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

914-736-8000

New York Power Authority

November 22, 1989
IP3-89-084

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 89-014-00 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 Russell
Resident Manager
Indian Point Three Nuclear Power Plant

WB/rj
Attachment

cc: Mr. William Russell
Regional Administrator
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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 4

TITLE (4)

Crosswiring of Steam Generator Pressure Transmitters

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 5 0 0 0
1 0	2 1	8 9	8 9	0 1 4	0 0	1 1	2 2	8 9		0 5 0 0 0

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11)			
N		20.402(b)	20.405(c)	50.73(a)(2)(iv)	73.71(b)
POWER LEVEL (10)		20.405(a)(1)(i)	50.36(c)(1)	50.73(a)(2)(v)	73.71(c)
0 0 0		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)	X 50.73(a)(2)(i)	50.73(a)(2)(viii)(A)	
		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	TELEPHONE NUMBER
William Booth	AREA CODE 9 1 4 7 3 6 - 8 0 4 6

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	
A	S B	P T	F 1 8 0	Y							

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 October 21, 1989 at 1400 hours with the reactor in cold shutdown, Instrument and Control (I&C) technicians were replacing steam generator pressure transmitter amplifiers. During the replacement, they discovered that 31 and 33 steam generators Channel 2 transmitter outputs were crosswired. The root causes for this event have been identified as engineering design and personnel errors. These errors were the result of a fault in the modification drawing and poor communication during the performance of the modification retest. Corrective actions for this event included a revision to correct the drawing and restoration of the wiring to the correct configuration. In order to improve the modification process, the Power Authority began developing Modification Control and Design Control manuals in 1988. These manuals are now in their last stage of development. The Authority is also developing an Operations Directive to improve communication methods. Management has also formed a committee to identify errors in work processes affecting modification and maintenance and recommend solutions.

DESCRIPTION OF THE EVENT

On October 21, 1989 at 1400 hours, with the Reactor (RX) in cold shutdown, the Instrument and Control (I&C) Department was in the process of replacing a steam generator (SG) Pressure Transmitter (PT) Amplifier when a technician discovered that the pressure signal injected into 31 SG Channel 2 pressure transmitter was indicating on 33 SG Channel 2 pressure indicator. The I&C Department inspected the wiring terminal block and found 31 and 33 SG pressure transmitter outputs crosswired. The wires were reconnected to the proper terminal points, the instruments retested and then returned to normal operation.

INVESTIGATION OF THE EVENT

A modification involving replacement of transmitters with upgraded Environmentally Qualified (EQ) transmitters had been completed during the recent Cycle 6/7 Refueling and SG Replacement Outage. During the investigation, I&C and Technical Services identified that the drawing used to conduct the modification was incorrect. The individual designing the modification made a mistake when laying out the modification sketch. The error was not recognized because the designer did not compare the modification sketch with the pre-modification drawing.

The retest was reviewed and found to be adequate. One step of the procedure requires that a signal be injected into the transmitter and that the reading be observed on the associated control room indicator to ensure continuity. Miscommunication during the initial retest between I&C personnel in the field and Operations personnel in the control room prevented identification of the miswiring.

Since the problem was not identified until October 21, 1989, the plant was above cold shutdown for 121 days outside the confines of Technical Specifications with less than the specified minimum degree of redundancy for the Steam Generator Differential Pressure Safety Injection protective function.

CAUSE OF THE EVENT

The root cause of this event is identified as an inadequately performed modification because of the following personnel errors:

1. The modification drawing was incorrect and

2. Miscommunication undermined the effectiveness of the retest.

CORRECTIVE ACTIONS

This event is being analyzed along with others that occurred following the SG replacement outage by a committee consisting of personnel from departments involved in modifications, maintenance and testing. The committee meetings are currently conducted under the guidelines established by the NYPA Employee Involvement program. The meetings are conducted by a facilitator and participants analyze the information and recommend solutions based on their collective knowledge and experience. Solutions will be presented to plant management for implementation. As of November 20, 1989, this process is continuing. Areas under evaluation include, but are not limited to:

* The modification process: design and performance
* The Quality Assurance process
* The retest program following modifications and maintenance
* The installation process

In 1988, IP-3 began developing Modification Control Manuals (MCMs) and Design Control Manuals (DCMs).

The purpose of the MCM is to provide a control procedure for accomplishing modifications.This includes control of Engineering Change Notices (ECNs), Conceptual Design Packages (CDPs), Nuclear Safety and Environmental Evaluations (NSEs), Installation Requirements, drawings, setpoints, Minor Modifications, Design Document acceptance, modification close-out, and procurement.

The purpose of the DCM is to to establish a generic approach to the performance of detailed engineering and designs in order to insure that correct engineering is performed in the support of modifications or analysis of plant systems at Indian Point III.

These manuals are in the last stages of development.

To address the miscommunications problem, an Operations Directive (OD) is being developed to provide guidance and policy on methods of formal and accurate communication.

As an immediate corrective action, I&C tested every transmitter, replaced during the outage to meet the EQ concern, from transmitter junction box to control room indication, to ensure that no further crosswiring conditions existed. None were found.

The Technical Services Department is reviewing all modifications installed during the Cycle 5/6 and 6/7 refueling outages for design errors. No errors have been identified so far.

ANALYSIS OF THE EVENT

This event is reportable under 10CFR50.73(a)(2)(i)(B), "any operation or condition prohibited by the plant's Technical Specifications". The plant operated for 121 days with less than the minimum degree of redundancy listed in table 3.5-3 as required by Technical Specification 3.5.3.

Since only one channel was affected, the remaining two channels were available to provide the safety injection function had a high differential pressure between main steam lines actually existed. Therefore, the plant was not operating in an unanalyzed condition.

SECURING FROM THE EVENT

Following identification of the crosswired condition, the pressure transmitter outputs were correctly rewired on October 21, 1989. The plant remained at cold shutdown for 100 hours of planned corrective maintenance following a reactor trip on October 19, 1989.