVENT REPORT: LER-99-008-01 (DER-99-01568)

High Pressure Coolant Injection System Declared Inoperable Due to Instrument Malfunction During Surveillance Testing

Dear Sir:

This report has been revised to reflect the results of the Equipment Failure Evaluation. Changes include additional corrective actions and reclassification of this event as not reportable under 10 CFR 50.73. This report is therefore submitted as a voluntary report.

There are no commitments contained in this report.

Questions concerning this report may be addressed to Mr. Mark Abramski at (315) 349-6305.

Very truly yours,

MICHAEL J. COLOMB

MJC:MA:las
Enclosure

cc: USNRC, Region 1
USNRC, Project Directorate
USNRC Resident Inspector
INPO Records Center

IE22

NRC FORM 366 (6-1998) U.S. NUCLEAR REGULATORY COMMISSION

LICENSEE EVENT REPORT (LER)

(See reverse for required number of digits/characters for each block)

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TITLE (4)
High Pressure Coolant Injection System Declared Inoperable Due to Instrument Malfunction During Surveillance Testing

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 NAME	DOCKET NUMBER
09	10	99	99	008	01	03	09	00	N/A	05000
									FACILITY NAME N/A	DOCKET NUMBER 05000

OPERATING MODE (9)	N
POWER LEVEL (10)	100

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)

	20.2201(b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)
	20.2203(a)(1)		20.2203(a)(3)(i)		50.73(a)(2)(ii)		50.73(a)(2)(x)
	20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71
	20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)	X	OTHER
	20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A
	20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)		

LICENSEE CONTACT FOR THIS LER (12)

NAME	TELEPHONE NUMBER (Include Area Code)
Mr. Mark Abramski, Sr. Licensing Engineer	(315) 349-6305

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX
X	BJ	XT	R369	Y					

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 15 single-spaced typewritten lines) (16)

On September 10, 1999 at 1113 hours, while performing Instrument Surveillance Procedure ISP-125B, "HPCI Auto Isolation Instrument Functional Test/Calibration (ATTS)", the High Pressure Coolant Injection (HPCI) System was declared inoperable due to an apparent failure of a Master Trip Unit (MTU) within the HPCI System's automatic isolation logic. At the time of the discovery, the plant was operating at approximately 100 percent rated power with the mode switch in the RUN position.

The equipment failure evaluation for this event concluded the cause was contamination/oxidation build-up on the master trip unit setpoint potentiometer.

Corrective Actions include a) replacing the failed MTU, b) rotating unsealed potentiometers to wipe away oxidation; and as a longer term corrective action, c) replacing unsealed potentiometers with sealed potentiometers.

This report is being submitted as a voluntary report based on the results of the Equipment Failure Evaluation.

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EVENT DESCRIPTION

On September 10, 1999 at 1113 hours while performing Instrument Surveillance Procedure ISP-125B, "HPCI Auto Isolation Instrument Functional Test/Calibration (ATTS)", the High Pressure Coolant Injection (HPCI) System [BJ] was declared inoperable due to an apparent failure of Master Trip Unit 23MTU-203B within the HPCI System's automatic isolation logic [JM]. 23MTU-203B is designed to monitor area temperature within the HPCI equipment area and provide an isolation signal to the HPCI torus suction isolation valve 23MOV-57 and a trip signal to the HPCI Turbine. At the time of the discovery, the plant was operating at approximately 100 percent rated power with the mode switch in the RUN position.

During Instrument and Controls (I&C) Department's performance of surveillance procedure ISP-125B, which includes functional testing of the Analog Transmitter Trip System Trip Functions and calibration of the Master and Slave Trip Units, 23MTU-203B failed while attempting to obtain a reset value. However, earlier in the test, 23MTU-203B did trip at the required set-point.

Control Room personnel entered T.S. Table 3.2-1, "Primary Containment Isolation System Instrument Requirements", Action Statement 3.F, which states whenever Primary Containment integrity is required and a trip function has less than the required number of operable instrument channels, isolate the affected penetration flow path(s) within one hour and declare the affected system inoperable.

Control Room personnel also entered T.S. LCO 3.7.D.2.b which states whenever primary containment integrity is required, containment isolation valves shall be operable. With one or more of the containment isolation valves inoperable, maintain at least 1 isolation valve operable in each affected penetration that is open and isolate each affected penetration within 4 hours by use of at least one deactivated automatic valve secured in the closed position. The HPCI System was declared inoperable, the appropriate HPCI system containment isolation valves were closed and deactivated, and Surveillance Test (ST) 1H, Primary Containment Valve Inoperable Test was performed.

23MTU-203B was replaced and surveillance testing was satisfactorily completed on September 10, 1999 and the HPCI system was declared operable at 1750 hours.

CAUSE OF THE EVENT

A failure evaluation determined the cause of this event was a high resistance condition in the setpoint potentiometer on the Master Trip Unit (MTU), which caused the MTU Trip Point to drift. The high resistance condition was caused by oxidation on the potentiometer windings.

The manufacturer identified this potential failure mechanism in 1988 and as a result, changed the design of these MTUs to use a sealed potentiometer which is not susceptible to this degradation mechanism. This newer design is a direct replacement for MTUs without sealed potentiometers. As an alternative to replacing older MTUs with this newer design, the manufacturer recommended that the (unsealed) potentiometers be rotated through their full range on some periodic basis to wipe the contact surface and therefore wipe away oxidation build-up. The manufacturer stated that the rate of oxidation is dependent on application environmental conditions and therefore, did not specify any time period for rotating the potentiometer through its full range.

JAF had been implementing this recommendation by rotating the MTU potentiometer around the setpoint whenever the MTU trip point required adjustment. If the MTU was checked for calibration and did not require adjustment, the potentiometer was not rotated.

ANALYSIS OF EVENT

The HPCI steam supply line is part of the primary containment boundary. The HPCI System automatic isolation logic, comprised of an "A" and "B" subsystem, initiates certain component actions when a sensed parameter reaches the appropriate setpoint. Within these parameters is high temperature in pipe routing or equipment area indicative of a steam leak or small line break. Master Trip Unit 23MTU-203B is designed to monitor area temperature within the HPCI equipment area and provide an isolation signal to the HPCI torus suction isolation valve 23MOV-57 and a trip signal to the HPCI Turbine immediately upon a high temperature signal.

Upon receiving notification from I&C technicians that the 23MTU-203B was failed, the Operators closed the isolation valves receiving an isolation signal from the inoperable MTU and declared the affected isolation valves inoperable. The HPCI System was then declared inoperable due to isolation of the torus suction path and HPCI turbine steam supply.

ANALYSIS OF EVENT (cont'd.)

The inoperability of HPCI for approximately six and one half hours was of minimal safety significance. The Automatic Depressurization System (ADS) [SB] and Reactor Core Isolation Cooling (RCIC) System [BN] were both operable and Low Pressure Emergency Core Cooling Systems (which provide core reflood and long term cooling after actuation of ADS) were also operable during the period when HPCI was inoperable.

JAF has MTUs with both unsealed and sealed potentiometers in use in the Analog Transmitter Trip System (ATTS). The ATTS is the means by which bistable actuations occur based on process variables for the Reactor Protection, Emergency Core Cooling Initiation and Primary Containment Isolation systems.

Revision 0 of this report was submitted under 10 CFR 50.73(a)(2)(v)(B) and (D). The basis for concluding that this event was reportable under this criteria was that actions required by Technical Specifications (closing containment isolation valves) rendered the HPCI system inoperable. The failure evaluation for this event determined that the degraded equipment condition would not have rendered the HPCI system inoperable because MTU-203B always tripped at or below the required setpoint.

James A. FitzPatrick is a pilot plant for the risk based regulatory process. As such, events reportable under 10 CFR 50.73(a)(2)(v) need to be evaluated to determine if they are Safety System Functional Failures (SSFFs) in the context of NEI 99-02 (Draft Rev. D). The response to Mitigating System Cornerstone Frequently Asked Question #3. In NEI 99-02 indicates that, for cases where a Technical Specification required action places a system in an inoperable status, if the system upon receipt of a demand signal, would have functioned, the condition would not constitute a SSFF. This event therefore does not constitute a SSFF and is therefore no longer considered reportable under 10 CFR 50.73(a)(2)(v). This supplemental LER is therefore being submitted on a voluntary basis as a means of documenting the cause, extent of condition and corrective action(s) for this event as well as the rational for retracting the report submitted under Revision 0 of this LER.

CORRECTIVE ACTIONS

1. 23MTU-203B was replaced, post work testing was performed, and the HPCI system declared operable. **(Complete)**

2. All unsealed MTU setpoint potentiometers will be rotated through their full range during the next scheduled surveillance test. **(Scheduled Completion: 8/1/00)**

3. All unsealed potentiometers will be replaced with sealed potentiometers. **(Scheduled Completion: 5/1/02)**

ADDITIONAL INFORMATION

Failed Components:

Component ID:	23MTU-203B
Description:	HPCI Steam Line Beak Master Trip Unit
Manufacturer:	Rosemount Inc.
Model No.:	710DU

Previous Similar Events: None

Extent of Condition: All Rosemount Model Series 510DU and early vintage Model 710DU Trip Units have unsealed potentiometers which are susceptible to this degradation mechanism.