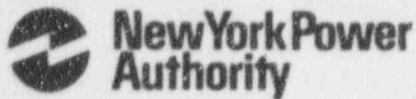


James A. FitzPatrick
Nuclear Power Plant
P.O. Box 41
Lycoming, New York 13093
315 342-3840



Harry P. Salmon, Jr.
Resident Manager

May 8, 1995
JAFP-95-0212

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

SUBJECT: DOCKET NO. 50-333
LICENSEE EVENT REPORT: LER-95-008:

High Pressure Coolant Injection System Trip on
Overspeed Due to a Procedure Deficiency

Dear Sir:

This report is submitted in accordance with 10CFR50.72
a)(2)(v).

Questions concerning this report may be addressed to
Mr. Verne Childs at (315) 349-6071.

Very truly yours,

A handwritten signature in cursive script, appearing to read 'Harry P. Salmon, Jr.', written over the printed name.

HARRY P. SALMON, JR.

HPS:VC:tlc

Enclosure

cc: USNRC, Region I
USNRC Resident Inspector
INPO Records Center

9505180148 950508
PDR ADOCK 05000333
S PDR

Handwritten initials or a signature in the bottom right corner, possibly reading 'JFP' or similar, with a date '11' written below it.

LICENSEE EVENT REPORT (LER)

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

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1)
James A. FitzPatrick Nuclear Power PlantDOCKET NUMBER (2)
05000333PAGE (3)
01 OF 06

TITLE (4) High Pressure Coolant Injection System Trip on Overspeed Due to a Procedure Deficiency

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
03	26	95	95	008	00	05	08	95	N/A	05000
									N/A	05000

OPERATING MODE (9)	N	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)	
POWER LEVEL (10)	020	20.405(a)(1)(i)		50.36(c)(1)		X 50.73(a)(2)(v)		73.71(c)	
		20.405(a)(1)(ii)		50.36(c)(2)		50.73(a)(2)(vii)		OTHER	
		20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in	
		20.405(a)(1)(iv)		50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)		Abstract below	
		20.405(a)(1)(v)		50.73(a)(2)(iii)		50.73(a)(2)(x)		and in Text,	
								NRC Form 366A)	

LICENSEE CONTACT FOR THIS LER (12)

NAME
Mr. Verne Childs, Senior Licensing EngineerTELEPHONE NUMBER (Include Area Code)
(315) 349-6071

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)

YES (If yes, complete EXPECTED SUBMISSION DATE).	X	NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
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ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

At 2325 hours on 3/26/95 while operating at 20 percent power and while conducting post-refuel outage testing, the High Pressure Coolant Injection (HPCI) turbine tripped on overspeed when a cold quick start test was attempted. Investigation revealed that the HPCI system flow controller output current limit circuit adjustment was not included in the flow controller calibration procedure.

Actual controller output current was high enough to increase the time period of controller current saturation and thus allowed turbine speed overshoot to cause overspeed trip. Immediate corrective actions included proper adjustment of HPCI system flow controller current output limit circuits. A measurement of the similar Reactor Core Isolation Cooling (RCIC) system flow controller determined the controller output current to be previously set within an allowable setting. No similar event has occurred previously. To prevent reoccurrence of this event, RCIC and HPCI flow controller calibration procedures will be revised to include output current limit circuit adjustments prior to the next scheduled controller calibration.

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TEXT CONTINUATION

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		95	008	00	

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

EIIIS Codes are in []

EVENT DESCRIPTION

On March 26, 1995, the plant was operating in the run mode at approximately 20 percent of rated thermal power while post-refuel outage and power ascension testing was being conducted.

The Automatic Depressurization System [SB] along with the Low Pressure Emergency Core Cooling Systems (Residual Heat Removal/Low Pressure Coolant Injection {RHR/LPCI} [BO] and Low Pressure Core Spray [BM]) were operable. Reactor Core Isolation Cooling (RCIC) [BN] was operable and had been tested at a reactor pressure of approximately 150 psig and again at normal operating pressure. High Pressure Coolant Injection (HPCI) [BJ] was operable after having been tested at a reactor pressure of approximately 150 psig. Preparations were being made to test HPCI at normal operating pressure.

At 1622 hours on March 26, 1995, HPCI was made inoperable to allow the connection of test equipment to monitor system response during a "cold quick start" and transient monitoring test, obtain HPCI main and booster pump differential pressure data for the Inservice Testing Program, and demonstrate rated system flow at normal reactor pressure. At 2325 hours the quick start test was initiated. The HPCI turbine accelerated to overspeed and tripped. The test was placed in a hold status to determine the cause of the overspeed trip and to determine the corrective action to be taken. The NRC Operations Center was informed via the Emergency Notification System at 0051 hours on March 27, 1995.

When the HPCI system is operating in the automatic mode of operation, HPCI turbine speed increases (or decreases) as necessary to provide a system flow which matches a preset value. This preset system flow value is system rated flow when the HPCI system is in a standby status. Under conditions where HPCI automatically starts (or under quick start test conditions which are intended to simulate automatic start conditions) it is intended that the HPCI turbine will accelerate in response to the large control signal that results from the initial actual system flow of zero compared to a flow demand of rated flow.

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As HPCI system flow increases and approaches the preset rated system flow, the difference between actual flow and flow demand approaches zero and the HPCI turbine speed stabilizes at the speed necessary to produce a system flow equal to the preset flow value. This transient process results in some "overshoot" of turbine speed due to the dynamics of the control system and requires a finite time period to achieve a stable turbine speed. The time necessary to achieve a stable turbine speed (or system flow) is dependent on a number of variables such as steam pressure, turbine governor response, and flow controller response. One factor affecting the flow controller response is the extent to which the controller is saturated due to the large difference between the actual flow at the start of the HPCI automatic start transient (zero flow) and the preset flow value (rated system flow).

During the 1994/1995 Refuel Outage, the HPCI system flow controller was replaced due to a dirty manual flow adjustment potentiometer. The replacement controller was calibrated in accordance with plant procedures. Investigation and troubleshooting of the system flow controller following the HPCI overspeed trip when the quick start test was conducted revealed that the controller amplifier current limit circuit had not been set to limit the maximum current. The maximum controller output current was found at approximately 62 milliamperes compared to approximately 50 milliamperes necessary to achieve a turbine speed that results in rated system flow. A maximum output current of 62 milliamperes results in a condition in which the controller is saturated and results in turbine speed overshoot during the startup transient greater than it would have been if the current was limited to approximately 50 milliamperes because more time is required to bring the controller out of a saturated condition.

The flow controller low and high output current limit circuits were adjusted to limit the range of current to slightly greater than the normal 10.0 to 50.0 milliamperes. The quick start test was repeated with satisfactory results and HPCI was restored to an operable status at 1700 hours on March 28, 1995. HPCI had been inoperable for a total of approximately 48.6 hours.

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

Event Cause

The event was caused by a procedure deficiency (Cause Code D). The flow controller calibration procedure did not include steps for adjustment of the low and high output current limit circuits.

Event Analysis

The forced inoperability of the HPCI system due to the overspeed trip during testing requires a report under 10CFR50.72(a)(2)(v)(B) and (D). That is, since the HPCI system is a single train safety system, the event alone could have prevented the fulfillment of the safety function of a system that is intended to remove residual heat and to mitigate the consequences of an accident.

The inoperability of HPCI for approximately 48 hours was of minimal significance. The Automatic Depressurization System (ADS) and RCIC system 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 entire 48.6 hours during which HPCI was inoperable. Operability of ADS, RCIC, core spray and RHR/LPCI was verified on a daily basis as required by Technical Specification 3.5.C.1.a.

Additional Information Concerning the Submittal of this Report

The event described above occurred on March 26, 1995. A Licensee Event Report was required to be submitted within 30 days (by April 25, 1995). At the time of the event, an internal "Deviation/Event Report" (DER-95-0688) was initiated by on-shift personnel as required by plant procedures. The on-shift personnel completed the notification of the NRC required by 10CFR50.72, informed plant management, informed the NRC Resident Inspector, and indicated that the event required submittal of an LER.

On March 27, 1995, between approximately 0600 and 0700, DER-95-0688 and several other DERs were reviewed by the Operations Review Group as part of a routine daily task of screening each DER for causal factors, assignment of actions such as a critique, and LER preparation assignment (when appropriate). The individual performing this task was aware of the planned testing of HPCI (which would not require submittal of an LER); however,

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the individual failed to note that DER-95-0688 was initiated due to the overspeed trip of HPCI during the planned testing. As a result, the individual marked the DER section concerning LER preparation as "No" (indicating no LER was required) even though on-shift personnel had indicated that an LER was required.

This error went undetected until May 1, 1995, 36 days after the event. Personnel were immediately assigned responsibility for preparation of the LER. In addition, an evaluation was initiated to: 1) determine how the error had occurred, 2) determine whether or not additional, similar errors had also occurred, and 3) determine what action might be appropriate to prevent recurrence.

The evaluation reviewed approximately 2050 DERs initiated since January 1, 1994. No additional occurrences of failing to assign action for LER (or other report) preparation were found.

Corrective Actions

1. The HPCI flow controller output current limits were adjusted to limit the saturation of the controller. Low and high current limit circuits were adjusted to limit the current to 9.5 milliamperes (low limit) and 50.5 milliamperes (high limit) compared to the normal controller output current range of 10.0 to 50.0 milliamperes. This action reduces the time required for the controller to recover from saturation and thus prevents turbine overspeed trip by limiting the speed overshoot. The HPCI system was satisfactorily retested and declared operable. A similar flow controller is used for the RCIC system. The controller output high current limit was verified to be within an allowable setting on the RCIC flow controller. (Complete)
2. Instrument maintenance procedures for calibration of the HPCI and RCIC flow controllers will be revised by including steps for adjustment of the low and high output current limit circuits. This action will prevent recurrence of the event. (Planned completion date: June 30, 1995 or prior to the next controller calibration if prior to June 30, 1995).
3. The Operations Review Group individual responsible for the reportability error has been counseled. Operations Review Group personnel have been provided lessons learned on this event to ensure all LERs determined reportable by on-shift personnel are thoroughly reviewed and any differing opinions in reportability are resolved with the responsible organization making the original determination. (Complete).

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

Additional Information:

Failed Components: General Electric (GEMAC) Type 540-01 Flow Controller

Previous Similar Events: There have not been any previous events
regarding HPCI or RCIC turbine speed control
or overspeed as a result of system flow
controller calibration deficiencies.

Attachment 1

LER-95-008

Commitment Status

Number	Commitment	Due Date
LER-95-008-01	The HPCI flow controller output current limits were adjusted to limit the saturation of the controller. Low and high current limit circuits were adjusted to limit the current to 9.5 milliamperes (low limit) and 50.5 milliamperes (high limit) compared to the normal controller output current range of 10.0 to 50.0 milliamperes. This action reduces the time required for the controller to recover from saturation and thus prevents turbine overspeed trip by limiting the speed overshoot. The HPCI system was satisfactorily retested and declared operable. A similar flow controller is used for the RCIC system. The controller output high current limit was verified to be within an allowable setting on the RCIC flow controller.	Completed
LER-95-008-02	Instrument maintenance procedures for calibration of the HPCI and RCIC flow controllers will be revised by including steps for adjustment of the low and high output current limit circuits. This action will prevent recurrence of the event.	06/30/95
LER-95-008-03	The Operations Review Group individual responsible for the reportability error has been counseled. Operations Review Group personnel have been provided lessons learned on this event to ensure all LERs determined reportable by on-shift personnel are thoroughly reviewed and any differing opinions in reportability are resolved with the responsible organization making the original determination.	Completed