Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511

914-736-8000

New York Power Authority

August 7, 1992
IP3-NRC-92-059

Docket No. 50-286
License No. DPR-64

Document Control Desk
Mail Station PI-137
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Dear Sir:

The attached Licensee Event Report LER 92-011-00 is hereby submitted in accordance with the requirements of 10CFR50.73. This event is of the type defined in the requirements per 10CFR50.73(a)(2)(i)

Very truly yours,

Joseph E. Russell
Resident Manager
Indian Point Three Nuclear Power Plant

jer/ed/rj
Attachment

cc: Mr. Thomas T. Martin
Regional Administrator
Region 1
U.S. Nuclear Regulatory Commission
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NRC Form 366
(9-83)

U.S. NUCLEAR REGULATORY COMMISSION
APPROVED OMB NO. 3150-0104
EXPIRES: 8/31/88

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1)	DOCKET NUMBER (2)	PAGE (3)
Indian Point Unit 3	0 5 0 0 0 2 8 6	1 OF 0 5

TITLE (4) #32 EDG Inoperable at Cold Shutdown Due to Disconnected Wire on Undervoltage Relay Circuit

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)
0 7	0 6	9 2	9 2	— 0 1 1 —	0 0	0 8	0 7	9 2		0 5 0 0 0
										0 5 0 0 0

OPERATING MODE (9): N

POWER LEVEL (10): 0

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR § (Check one or more of the following) (11)

	20.402(b)		20.405(c)		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)		OTHER (Specify in Abstract below and in Text, NRC Form 366A)
	20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		
	20.405(a)(1)(iv)	X	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	TELEPHONE NUMBER	
	AREA CODE	
Edward Diamond, Senior Plant Engineer	9 1 4	7 3 6 1 8 0 4 5

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)		EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO				

ABSTRACT (Limit to 1400 spaces, i.e., approximately fifteen single space typewritten lines) (16)

On July 1, 1992, with the reactor at cold shutdown, instrumentation and controls (I&C) technicians performing a surveillance test found that relay protection for 480 volt bus 5A did not respond as expected. The I&C technicians discovered a wire physically in place, but not making full electrical contact in the 480 volt bus 5A interlocking relay circuits. They reconnected the wire and the relay protection system was retested satisfactorily. On July 6, 1992 a technical review of this event determined that the electrically disconnected wire had made emergency diesel generator (EDG) 33 inoperable. During the period of inoperability, other EDGs had been removed from service for maintenance, causing the number of operable EDGs to decrease below the minimum of two required by Technical Specifications. The event did not affect decay heat removal capability. The suspected cause of the event was contractor electricians working in the area and inadvertently bumping an adjacent wire. The root cause of the event was a procedural insufficiency. Corrective action will be to provide a precaution and limitation in work package step lists.

DESCRIPTION OF THE EVENT

On July 1, 1992, with the reactor at cold shutdown, instrumentation and controls (I&C) technicians performing 3PT-M62, Revision 7, "Undervoltage/Degraded Grid Protection System Functional," found that the undervoltage/degraded grid protection associated with 480 volt bus 5A did not respond as expected. Upon investigation, the I&C technicians discovered that wire 5A-N1, while physically in its proper location, was not properly connected to its terminal on six and one-quarter ampere fuse, FU 1971. The electrically disconnected wire deenergized portions of the 480 volt bus 5A interlocking relay circuits. The wire provides the negative leg of the 125 volt DC control power circuit to the 480 volt bus 5A interlocking relay circuits. Working under work request 92-0630-04, the I&C technicians reconnected the wire. The undervoltage/degraded grid protection system subsequently retested satisfactorily.

INVESTIGATION OF THE EVENT

At 1100 hours on July 6, 1992 a technical review of this event determined that the electrically disconnected control power wire would have prevented emergency diesel generator (EDG) 33 (EG) (A152) (ALCO Model No. 251E16MS) from automatically starting and tying into 480 volt bus 5A during an undervoltage or degraded grid condition. Therefore, 33 EDG was inoperable during the period that the 5A-N1 negative control power wire was electrically disconnected.

The last verification of proper operation of the 480 volt bus 5A undervoltage and degraded grid relays was during the last performance of 3PT-M62, Revision 7, "Undervoltage/Degraded Grid Protection System Functional," on June 19, 1992.

On June 24, 1992 contractor electricians worked in the cabinet containing the 480 volt bus 5A interlocking relays (switchgear #31, compartment 25H) installing modification number 89-03-231 CVCS, "Charging Pump SI Lockout Elimination." While the modification did not directly affect wire 5A-N1, it is suspected that the electricians bumped or disturbed wire 5A-N1. The electricians involved have left employment at the site and are not available for questioning. The 5A-N1 wire is multi-stranded, and the wire termination does not use a crimp-on connector. The

fuse holder's terminal strip has a compression-type termination that captures wires under a metal plate compressed by a screw. A review of in-house experience revealed this to be an isolated incident. A review of industry experience revealed similar problems of wires being pulled from compression-type, clamp-down terminations.

CAUSE OF THE EVENT

The suspected cause of the event was the contractor electricians working in the confines of the 480 volt bus 5A interlocking relay cabinet (switchgear #31, compartment 25H) bumping or disturbing wire 5A-N1.

The root cause of the event was a procedural insufficiency. While addressed in the pre-job briefing, the work step list did not alert the craftsmen to use caution while working in the field on or near safety-related equipment. The work step list also did not advise the craftsmen to report any possible inadvertent damage imparted to adjacent equipment to their supervisor.

CORRECTIVE ACTIONS

The immediate corrective action was to reconnect the disconnected negative leg control power wire to the terminal on the fuse holder.

Satisfactory completion of 3PT-M62, Revision 7, "Undervoltage/Degraded Grid Protection System Functional," on July 1, 1992 verified the operability of all 480 volt bus undervoltage and degraded grid circuits.

Long term corrective actions will be to insert a precaution and limitation in work step lists prepared for use by contractor craftsmen. The precaution and limitation will alert the craftsmen to review their work area before starting work, use caution around safety-related equipment, and report unintentional interactions with adjacent equipment to their supervisor.

ANALYSIS OF THE EVENT

This event is reportable under 10 CFR 50.73(a)(2)(i)(B), the plant was operated in a condition prohibited by the facility's Technical Specifications. Technical Specification 3.7.F.4 requires a minimum of two EDGs operable at all times, including cold shutdown. It is not known when, the wire 5A-N1 became electrically disconnected. Surveillance test 3PT-M62, Revision 7, "Undervoltage/Degraded Grid Protection System Functional," verified operability of the relays on June 19, 1992 at 1500 hours. The undervoltage/degraded grid protection system was returned to service at 0930 hours on July 1, 1992.

During the period of #33 EDG's inoperability #31 EDG or #32 EDG were, at various times, inoperable. Considering the time that the EDGs were out of service, Indian Point Three was operated at cold shutdown for a maximum of three days, eleven hours and thirty-five minutes with less than two EDGs operable. As previously noted, this is contrary to the facility's Technical Specifications.

During the times that less than the minimum two EDGs were operable, the following conditions mitigated the problem:

1) #33 EDG could have been manually started and tied-in from its local control station.

2) The 480 volt buses were continuously energized from offsite via 138KV feeder 95331.

3) Offsite power was also available from 13.8KV feeders 13W92 and 13W93.

4) The "Appendix R" diesel generator was available as an additional onsite power source.

No similar LERs have been reported to date.

SAFETY SIGNIFICANCE

The event did not effect public health or safety. Although the plant was operated outside Technical Specifications for a maximum time of three days, eleven hours and thirty-five minutes, this event did not affect decay heat removal because normal offsite power was available. Had a loss of offsite power occurred while two EDGs were inoperable, a full train of components necessary for decay heat removal was immediately available, powered by the operable EDG.

SECURING FROM THE EVENT

I&C technicians reconnected the wire 5A-N1 on July 1, 1992. The undervoltage/degraded grid protection system subsequently retested satisfactorily. The plant remained at cold shutdown throughout the event.