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September 1, 1989
JAFF-89-0647

United States Nuclear Regulatory Commission
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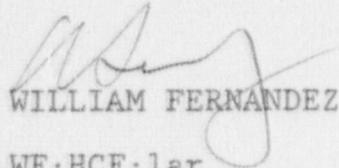
REFERENCE: DOCKET NO. 50-333
LICENSEE EVENT REPORT: 89-013-00
Partial Group II Containment
Isolation

Dear Sir:

The enclosed 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

WF:HCF:lar

Enclosure

cc: USNRC, Region I (1)
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LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) **JAMES A. FITZPATRICK NUCLEAR POWER PLANT** DOCKET NUMBER (2) **050003333** PAGE (3) **1 OF 04**

TITLE (4) **Primary Containment Purge Valves Isolated by Accidental Ground of Relay Jumper Wire Contributed to by Inadequate Work Space Due to Bad Cable Routing**

EVENT DATE (6)			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)
08	03	89	89	013	00	09	01	89			05000
THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)											

OPERATING MODE (9) N	20.402(b)	20.406(c)	<input checked="" type="checkbox"/>	60.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10) 100	20.406(a)(1)(i)	60.36(e)(1)	<input type="checkbox"/>	60.73(a)(2)(v)	73.71(e)
	20.406(a)(1)(ii)	60.36(e)(2)	<input type="checkbox"/>	60.73(a)(2)(vi)	OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.406(a)(1)(iii)	60.73(a)(2)(i)	<input type="checkbox"/>	60.73(a)(2)(vii)(A)	
	20.406(a)(1)(iv)	60.73(a)(2)(ii)	<input type="checkbox"/>	60.73(a)(2)(vii)(B)	
	20.406(a)(1)(v)	60.73(a)(2)(iii)	<input type="checkbox"/>	60.73(a)(2)(ix)	

LICENSEE CONTACT FOR THIS LER (12)
NAME **Hamilton C. Fish** TELEPHONE NUMBER **315 349-6013**

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) NO
EXPECTED SUBMISSION DATE (15) MONTH DAY YEAR

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single-space typewritten lines) (16)
EIIS Codes are in []

At 1:30 P.M. on August 3, 1989 a technician was removing a temporary bypass test jumper from a relay in accordance with an approved procedure. The relay was located in a confined space [JL]. A safety system divisional separation conduit [JL] blocked direct access to the relay. The conduit connector is joined to an adjacent divisional separation relay enclosure box. The connector and enclosure box are not insulated and are at electrical ground. One end of the jumper was connected to a contact on the relay. The other end was accidentally brushed against a conductive grounded surface. This caused the protective fuse to clear and deenergize the isolation circuit. Deenergizing the circuit caused two solenoid operated Group II primary containment purge system isolation valves [JM] to close. The fuse was replaced and the two valves reopened within fifteen minutes.

The closing of two valves, instead of only one valve, for a single fuse revealed a wiring error.

Short-term corrective action added a caution statement to the procedure and applied electrical insulating tape to the conduit connectors.

Long-term corrective action will install conveniently located remote bypass terminals for the relay. The wiring error will be corrected to provide a single fuse for each isolation valve. LER-86-014 and 86-019 share common elements with this event.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
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TEXT (If more space is required, use additional NRC Form 386A's) (17)

Description

EIIS Codes are in []

The primary containment (drywell) post accident monitoring instrumentation [IL] includes two instruments identified in Technical Specification Table 4.2-8, Item 4, as "Containment High Range Radiation Monitor 17RM-104A,B". These instruments provide analog and digital signals to the Emergency and Plant Information Computer (EPIC) [ID]. They also provide separate high radiation level trip signals to the Group II containment isolation logic circuits [JM]. Maintenance and testing of these instruments is conducted in accordance with Instrument Surveillance Procedure ISP-95, "Post Accident Containment High Range Radiation Monitor Functional Test/Calibration".

To avoid an unnecessary closing of Group II containment isolation valves during testing and calibration of the instruments, it is necessary to bypass the isolation logic relay. This is accomplished by installing a temporary jumper wire across two contacts on a relay located inside a confined space relay cabinet. This assures continuity of the isolation trip circuit.

The EPIC indicated a problem with the input signal received from the B train radiation monitor. On August 3, 1989 at 1:30 P.M. with the plant at 100% power, an Instrument and Control technician was performing maintenance to correct the problem. He was working inside of relay cabinet 27PCP [JL]. Upon completion of the maintenance he removed the jumper wire from the isolation logic relay [JM] in accordance with the approved surveillance procedure.

While he was removing the jumper wire, one end made accidental contact with a metal conduit connector to a metal box at electrical ground while the other end was still connected to the relay contact. The technician observed an arc and notified the control room. One fuse was found to have blown in the B side Group II primary containment purge isolation logic circuit and two isolation valves (recirculation system [AD] pump seal purge valve 02-2SOV-002 and traversing in-core probe system [IG] nitrogen purge [LK] valve 27SOV-001) were found in the closed (isolated) position. The fuse was replaced and the valves were opened with systems restored to service at 1:45 P.M. The duration of the isolation was about 15 minutes.

In addition to the isolation, only one valve should have closed when the fuse functioned. A wiring error was found in which the fuse for the second valve was connected in series with the first valve.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

Cause

A technician accidentally [Cause Code A] allowed a temporary jumper wire, which he was removing in accordance with an approved procedure, to contact a grounded conductive surface. Because the other end of the jumper was still connected to a relay contact, a short circuit to ground was created. This permitted excessive current flow through a fused circuit. The protective feature of the cartridge fuse functioned, isolating the circuit, and prevented damage to circuit components. The interruption of circuit continuity, caused by the fuse clearing, deenergized the Group II isolation logic relays for the solenoid operated containment isolation valves causing them to close.

The root cause of this event was the failure of the original installation design engineer or the original construction field installation supervisor to consider the need for accessibility to the relay for maintenance [Cause Code B]. Access to the lower relay connections has been blocked by a thick horizontal conduit connected by an uninsulated connector to an uninsulated metal safety divisional separation box which surrounds an immediately adjacent relay. The result is that the technician must almost work by feel to attach a jumper around the conduit to the lower contact which is not visible from the working position. There is almost no horizontal clearance between the conduit and the relay. This situation of inaccessible work space is compounded with inadequate work space because the relay is close to the floor, inches from the relay on the back wall and only 1-1/2 inches from the adjacent uninsulated box.

The use of a jumper to bypass this particular relay had previously been successfully performed many times without incident. However, the conditions of limited physical and visual access, when combined with electrically grounded surfaces within inches of the work space, significantly increase the probability for occurrence of an accidental short circuit.

Analysis

This event is considered to be reportable in accordance with 10CFR50.73(a)(2)(iv) because the isolation of two containment isolation valves is an unplanned activation of an Engineered Safety Feature (ESF).

There was no potential for any safety consequences as a result of this event. The functions of the two systems which were isolated are not related to safe shutdown or cooling of the plant. The valves performed their intended function which was to isolate process flow paths from the primary containment.

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

The TIP nitrogen purge system continuously flushes the TIP system with a supply of dry nitrogen. The dry nitrogen flow prevents potential entry of moisture laden air and removes moisture which may enter. This assures proper functioning of the TIP system lubricant. The fifteen minute isolation would have no effect on the lubricant. This system is not used during accident conditions.

The reactor recirculation pump seal purge system provides clean, demineralized water to flush the shaft seals on these pumps. The pumps are designed to function using reactor water for seal purposes. The seal purge modification is intended to extend the service life of the shaft seals. Operation of the pumps for fifteen minutes using reactor water in place of the purge water would have no effect on seal life. During accident conditions the system would be isolated.

Corrective Action

Short-Term: A caution statement with regard to grounding was added as a temporary change to ISP-95 just prior to the step which initiated the event. Electrical insulating tape was applied to the conduit connector on the "B" side and will be applied to the "A" side.

Long-Term: A modification will be made to install remote test bypass contacts in a convenient location for the two relays (A and B).

The wiring error will be corrected to remove the series connection for the fuse for the second valve. Each valve will be protected by a separate fused circuit.

Additional Information

LER-86-019 of December 10, 1986 describes an automatic isolation of the steam supply line to the Reactor Core Isolation Cooling system due to a personnel error in which a technician allowed a volt meter test lead to contact a grounded work table.

LER-86-014 of April 11, 1986 describes a reactor scram involving the use of a jumper which was attributed to an incorrect procedure compounded by an incorrect temporary change to a procedure.