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DUKE POWER

June 10, 1994

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Subject: McGuire Nuclear Station Unit 1
Docket No. 50-369
Licensee Event Report 369/94-04
Problem Investigation Process No.: 1-M94-0595

Gentlemen:

Pursuant to 10 CFR 50.73 Sections (a) (1) and (d), attached is Licensee Event Report 369/94-04 concerning reactor trip caused by the improper use of equipment. This report is being submitted in accordance with 10 CFR 50.73 (a) (2) (iv). This event is considered to be of no significance with respect to the health and safety of the public.

Very truly yours,

T.C. McMekin
T.C. McMekin

RJD/bcb

Attachment

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U.S. Nuclear Regulatory Commission
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LICENSEE EVENT REPORT (LER)

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 (MNRB) 77122 U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20545-0001 AND TO THE PAPERWORK REDUCTION PROJECT, 3150-0104, OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME(1)

McGuire Nuclear Station, Unit 1

DOCKET NUMBER(2)

05000 369

PAGE(3)

1 OF 4

TITLE(4) A Unit 1 Reactor Trip Occurred Due To The Improper Use Of Equipment

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 NAMES	DOCKET NUMBER(S)
05	12	94	94	004	00	06	10	94	N/A	05000
										05000

OPERATING MODE(9)	1	THIS REPORT IS SUBMITTED PURSUANT TO REQUIREMENTS OF 10CFR (Check one or more of the following)(11)								
POWER LEVEL(10)	100%	20.402(b)	20.405(c)	X	50.73(a)(2)(iv)	73.71(b)				
		20.405(a)(1)(i)	50.36(c)(1)		50.73(a)(2)(v)	73.71(c)				
		20.405(a)(1)(ii)	50.36(c)(2)		50.73(a)(2)(vii)					
		20.405(a)(1)(iii)	50.73(a)(2)(i)		50.73(a)(2)(viii)(A)	OTHER (Specify in Abstract below and in Text NRC Form 366A)				
		20.405(a)(1)(iv)	50.73(a)(2)(ii)		50.73(a)(2)(viii)(B)					
		20.405(a)(1)(v)	50.73(a)(2)(iii)		50.73(a)(2)(x)					

LICENSEE CONTACT FOR THIS LER(12)

NAME	R. J. Deese, Manager, McGuire Safety Review Group	TELEPHONE NUMBER	
		AREA CODE	704
			875-4065

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 fifteen single-space typewritten lines) (16)

On May 12, 1994, at 1353, Unit 1 experienced a Reactor trip. Prior to the event Unit 1 was in Mode 1 (Power Operation) at 100 percent power. The event occurred when a screwdriver rolled off a divider barrier in electrical board 1EB5, striking one or more relays in the reverse power circuitry for the Unit 1 Generator. This resulted in the opening of both Unit 1 Generator Power Circuit Breakers. A full load rejection was initiated, followed by a Reactor trip due to a Nuclear Instrumentation System Power Range High Negative Flux Rate Reactor Trip signal. This event is assigned a cause of Improper Use of Equipment because the divider barrier in an electrical panel was used as a tool rest. Corrective actions to be taken to prevent recurrence include communicating to Instrument and Electrical (IAE) personnel that divider barriers in electrical equipment are not to be used as tool rests and procedure changes to caution IAE personnel not to use divider barriers as tool rests. Unit 1 was returned to service on May 13, 1994, at 0643.

LICENSEE EVENT REPORT
(LER) TEXT CONTINUATION

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 (MNRB 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) McGuire Nuclear Station, Unit 1	DOCKET NUMBER(2) 05000 369	LER NUMBER(6)			PAGE(3)		
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		94	04	0	2	OF	4

EVALUATION:

Background

McGuire Unit 1 has numerous protective relaying schemes that serve as safeguards for various electrical equipment. Protective relaying on Unit 1 is divided into 3 zones of protection, designated as Zone G, Zone 1A, and Zone 1B. Zone G includes the Generator [EIIS:GEN], Generator bus [EIIS:BU], and Generator Power Circuit Breakers (PCB) [EIIS:52].

The protective relaying schemes for Zone G include a sequential tripping scheme utilizing reverse power relays [EIIS:32] designed to prevent Turbine [EIIS:TRB] /Generator overspeed when the unit is being shutdown under normal conditions. The scheme initiates tripping of the PCBs and the Exciter [EIIS:EXC].

Description of Event

On May 12, 1994, at 1353:25, Unit 1 was operating in Mode 1 (Power Operation) at 100 percent power when a Reactor trip occurred. At the time of the trip Instrument and Electrical (IAE) Specialist (SPC) A and B were preparing to calibrate 125 VDC Vital Instrument and Control Power (EPL) System [EIIS:EJ] battery [EIIS:BT] EVCA ground detection circuitry.

IAE SPC A and B set up a 4 foot fiberglass step ladder behind electrical board 1EB5 and placed the tools to be used (a flashlight, a roll of electrical tape, a holding screwdriver, and a flat head screwdriver) on the divider barrier on electrical board 1EB5.

IAE SPC A stepped to the door at the north end of the Control Boards [EIIS:CB] to inform the Reactor Operator At The Controls they would be receiving several alarms associated with the work on the battery EVCA ground detection circuit. IAE SPC B was standing on the first rung of the ladder, facing towards IAE SPC A, awaiting confirmation that work could begin. As IAE SPC A turned to IAE SPC B to tell him to begin, they heard a screwdriver roll off the divider barrier and strike one or more relays.

Shortly after the screwdriver impacted the relay(s), Generator PCBs 1A and 1B opened at 1353:25.473 and 474, respectively. A full load rejection was initiated at 1353:25.475.

The Unit 1 Reactor tripped on a Nuclear Instrumentation System (NIS) Power Range High Negative Flux Rate Reactor Trip at 1353:32.869. Additional Reactor trip signals were

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received for Overtemperature Delta T at 1353:34 and Steam Generator (S/G) [EIIS:SG] B low low level at 1356:06.348. The S/G B low low level signal cleared at 1401:02.677.

An Independent Review/Restart Meeting was held on May 12, 1994, at 2000 to discuss restart. No items were identified to deter restart. Unit 1 returned to service on May 15, 1994, at 0643.

Conclusion

This event is assigned a cause of Work Practices, Equipment Improperly Used. This cause is assigned because IAE SPC A and B decided to use the divider barrier on electrical board 1EB5 as a tool rest while working on the battery EVCA ground detection circuit.

Work on the battery EVCA ground detection circuit required IAE personnel to work inside the main Control Board. Due to the limited work space available behind electrical board 1EB5, IAE SPC A and B had used several measures to prevent any problems while performing the calibration of battery EVCA ground detection circuit.

Those measures included the use of a 4 foot fiberglass stepladder to provide easier access to the components to be worked on, the decision to take along as few tools as possible to complete the work, and the decision not to use tool belts, to prevent possible snagging on equipment or causing any electrical contacts. IAE SPC A was properly qualified per Employee Qualification and Training System requirements for the work being performed and IAE SPC B was working under the direction of IAE SPC A.

Neither IAE SPC A nor B actually saw the screwdriver fall or which relay(s) was struck. It is believed the screwdriver struck either relay 194G2 [EIIS:94], 194G2X, or both. This is confirmed by the events recorder.

A review of the Problem Investigation Process (PIP) database for the twenty-four months prior to this event revealed no other Reactor trips attributed to the improper use of equipment by personnel performing maintenance activities. This event is not considered to be recurring.

This event is not Nuclear Plant Reliability Data System (NPRDS) reportable.

There were no personnel injuries, radiation overexposures, or uncontrolled releases of radioactive material as a result of this event.

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CORRECTIVE ACTIONS:

- Immediate:** 1) Operations personnel implemented procedure EP/1/A/5000/01, Reactor Trip Or Safety Injection.
- Subsequent:** 1) Relays 132G2X, 194G2, and 194G2X were functionally tested, with all acceptance criteria met, under Work Order 94037273.
- Planned:** 1) IAE Management personnel will communicate to IAE personnel that divider barriers in electrical equipment are not to be used as tool rests.
- 2) IAE personnel will implement changes to procedures IP/0/A/3061/16, Rochester Instrument Ground Detector Calibration, and IP/0/A/3090/02, Instrument And Electrical Troubleshooting, to caution IAE personnel not to use divider barriers as tool rests.

SAFETY ANALYSIS:

This Reactor trip occurred following a loss of Turbine load when both Unit 1 Generator PCBs opened. The first Reactor trip signal received was for NIS Power Range High Negative Flux Rate Reactor Trip and was received before the setpoint was actually reached. The NIS Power Range High Negative Flux Rate Reactor Trip actuation prior to reaching the setpoint is a condition which was previously documented in PIP 2M-93-1339 after the Unit 2 Loss Of Offsite Power Event on December 27, 1993 (reference LER 370/93-08). The premature NIS Power Range High Negative Flux Rate Reactor Trip was conservative. Had the NIS Power Range High Negative Flux Rate Signal not been received, the Reactor trip would still have occurred due to the additional Reactor trip signals which were received.

At the time of the trip all safety systems were available and responded as expected. No Pressurizer (PZR) [EIIS:PZR] or S/G code safety valves [EIIS:RV] cycled. The PZR and S/G PORVc cycled to control primary and secondary system pressures. Both Motor [EIIS:MO] Driven (MD) Auxiliary Feedwater (CA) system [EIIS:BA] pumps [EIIS:P] started, as designed, to maintain the secondary heat sink following a low low level in S/G 1B. Primary and secondary plant parameters were at no load values within 30 minutes of the event.

The health and safety of the public were not affected as a result of this event.