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LICENSEE EVENT REPORT (LER) (See reverse for required number of digits/characters for each block)		

FACILITY NAME (1) James A. FitzPatrick Nuclear Power Plant	DOCKET NUMBER (2) 05000333	PAGE (3) 1 OF 4
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TITLE (4)
Both Trains of Core Spray Inoperable Due To Out of Tolerance Time Delay In Pump Start Interlock Relays

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
08	09	99	99	007	01	10	26	99	N/A	05000
									FACILITY NAME	DOCKET NUMBER
									N/A	05000
OPERATING MODE (9)	N		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)	100		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)	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)			<input checked="" type="checkbox"/> 50.73(a)(2)(vii)	

LICENSEE CONTACT FOR THIS LER (12)	
NAME Mark Abramski, Sr. Licensing Engineer	TELEPHONE NUMBER (Include Area Code) (315) 349-6305

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO EPIX

SUPPLEMENTAL REPORT EXPECTED (14)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE).	<input checked="" type="checkbox"/> NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On August 9, 1999, with the reactor at 100 percent power, during the performance of Surveillance Test 3J (ST-3J), it was determined that the time delay for both A and B division Core Spray pump start interlock relays exceeded the values required by Technical Specifications by 0.25 and 0.93 seconds respectively. This condition rendered both divisions of Core Spray inoperable and is therefore reportable under 10 CFR 50.73 (a) (2) (vii). The time delay settings for both A and B Core Spray pump start interlock relays were immediately recalibrated during the performance of ST-3J, which restored the operability of both A and B divisions of Core Spray. Subsequent analysis identified that the calibration tolerance, which existed in ST-3J at the time of this event, was too wide and had previously resulted in surveillance test failures due to instrument uncertainty. This analysis concluded the Residual Heat Removal pump start interlock relays are subject to this condition as well, but to a lesser degree. Additional corrective actions include developing a tighter as-left calibration tolerance for Residual Heat Removal and Core Spray pump start interlock relays and recalibrating these relays in accordance with this new tolerance as well as conducting a root cause analysis to determine why this condition was not effectively corrected at an earlier opportunity and preparing a request for an amendment to the Technical Specifications.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
James A. FitzPatrick Nuclear Power Plant	05000333	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	2 OF 4
		99	007	01	

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

EIIS Codes in []

Event Description:

On August 9, 1999, with the reactor at 100 percent power, during the performance of Surveillance Test 3J (ST-3J), it was determined that the time delay for both A and B division Core Spray [BM] pump start interlock relays exceeded the values required by Technical Specifications by 0.25 and 0.93 seconds respectively. This condition rendered both divisions of Core Spray inoperable and is therefore reportable under 10 CFR 50.73

(a)(2)(vii), "Any event where a single cause or condition caused at least one independent train or channel to become inoperable in multiple systems or two independent trains or channels to become inoperable in a single system designed to: (B) Remove residual heat".

The time delay settings for both A and B Core Spray pump start interlock relays were recalibrated during the performance of ST-3J, which restored the operability of both A and B divisions of Core Spray.

Cause:

The immediate cause of this event was an inappropriate as-left calibration tolerance for these time delay relays. Vendor data, plant specific experience and engineering analysis all confirm that the calibration tolerance, which existed in ST-3J at the time of this event, was too wide to preclude surveillance test failures due to instrument uncertainty given the current limits set forth in the Technical Specifications.

A new, narrower calibration tolerance has been established, however physically calibrating these relays to this new, very tight, tolerance represents a significant challenge. Given the significant margin available in the relevant design basis analysis, the technical Specifications are therefore considered to be overly restrictive.

The apparent underlying cause of this event was weak execution of the Corrective Action Program (Cause Code E). Prior to this event, these same devices experienced a number of surveillance test failures and corrective actions were not adequate to preclude recurrence.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
James A. FitzPatrick Nuclear Power Plant	05000333	99	007	01	3 OF 4

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

Analysis:

The function of the Core Spray Pump time delay relay(s) is to delay the start time of the Core Spray Pumps to avoid simultaneous starting of the Core Spray Pumps with other emergency power loads which could overload the Emergency Diesel Generators (EDGs) [EK]. The consequence of delaying the Core Spray pump starts by 0.25 and 0.93 seconds respectively was analyzed to determine if this condition would have impacted the operability of the EDGs or prevented the Core Spray Pumps from satisfying the assumptions made in the JAF Loss of Coolant Accident (LOCA) Analysis.

The JAF UFSAR indicates that during the Emergency Core Cooling System/EDG auto-start sequence, the Core Spray pumps are at rated speed 27 seconds after receipt of the LOCA signal. This delay accounts for the EDG start sequence as well as the Core Spray pump start time delay and Core Spray pump acceleration. The out of tolerance condition resulted in a time delay which would have resulted in the Core Spray pumps starting later in their automatic start sequence relative to the other EDG loads and therefore would not have impacted the operability of the EDGs.

The JAF LOCA Analysis assumed that the maximum allowable delay time from initiation signal to the time the Core Spray pump is at rated speed and capable of rated flow (including diesel generator start/load time) is 30 seconds. Adding 1 second to the time required for the Core Spray pumps to achieve rated speed (and therefore rated flow) as described in the UFSAR results in a composite Core Spray injection time delay of 28 seconds. This value is below (more conservative than) the value assumed in the LOCA analysis (30 sec.).

The safety significance of this event is therefore low because the system safety function would have been achieved in accordance with the assumptions made in the design basis safety analysis.

Extent of Conditions:

This condition is applicable to the Core Spray and Residual Heat Removal [BO] pump start time delay interlock relays.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET (2)	LER NUMBER (6)			PAGE (3)
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	
James A. FitzPatrick Nuclear Power Plant	05000333	99	007	01	4 OF 4

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

Corrective Actions:

ST-3J directs, that if the Core Spray pump start time delay interlock relays are found out of tolerance, that they immediately be calibrated as part of the surveillance test. This condition was therefore initially, corrected on the spot. Subsequent analysis of this event determined that the calibration tolerance, which existed in ST-3J at the time of this event, was too wide to preclude surveillance test failures due to instrument uncertainty and additional corrective actions were then identified:

1. Establish a new calibration tolerance for the Core Spray pump start time delay interlock relays. **(Complete)**
2. Establish a new calibration tolerance for the Residual Heat Removal pump start time delay interlock relays. **(Complete)**
3. Recalibrate the Core Spray pump start time delay interlock relays with the new calibration tolerance. **(Complete)**
4. Recalibrate the Residual Heat Removal pump start time delay interlock relays with the new calibration tolerance. **(Complete)**
5. Determine the root cause of the inadequate corrective action for previous ST failures. **(Scheduled Completion Date: November 1, 1999)**
6. Submit a request for amendment to the JAF Technical Specifications to widen the tolerance limits for the Core Spray and Residual Heat Removal pump start time delay interlock relays. **(Scheduled Completion Date: December 17, 1999)**

Similar Events:

None