

Indian Point 3
Nuclear Power Plant
P.O. Box 215
Buchanan, New York 10511
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May 30, 1989
IP3-89-043

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 89-010-00 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)(ii).

Very truly yours,


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

ED/rj
Attachment

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

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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 1 6 | PAGE (3) 1 OF 0 4 |
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TITLE (4)
Emergency Diesel Generator Loading Analysis Outside Design Basis

| 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 8 | 8 9 | 8 9 | 0 1 0 | 0 0 0 | 0 5 | 3 0 | 8 9 | | | 0 5 0 0 0 |

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| OPERATING MODE (8) N | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more of the following) (11) | | | | | | | | | |
| POWER LEVEL (10) 0 1 0 0 | <input type="checkbox"/> 20.402(b) | <input type="checkbox"/> 20.405(c) | <input type="checkbox"/> 50.73(a)(2)(iv) | <input type="checkbox"/> 73.71(b) | | | | | | |
| | <input type="checkbox"/> 20.405(a)(1)(i) | <input type="checkbox"/> 50.38(c)(1) | <input type="checkbox"/> 50.73(a)(2)(v) | <input type="checkbox"/> 73.71(c) | | | | | | |
| | <input type="checkbox"/> 20.405(a)(1)(ii) | <input type="checkbox"/> 50.38(c)(2) | <input type="checkbox"/> 50.73(a)(2)(vii) | OTHER (Specify in Abstract below and in Text, NRC Form 366A) | | | | | | |
| | <input type="checkbox"/> 20.405(a)(1)(iii) | <input type="checkbox"/> 50.73(a)(2)(i) | <input type="checkbox"/> 50.73(a)(2)(viii)(A) | | | | | | | |
| | <input type="checkbox"/> 20.405(a)(1)(iv) | <input checked="" type="checkbox"/> 50.73(a)(2)(ii) | <input type="checkbox"/> 50.73(a)(2)(viii)(B) | | | | | | | |
| <input type="checkbox"/> 20.405(a)(1)(v) | <input type="checkbox"/> 50.73(a)(2)(iii) | <input type="checkbox"/> 50.73(a)(2)(x) | | | | | | | | |

LICENSEE CONTACT FOR THIS LER (12)

| | |
|---|--|
| NAME Edward Diamond, Senior Plant Engineer | TELEPHONE NUMBER AREA CODE: 9 1 4 7 3 1 6 8 1 0 4 5 |
|---|--|

COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

| CAUSE | SYSTEM | COMPONENT | MANUFAC-TURER | REPORTABLE TO NPRDS | CAUSE | SYSTEM | COMPONENT | MANUFAC-TURER | REPORTABLE TO NPRDS |
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SUPPLEMENTAL REPORT EXPECTED (14)

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|--|--|-------------------------------|-------|-----|------|
| <input type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE) | <input checked="" type="checkbox"/> 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 April 24, 1989, with the reactor defueled for a steam generator replacement outage, the New York Power Authority received information from Consolidated Edison of New York regarding emergency diesel generator loading. Preliminary results obtained from an emergency diesel generator analysis at Indian Point 2 indicated that under certain circumstances loads could exceed the two hour emergency rating of 1950 kilowatts. Westinghouse was retained to perform a comparable survey for Indian Point 3, and a similar problem was revealed. The root cause has been attributed to improvements in safety analysis methodology. The corrective action will be to provide updated emergency and system operating procedures providing specific operator actions to preclude overloading of the emergency diesel generators for all loss of offsite power scenarios. Appropriate engineering analyses will be performed to support the procedure updates, which shall be in place prior to the end of the current outage.

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| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | | |
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TEXT (If more space is required, use additional NRC Form 366A's) (17)

DESCRIPTION OF THE EVENT

On April 24, 1989, with the reactor defueled for a steam generator replacement outage, the New York Power Authority received information from Consolidated Edison of New York (Con Ed) regarding emergency diesel generator (EDG) loading. Preliminary results obtained from an EDG analysis at Indian Point 2 (IP2) indicated that under certain circumstances loads could exceed the two hour emergency rating of 1950 kilowatts (KW). Due to similarities in engines, generators, and electrical distribution systems at Indian Point 3 (IP3), Westinghouse was retained to perform a comparable survey for Indian Point 3. On May 8, 1989 a similar problem was revealed. Specifically, for a design basis loss of coolant accident (LOCA) scenario requiring the recirculation phase of safety injection (SI), with a postulated single failure, allowable components out of service, concurrent with a loss of offsite power, the EDGs would be overloaded for short periods, less than five minutes, during the recirculation switchover sequence. This is contrary to assumptions made in the IP3 Final Safety Analysis Report (FSAR).

INVESTIGATION OF THE EVENT

Subsequent investigation of the event revealed that the EDG loading analysis conducted in 1970 did not take into account dynamic loading effects. That is, recirculation load calculations were based on the final, static loads obtained at the end of the recirculation switchover, and not the loading during actual equipment sequencing. Furthermore, the synergistic effects of multiple pumps operating on a system were not evaluated.

The load studies being conducted in 1989 are reviewing the actual loading sequence. The total EDG load is analyzed as each component is energized or deenergized. The characteristics of parallel centrifugal pump operation have also been incorporated into the current analyses.

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

Operating procedures in use since plant startup have cautioned operators not to exceed either the EDG continuous rating of 1750 KW or the emergency rating of 1950 KW. Operator intervention would have precluded EDG overload had the situation arisen.

CAUSE OF THE EVENT

The following root cause was determined from the investigation of the event:

The initial EDG loading analysis conducted in 1970 calculated recirculation loads as static values. Improved safety analysis methodology employed in 1989 evaluates the loads dynamically, as they are sequenced on or off.

CORRECTIVE ACTIONS

As a result of this event emergency and system operating procedures are being developed to provide a means of establishing the recirculation phase of SI without exceeding the 1950 KW emergency rating of EDGs. Specifically, procedure ES-1.5, "Cold Leg Recirculation Without Offsite Power", will be a new procedure that will utilize the existing recirculation switches, in order, but bypassing switches that would result in EDG overload. Equivalent manual actions will be provided. In addition, the motor-driven auxiliary boiler feed pumps (ABFPs) will be shut down prior to the transition to recirculation. If a LOCA has occurred there is little need for auxiliary feedwater, as decay heat is being removed by the recirculation flow. The turbine-driven ABFP is available if auxiliary feedwater is deemed necessary.

Procedure SOP-EL-15, "Resetting of Non-Safeguards Equipment During SI With Loss of Offsite Power", will provide directions for reestablishing non-safeguards equipment without overloading the EDGs. Additionally, existing procedures will be revised as necessary. The procedure changes will be in place prior to heatup in preparation to returning the unit to service from the current outage.

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TEXT (If more space is required, use additional NRC Form 368A's) (17)

ANALYSIS OF THE EVENT

This event is being reported pursuant to 10CFR50.73 (a)(2)(ii)(B), a condition outside the design basis of the plant. FSAR LOCA scenarios require the capability to establish the recirculation phase of SI without exceeding the emergency load capacity of the EDGs, given the following conditions:

- o A postulated single component failure
- o Technical Specifications components allowed to be out of service for indefinite periods of time
- o Loss of offsite power

Operating procedures in use since startup at IP3 have cautioned the operator not to exceed the 1750 KW continuous and 1950 KW emergency load ratings of the EDGs. Operator intervention would have precluded any EDG overload had the situation arisen. In addition, IP3 has had, since 1985, an additional non-safety related EDG available to provide power to any deenergized 480V bus. Therefore, it is concluded that the level of safety of the plant was not degraded.

SECURING FROM THE EVENT

Corrective action will be accomplished via revision of EOPs and the creation of two new procedures to specifically address the EDG overloading concerns. Procedure revisions and new procedures are to be in place prior to the unit being returned to service from the current outage. No similar events or LERs have occurred or been reported to date.