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

914-736-8000

**New York Power Authority**

March 26, 1993
IP3-NRC-93-024

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 93-009-00 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)(B).

Very truly yours,

William A. Josiger
Resident Manager
Indian Point Three Nuclear Power Plant

waj/bjr/rj
Attachment

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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 6 |

TITLE (4) Incorrect Operability Criteria for the RWST Due to Not Combining Loop Inaccuracies

| 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 |
| 0 4 | 2 3 | 9 0 | 9 3 | 0 0 9 | 0 0 | 0 3 | 2 6 | 9 3 | | 0 5 0 0 0 |

| OPERATING MODE (9) | N | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | |
|---|---|---|---|---|---|
| POWER LEVEL (10) | 1 0 0 | 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) | 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 |
|---|---|
| Bryan J. Ray, OERG Manager | AREA CODE 9 1 4 7 3 6 8 0 4 3 |

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 January 28, 1993 a QA audit identified a non-compliance associated with surveillance test operability criteria for the refueling water storage tank low level alarms. Combined inaccuracies of the transmitter and bistables were not factored into the surveillance test operability criteria. A review of surveillance tests conducted from April 23, 1990 through December 22, 1992 identified three tests that had two alarms not satisfying the required revised "as-found" operability criteria. Including instrument inaccuracies, one test had an alarm that did not satisfy the "as-left" operability criteria The tests were properly performed as written. The cause of the event was the engineers that developed the operability criteria of the original surveillance test in 1975 did not combine inaccuracies of a transmitter and bistables in an alarm circuit. Accuracy calculations identified the three "as-found" and one "as-left" conditions. A contributing cause was an incorrect revision to the operability criteria in 1989 due to a personnel error. The criteria did not ensure operability of the required number of alarms circuits. Corrective actions include evaluating the adequacy of the instruments to provide for the specification, revising the surveillance test operability criteria, and reviewing a sample of similar surveillance tests for instrument inaccuracy concerns and multiple mode changes.

## DESCRIPTION OF THE EVENT

On January 28, 1993, with the plant at full power, the Quality Assurance (QA) Department conducted an audit of the surveillance testing program and identified a non-compliance associated with the operability criteria for the refueling water storage tank (RWST)(TK)(BP) low level alarms.

The Indian Point 3 (IP3) technical specification section 3.3.A.3.k requires two RWST low level alarms to be operable and set to alarm between 98,100 gallons and 100,850 gallons of water in the tank prior to exceeding 350 degrees F in the reactor coolant system. One RWST low level alarm is required to be operable prior to exceeding 200 degrees F in the reactor coolant system.

The two redundant RWST low level alarms signal operators to transition from the injection to the recirculation phase of safety injection. The alarms annunciate in the IP3 control room.

Two independent circuits provide for the RWST alarms. One circuit includes a level transmitter and two bistables aligned in parallel, which actuate a single alarm. The other circuit is a level indicating switch which actuates a second alarm.

The transmitter is LT-920 (LT)(BP) (Foxboro model E11GM)(F180). The two bistables are LC-920A and LC-920B (LC)(BP) (Foxboro model M/63U-BC-OHCA-F)(F180). The level indicating switch is LIC-921 (LIC)(BP)(Barton)(288A). Procedure 3PT-SA33, "Refueling Water Storage Tank Lo-Lo Level Instrumentation System Check and Calibration", tests the performance of these circuits.

The QA audit identified the combined inaccuracies of the transmitter and bistables were not factored into the surveillance test operability criteria. On August 30, 1989, the operability criteria was revised incorrectly to require one of three instruments (920A, 920B, or 921) be within tolerance rather than requiring that the two alarm channels be operable. The test performers properly performed the tests as written.

The Technical Services Department reviewed the surveillance data dating back to April 23, 1990. Considering inaccuracies, they concluded that three "as-found" and one "as-left" data sets did not satisfy the required operability criteria. The "as-left" condition resulted in an alarm being outside the operability criteria from April 23, 1990 through July 10, 1990.

## INVESTIGATION OF THE EVENT

The original operability criteria for the RWST low level alarm test was developed in 1975. The reason for not combining inaccuracies due to the transmitters and bistables into the operability criteria appears to be the engineers assumed the inaccuracies were factored into the setpoint. The basis for the technical specifications states the specified quantities of water for the RWST include inaccuracies (1406 gallons) in the alarm setpoint. If substantiated, a supplemental LER will be submitted.

On August 30, 1989 calibration procedure 3PC-R10, "Refueling Water Storage Tank Level Calibration", was replaced by surveillance test 3PT-Q67. While developing the operability criteria for 3PT-Q67, the technician referenced the wrong section of technical specifications. The technician used the 200 degrees F, rather than the 350 degrees F specification. The review process or subsequent revisions did not identify the error.

Indian Point 3 has had three previous similar Licensee Event Reports (LERs). These LERs were the result of the RWST low level alarms not satisfying the "as-found" operability criteria as follows:

| LER | DATE | INSTRUMENT AS-FOUND | | |
|---|---|---|---|---|
| | | LT-920 | LC-920A | LIC-921 |
| 78-018 | 8/18/78 | | Low | |
| 87-007 | 6/5/87 | High | | High |
| 89-005 | 4/7/89 | Low | | High |

Corrective actions were to recalibrate the instruments and increase the frequency for calibration. The frequency was increased from a refueling frequency to quarterly in 1989. After five consecutive successful tests, the frequency was changed to semi-annual. The corrective actions did not include performing a loop calculation. The calculation would have considered the combined effects of transmitter and bistable inaccuracies.

## CAUSE OF THE EVENT

The cause of not combining inaccuracies of transmitter and bistables has not been determined.

The cause of incorrect operability criteria for the number of instruments within tolerance was a personnel error by a technician due to inattention to detail. The technician incorrectly entered a 200 degrees F technical specification requirement as the operability criteria in the surveillance test. The correct criteria was the 350 degrees F specification.

A contributing cause was inadequate review of the procedure. The review process did not identify the error.

## CORRECTIVE ACTIONS

Corrective actions to prevent recurrence of the event follow:

1. The current "RWST Lo-Lo Level Instrumentation System Check and Calibration", Procedure 3PT-SA33, will be revised to include the correct operability requirement. This action will be completed prior to exceeding cold shutdown.

2. The surveillance frequency for this test will be changed from semi-annual to quarterly. This action will be completed prior to exceeding cold shutdown.

3. A technical review of a sample of similar surveillance procedures for instrument inaccuracy concerns will be completed prior to the plant exceeding the cold shutdown condition.

4. A complete review of surveillance tests of the RWST low level alarms dating back to 1975 will be accomplished by April 30, 1993. If the results of this review indicate additional non-compliance, they will be reported in a supplemental Licensee Event Report.

5. The individual that inadvertently entered the incorrect operability criteria in 1989 will be counseled on the importance of attention to detail.

6. By April 30, 1993, technical specifications will be reviewed to identify components or instruments that have multiple mode change requirements. A review of the surveillance test operability criteria associated with these components will be conducted prior to implementing the test.

7. The investigation to determine the reason for not combining the bistable and transmitter inaccuracies in the original operability criteria will continue. A supplemental LER will be forwarded if required.

## ANALYSIS OF THE EVENT

This event is reportable under section 10CFR50.73(a)(2)(i)(B) of the regulations wherein any operation or condition prohibited by the plant's technical specifications shall be reported. Technical specification 3.3.A.3.k. requires that both RWST low level alarms be operable before the reactor coolant system Tavg exceeds 350 degrees F.

Technical Services has reviewed the last seven completed RWST low level alarm surveillance tests from April 23, 1990 through December 22, 1992 and identified that three "as-found" and one "as-left" data sets did not satisfy the technical specification operability criteria. The "as-left" data reflects that the instrument did not meet the technical specification requirements. This was due to not combining the inaccuracies of transmitters and bistables in the alarm circuits. This non-conformance has existed from April 23, 1990 to July 10, 1990. The review of the remainder of the test performed will be completed by April 30, 1993.

## SAFETY SIGNIFICANCE

This event did not affect the health and safety of the public.

The inoperable level alarms during the design basis accident would not have affected the Final Safety Analysis Report results.

The purpose of this alarm is to alert the reactor operator to begin transferring the safety injection (SI) system from the injection mode to the recirculation mode. This transfer is a manual operator action that is controlled by the emergency operating procedures EOPs. The four cases that were outside the correct acceptance criteria would have alarmed early.

This potentially could result in the transfer starting before the last approximately 16,000 gallons of RWST (246,000 gallons required) water entered the containment. However, the EOPs ensure that an adequate amount of water has entered the containment by means of alternate indication, specifically the containment building water level. The EOPs direct for verification of the containment building water level.

## PREVIOUS EVENTS

LER 78-018; LER 87-007; LER 89-005

The corrective actions from these LERs did not address performing a loop calculation which would have prevented this event.

## SECURING FROM THE EVENT

The RWST low level alarms will be verified operable prior to exceeding 350 degrees F in the reactor coolant system.