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FACIL:50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana & 05000315
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SUBJECT: LER 89-006-00:on 890405,ECCS flow balance out of spec.
W/8 ltr.

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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) |
|---|---|---|
| D. C. Cook Nuclear Plant, Unit 1 | 0 5 0 0 0 3 1 5 | 1 OF 0 3 |

TITLE (4)
ECCS Flow Balance Out of Specification

| 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 4 | 0 5 | 8 9 | 8 9 | 0 0 6 | 0 0 | 0 4 | 2 8 | 8 9 | | 0 5 0 0 0 |
| | | | | | | | | | | 0 5 0 0 0 |

| OPERATING MODE (9) | 6 |
|---|---|
| POWER LEVEL (10) | 0 0 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) | 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 |
|---|---|
| | AREA CODE |
| T. K. Postlewait - Technical Engineering Superintendent | 6 1 6 4 6 5 - 5 9 0 1 |

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 April 5, 1989, with Unit 1 in Mode 6 (refueling) during flow balance testing of the North Safety Injection (SI) Pump, the flow rates were found to exceed Technical Specification 4.5.2.H allowable flow. The combined flow to the reactor coolant loops was 644 GPM (gallons per minute), which exceeded the Technical Specification limit of 640 GPM.

No cause, other than normal system fluctuations combined with standard Instrument/Measurement error could be identified. The flow control values were adjusted to meet the required flows.




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| FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (6) | | | PAGE (3) |
|---|---|---|---|---|---|
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | |
| D. C. Cook Nuclear Plant, Unit-1 | 0 5 0 0 0 3 1 5 | 8 9 | — 0 0 6 | — 0 0 | 0 2 OF 0 3 |

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

Description of Event:

On April 5, 1989, with Unit 1 in Mode 6 (refueling) during flow balance testing of the North Safety Injection (SI) Pump, the flow rates were found to exceed Technical Specification 4.5.2.H requirement. This Technical Specification limits the combined SI System (EIIS:BQ) flow to the loops be less than 640 gpm (gallons per minute). The as found flows for the North Safety Injection Pump were found to be 639.1 gpm. Following recalibration of the test instrumentation, a recalculation of the flow data was performed to account for instrument inaccuracies. The actual flows were calculated to be 322.3 gpm to loops 1 and 4 and 321.7 gpm to loops 2 and 3, for a total flow to the loops of 644 gpm.

Cause of Event

No cause, other than normal system fluctuations combined with standard instrument/measurement error could be identified. The Technical Specification limits are considered to be very tight and the system fluctuations due to such factors as internal hydraulics and instrument tolerances are felt to be responsible for the small deviations from one surveillance period to another.

Analysis of Event

The position of the throttle valves (EIIS:FCV) would have resulted in reduced safety injection flow had a break occurred in the loop with the highest flow. This would have increased the peak clad temperature for a small-break loss-of-coolant accident (LOCA). (The large-break LOCA analysis is only slightly affected because SI flow is a small fraction of the total).

It is judged that the effect on the peak clad temperature for a small-break LOCA would have been minimal, and the peak clad temperature limit of 2200 degrees Fahrenheit, specified in 10 CFR 50.46 would not have been exceeded. This judgement is based on the fact that the deviation from the Technical Specification value of 640 gpm for four loops was exceeded by 0.6 percent and there is a large margin between the peak clad temperature calculated for a small-break LOCA, approximately 1427 degrees Fahrenheit, and the 10 CFR 50.46, limit of 2200 degrees Fahrenheit.

A run out condition of the pumps would not have been expected to occur as a result of the flow imbalance because the total measured flow was 0.6 percent above the maximum Technical Specification value for the safety injection flow.

Based on the above, it is believed that there would have been no adverse impact on the health and safety of the public.

| FACILITY NAME (1) | DOCKET NUMBER (2) | LER NUMBER (6) | | | PAGE (3) |
|---|---|---|---|---|---|
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | |
| D. C. Cook Nuclear Plant, Unit-1 | 0 5 0 0 0 3 1 5 | 8 9 | — 0 0 6 | — 0 0 | 0 3 OF 0 3 |

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

Corrective Actions

The flow control values were adjusted so that the North safety injection pump flows to the reactor coolant loops are within the requirements of Technical Specification 5.4.2.H. As-left flows were 310.8 gpm to loops 1 and 4 and 312.6 gpm to loops 2 and 3; for a total flow to the RC loops of 623.4 gpm.

The Technical Specification Limit concern will be integrated into our Technical Specification upgrade program.

Previous Similar Events

050-316/86-12



*U.S. GPO: 1988-520-56[illegible]

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616 465 5901

AEP
INDIANA
MICHIGAN
POWER

April 28, 1989

United States Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Operating License DPR-58
Docket No. 50-315

Document Control Manager:

In accordance with the criteria established by 10 CFR 50.73 entitled Licensee Event Reporting System, the following report is being submitted:

89-006-00

Sincerely,

W. G. Smith, Jr.
Plant Manager

WGS:clw

Attachment

cc: D. H. Williams, Jr.
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