

Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511
914 739.8200



January 15, 1991
IP3-91-008

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 91-002-00 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,

A handwritten signature in dark ink, appearing to read "J. Russell", written over the typed name.

Joseph Russell
Resident Manager
Indian Point Three Nuclear Power Plant

WH/rj
Attachment

cc: Mr. Thomas T. Martin
Regional Administrator
Region 1
U.S. Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, Pennsylvania 19406

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Suite 1500
1100 Circle 75 Parkway
Atlanta, Georgia 30339

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Handwritten initials in the bottom right corner, possibly "F22" with a vertical line below it.

LICENSEE EVENT REPORT (LER)

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| FACILITY NAME (1) Indian Point Unit 3 | DOCKET NUMBER (2) 0 5 0 0 0 2 1 8 6 | PAGE (3) 1 OF 0 4 |
|--|--|----------------------|

TITLE (4)
Emergency Generator Operability Concerns Following Modification

| 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) | | | | | | | | | | |
| 1 | 2 | 0 | 0 | 5 | 9 | 0 | 9 | 1 | 0 | 0 | 2 | 0 | 0 | 0 | | | 0 | 5 | 0 | 0 | 0 |
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|---------------------------|---|------------------|----------------------|--|--|--|--|--|--|--|
| 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) 0 0 0 | 20.402(b) | 20.405(c) | 50.73(a)(2)(iv) | 73.71(b) | | | | | | |
| | 20.405(a)(1)(i) | 50.38(c)(1) | 50.73(a)(2)(v) | 73.71(c) | | | | | | |
| | 20.405(a)(1)(ii) | 50.38(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) | | | | | | | | |

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|--|--|--|--|--|--|--|-----------------------|--|--|
| LICENSEE CONTACT FOR THIS LER (12) | | | | | | | | | |
| NAME William Hamlin, Plant Engineer | | | | | | | TELEPHONE NUMBER | | |
| | | | | | | | AREA CODE | | |
| | | | | | | | 9 1 4 7 3 6 8 1 0 4 8 | | |

| 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 | | |
| B | E | K | P | S | U | 0 | 7 | 5 | | Y | | |
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|---|--|--|--|--|--|--|--|--|--|-------------------------------|-----|------|
| SUPPLEMENTAL REPORT EXPECTED (14) | | | | | | | | | | EXPECTED SUBMISSION DATE (15) | | |
| <input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) <input checked="" type="checkbox"/> NO | | | | | | | | | | MONTH | DAY | YEAR |
| | | | | | | | | | | | | |

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

On December 5, 1990, during the cycle 7/8 refueling outage, control power fuses for 32 emergency diesel generator blew. Thirty-three (33) emergency diesel generator was out of service for the installation of a modification. This put the plant in a condition where it did not meet the minimum Technical Specifications requirement that two of three emergency diesel generators be operable for all plant conditions. The blown fuse problem was caused by the installation of an improperly sized jacket water pressure switch (JWPS). A modification was designed and installed which resolved the problem. All three diesel generators were returned to operable status on December 9, 1990.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

DESCRIPTION OF THE EVENT

On December 5, 1990, at 0040 32 emergency diesel generator became inoperable while 33 emergency diesel generator was out of service. This condition placed the plant outside the Technical Specification 3.7.F.4, which requires as a minimum, two of three emergency diesel generators be operable during all modes of plant operation.

INVESTIGATION OF THE EVENT

In August of 1990, the three (3) emergency diesel generators were modified to permit operation at a higher service water temperature limit. During the retest phase of this modification, jacket water pressure switches (JWPS) did not reset properly after the jacket water systems were filled (LER 90-005).

These switches provide for actuation of the generator field flashing relays once the engine is up to speed, since the jacket water pump is driven by the engine crankshaft. The field flash relays are normally deenergized by the generator voltage regulator feedback signal. If the JWPSs did not reset, the field flash relays would be reenergized providing an overcurrent condition for the control circuit fuses after the engine is shut down.

The jacket water pressure switches do not have an adjustable reset pressure. The switches were calibrated for an actuating pressure of 8 psig +/- 2 psig. Settings at the low end of the acceptable range could have resulted in a reset pressure below the static head of the jacket water system. This is what did occur during the jacket water system fill procedure in the August event (LER 90-005).

The JWPS setpoints were revised (8 psig +/- .5 psig) to ensure reset pressure greater than the static head of the system. The JWPSs were evaluated and determined to be adequate to meet the requirements of the system as installed with the setpoints modified. After consideration the Authority decided to upgrade the JWPSs with a switch with a narrower reset band. This would provide additional margin above the static head and therefore increased system reliability.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

During the cycle 7/8 refueling outage and with the plant at cold shutdown, a modification replacing the jacket water pressure switches was installed to enhance the operation of the emergency diesel generator (DEM-90-03-197).

On December 5, 1990, 32 emergency diesel generator experienced blown control power fuses due to overcurrent. Testing determined that the replacement jacket water pressure switches did not have adequate direct current contact capacity for this application. This caused the switches to weld closed, keeping the generator field energized until the control power fuse blew.

At this time 31 emergency diesel generator was operable and in automatic, and 32 emergency diesel generator remained fully capable of operation in manual. Since 33 emergency diesel generator was out of service for installation of the modification at this time, the plant was in a condition where it did not meet the Technical Specification requirements of having two "operable" diesel generators during cold shutdown.

The Authority notified the NRC at 0100 hours on December 6, 1990, of emergency diesel generator inoperability.

Subsequently a second modification was designed and installed (MMP-90-03-312EDG) in all three diesel generator control circuits. This modification installed an interposing relay in the field flash circuit which limits the DC current thru the JWPS contacts to a value less than the design rating of the contacts.

CAUSE OF THE EVENT

The emergency diesel jacket water pressure switch had inadequate direct current carrying capacity. The root cause of this event was determined to be insufficient engineering research. The switches were ordered to match the nameplate rating of the switch which did not include the DC current carrying capacity.

LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

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

CORRECTIVE ACTIONS

- 1) The Authority engineered and completed a new modification of the emergency diesel generator control circuit to provide additional assurance of jacket water pressure switch reliability. This modification installed an intermediate relay between the jacket water pressure switch and the field flash circuit which reduces the direct current on the switch contacts to a value within the rating of the switch contacts.
- 2) The malfunctioning jacket water pressure switches were replaced.
- 3) A full functional test was performed on each emergency diesel generator to verify operability.
- 4) The Authority made the design engineers aware of this event and reaffirmed the necessity to evaluate direct current contact capacity independent of alternating current ratings.

ANALYSIS OF THE EVENT

This event is reportable under 10CFR50.73(a)(2)(i)(B), in that two of three emergency diesel generators could not conservatively be considered operable; therefore, technically the plant could not meet the Technical Specification requirement 3.7.F.4. The Authority had one diesel generator in auto and one emergency diesel generator capable of manual operation which could have provided emergency power during the time of suspect operability. The Authority additionally had available offsite power supplying safety buses during the event period. The plant was in the cold shutdown condition during this event.

SECURING FROM THE EVENT

On December 9, 1990, at 0425 hours, all three emergency diesel generators were verified operable.