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United States Nuclear Regulatory Commission
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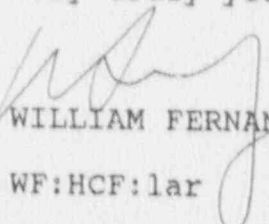
SUBJECT: DOCKET NO. 50-333
LICENSEE EVENT REPORT: 90-024-00
Partial Group II Primary
Containment Isolation

Dear Sir:

This Licensee Event Report is submitted in accordance with
10 CFR 50.73(a)(2)(iv).

Questions concerning this report may be addressed to Mr. Hamilton
Fish at (315) 349-6013.

Very truly yours,



WILLIAM FERNANDEZ

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Enclosure

cc: USNRC, Region I
USNRC Resident Inspector
INPO Records Center
American Nuclear Insurers

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) JAMES A. FITZPATRICK NUCLEAR POWER PLANT	DOCKET NUMBER (2) 0 5 0 0 0 3 3 3 9 0	LER NUMBER (6)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (IF MORE SPACE IS REQUIRED, USE ADDITIONAL NRC Form 305A's) (17)

EIIS Codes are in []

Description

The reactor was operating at full power on November 1, 1990. A high level alarm for the primary containment (drywell) equipment drain sump was received at 2332. Six minutes later, at 2338, fuse 16A-F22 opened resulting in a partial actuation of the B side of the Group II Primary Containment Isolation System (PCIS) [JM]. The partial isolation resulted in isolation of the reactor building ventilation system [VA], initiation of the B train of the Standby Gas Treatment System (SBGT) [BH], closure of the outboard containment isolation valve for the drywell floor drain [WK] sump discharge, closure of containment atmosphere sample valves, and close signals to three containment isolation valves which, because of the plant operating mode, were already closed.

The outboard containment isolation valve for the drywell equipment [WK] drain sump discharge (20AOV-95) also received a close signal. However, the solenoid for the air supply to the operator (20SOV-95) had been removed to facilitate maintenance of the operator and was not mechanically connected to the valve. The outboard valve had been manually positioned in the open position. The inboard isolation valve (20MOV-94) was in the closed position and deenergized. At 0015 on November 2, 1990, 37 minutes after the isolation, the fuse which had opened (16A-F22) was replaced. The isolation system and reactor building ventilation were reset and the standby gas treatment system was returned to standby.

Cause

The partial isolation of the B logic train of the PCIS resulted from the opening of fuse 16A-F22, as designed, due to excessive current flow. The excessive current flow resulted from a short circuit in the solenoid coil for the air supply valve (20SOV-95) for the drywell equipment drain sump discharge outboard isolation valve (20AOV-95). Solenoid damage is postulated to have been caused by high current flow in the coil caused by energizing it after the operating plunger had previously been physically removed for maintenance. This resulted in lowered impedance, current flow in excess of design, and ultimately overheating and damage to coil insulation. The plunger core and valve actuator had been removed to perform maintenance. Because of a failure to properly isolate the coil electrically prior to performing the maintenance, it was automatically energized upon receipt of a high level signal from the equipment drain sump. The failure to

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TEXT (If more space is required, use additional NRC Form 306A's) (17)

electrically isolate the coil was the result of multiple human errors during implementation of the Protective Tagging Request (PTR) procedure (WACP-10.1.2). These human errors were contributed to:

- a) unanticipated extension of the maintenance task through three shift turnovers
- b) multiple interruptions of the maintenance task to facilitate transfer of radioactive filter sludge resins through pipes near the area of valve maintenance
- c) the priorities of simultaneous evolutions to return one side of the Residual Heat Removal (RHR) [B] system to service within a Limiting Condition for Operation and a previously scheduled transfer of radioactive filter sludge, and the necessity to pump out the drywell equipment drain sump on a regular basis.

Five days prior to this event on October 26th, the containment (drywell) equipment drain sump pump discharge outboard containment isolation valve (20AOV-95) had failed a quarterly surveillance test (ST-1U). The valve failed to go fully closed when air was bled from the supply header. Air leaks were found in the supply line fittings and tightened. The valve was retested successfully. Five days later at 0400 on November 1st during an unrelaxed quarterly surveillance test (ST-1C), the valve required 0.67 seconds longer to close than the ASME Section XI (IST) acceptance criteria of less than 2 seconds. Inspection during the next (day) shift found symptoms of failure of an internal O-ring in the Xomax actuator which would require disassembly of the solenoid operated air admission valve (20SOV-95). A Protective Tagging Request (PTR) was prepared during the day shift requesting both mechanical and electrical isolation of the valve. Subsequent human errors extending over two shifts resulted in a failure to electrically isolate the solenoid. Between 1700 and 1930 the solenoid was damaged when it was energized by a high level signal from the drain sump. Although this damage was discovered around 2000, continuing human errors left the solenoid electrically connected in the PCIS circuit. The excess current draw of the coil during a subsequent high sump level at 2332 was sufficient to open the fuse in the circuit after six minutes. This caused the partial isolation of the PCIS at 2338.

Analysis

Tripping of the PCIS logic circuits is an Engineered Safety Feature Actuation [JE] and is therefore reportable under the provisions of 10 CFR 50.73(a)(2)(iv). There were no system or equipment failures (other than the initiating solenoid failure). All systems and equipment performed in accordance with design. The isolated systems were restored within 37 minutes of the isolation.

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TEXT (If more space is required, use additional NRC Form 3062's) (17)

Corrective Action

The isolation was reset. The reactor building ventilation isolation was reset. The B train of the Standby Gas Treatment System was secured. A new Protective Tagging Request (PTR) was written to lift a lead to isolate the solenoid coil.

The individuals responsible for review of this PTR discussed the significance of the event and the possible causes with the Assistant Operations Superintendent. The importance of adequate review of PTRs to maintain plant safety was emphasized. Through use of the night order book, all Operations personnel were advised of the event and reminded of the importance of thorough PTR review prior to issue. In particular, the importance of researching the connections to circuits designed as "trip circuits" and the necessity of withholding issuance of PTRs, if current evolutions did not permit sufficient time for thorough review, was emphasized. In addition, a formal human performance enhancement system (HPES) review of this event is being conducted. Other corrective action may result from this review.

Additional Information

The following LERs have elements in common with this LER:

- 89-017 PCIS isolation due to human error - not finding isolation signal present in wiring diagram during PTR review
- 89-013 PCIS isolation due to human error - electrical grounding
- 87-016 RCIC isolation due to human error - not following procedure
- 86-019 RCIC isolation due to human error - electrical grounding

Failed Component Data

Plant Component Identification: 20SOV-95(OP)
 Description: Solenoid Valve Operating Coil
 NPRDS Component Code: VALVOP
 NPRDS Vendor Code: A002
 Vendor: AAA Products
 Model: S02
 Design Current: 0.36 Amps
 Design Voltage: 120 VAC