



A General Energy Company

EDISON PLAZA
300 MADISON AVENUE
TOLEDO, OHIO 43652-0001

AB-92-042
NP-33-92-006

Docket No. 50-346

License No. NPF-3

August 20, 1992

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

Gentlemen:

LER 92-006
Davis-Besse Nuclear Power Station, Unit No. 1
Date of Occurrence - July 23, 1992

Enclosed please find Licensee Event Report 92-006, which is being submitted to provide 30 days written notification of the subject occurrence. This LER is being submitted in accordance with 10 CFR 50.73(a)(2)(i).

Very truly yours,

Louis F. Storz
Plant Manager
Davis-Besse Nuclear Power Station

LFS/ed

Enclosure

cc: Mr. A. Bert Davis
Regional Administrator
USNRC Region III

Mr. William Levis
DB-1 NRC Sr. Resident Inspector

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LICENSEE EVENT REPORT (LER)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Davis-Besse Unit No. 1 DOCKET NUMBER (2) 0 5 0 0 0 3 4 6 PAGE (3) 1 OF 0 4
TITLE (4) Deficient RPS Calibrating Procedures

| 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) |
| 07 | 23 | 92 | 92 | 006 | 00 | 08 | 20 | 92 | | 0 5 0 0 0 |
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THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5. (Check one or more of the following) (11)

| | | | | |
|-------------------------------|--|--|---|--|
| OPERATING MODE (9) <u>11</u> | <input type="checkbox"/> 20.402(b) | <input type="checkbox"/> 20.405(e) | <input type="checkbox"/> 50.73(a)(2)(iv) | <input type="checkbox"/> 73.71(b) |
| POWER LEVEL (10) <u>11010</u> | <input type="checkbox"/> 20.405(a)(1)(i) | <input type="checkbox"/> 50.36(e)(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"/> 50.36(e)(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 checked="" 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 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)(ix) | |

LICENSEE CONTACT FOR THIS LER (12)

| | |
|---|--------------------------------|
| NAME | TELEPHONE NUMBER |
| <u>Mark A. Turkal, Engineer - Nuclear Licensing</u> | <u>411 9 312 111-1713 1717</u> |
| AREA CODE | |

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

| CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NRCDS | CAUSE | SYSTEM | COMPONENT | MANUFACTURER | REPORTABLE TO NRCDS |
|-------|--------|-----------|--------------|---------------------|-------|--------|-----------|--------------|---------------------|
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| | | | | | | | | | |

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE) NO

EXPECTED SUBMISSION DATE (15)

| | | |
|-------|-----|------|
| MONTH | DAY | YEAR |
| | | |

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

On July 23, 1992 at 1124 hours, with the plant in Mode 1 at 100 percent power, four instances were identified where the Allowable Value of the trip setpoint for the Technical Specification (TS) Table 2.2-1, Item 8, "High Flux/Number of Reactor Coolant Pumps (RCPs) On" trip function was exceeded without entering the appropriate action statement.

Common circuitry exists between the TS Table 2.2-1, Item 2, "High Flux" trip function; the TS Table 2.2-1, Item 4, "Flux/Delta Flux/Flow" trip function; and the High Flux/Number of RCPs On trip function. The procedures used to calibrate these trip functions do not properly account for this commonality. As a result, a non-conservative High Flux/Number of RCPs On trip function setpoint may not be promptly detected.

On July 23, 1992, a review of testing data for each channel of the High Flux/Number of RC Pumps On trip function was completed. It was determined that no TS violations of the Allowable Value for the trip setpoint currently existed.

Procedure changes to prevent this condition from recurring will be completed prior to the next required quarterly calibration of each channel.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555 AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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| PLANT NAME (1) Davis-Besse Unit No. 1 | DOCKET NUMBER (2) 0 5 0 0 0 3 4 6 9 2 | LER NUMBER (6) | | | PAGE (3) 0 2 OF 0 4 |
| | | YEAR | SEQUENTIAL NUMBER | REVISION NUMBER | |
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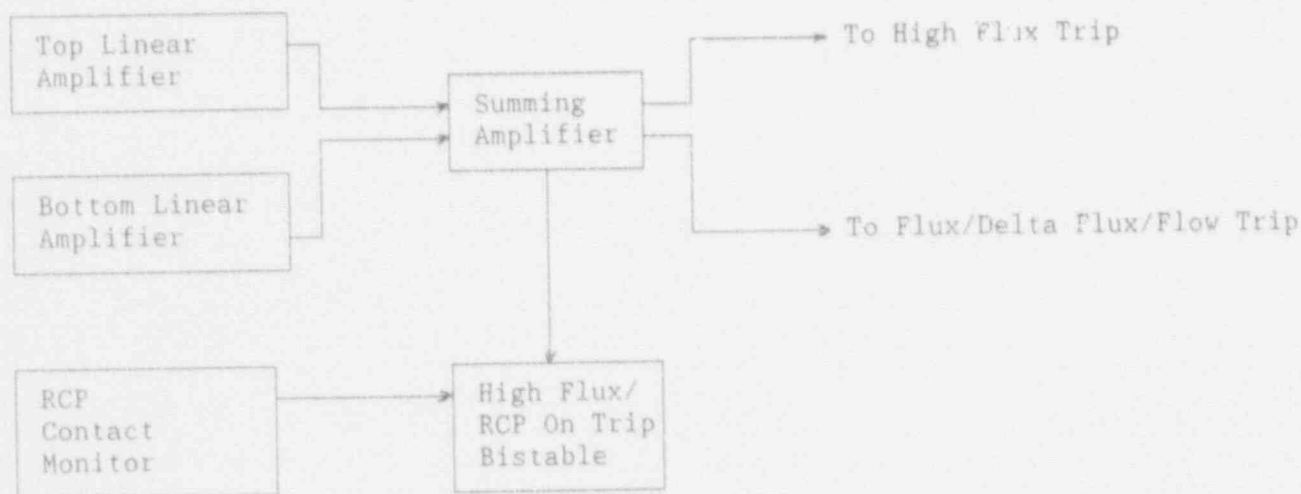
TEXT (If more space is required, use additional NRC Form 366A's) (17)

Description of Occurrence:

On July 23, 1992 at 1124 hours, with the plant in Mode 1 at 100 percent power, four instances were identified where the Allowable Value of the trip setpoint for the Technical Specification (TS) Table 2.2-1, Item 8, "High Flux/Number of Reactor Coolant Pumps (RCPs) On" trip function was exceeded without entering the appropriate action statement. This condition was discovered during a review of Reactor Protection System (RPS-JC) testing data.

Common circuitry, consisting of the Top Linear Amplifier, the Bottom Linear Amplifier, and the Summing Amplifier provides input to the High Flux/Number of RCPs On trip function, the TS Table 2.2-1, Item 2, "High Flux" trip function, and the TS Table 2.2-1, Item 4, "Flux/Delta Flux/Flow" trip function. Figure 1 provides a simplified schematic of the affected circuitry.

Figure 1



TS Table 4.3-1 requires quarterly calibration of the High Flux and the Flux/Delta Flux/Flow trip functions and an 18-month calibration of the High Flux/Number of RCPs On trip function. The existing procedures require the circuitry common to all three trip functions to be calibrated quarterly. The High Flux/Number of RCPs On trip function is not functionally tested during the quarterly tests. This testing scheme may allow non-conservative values of the High Flux/Number of RCPs On trip setpoint to go undetected.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST 50.3 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATES TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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| Davis-Besse Unit No. 1 | 0500034692 | — | 006 | — | 00 | 03 OF 04 |

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

Description of Occurrence (Continued):

A review of RPS test data from January 1988 to present identified four instances where the TS Allowable Value trip setpoint for a single channel of the High Flux/Number of RCPs On trip function was non-conservative. These occurred on April 3, 1989, June 19, 1989, August 21, 1989, and February 11, 1991. Based on "as found" testing data from June 19, 1989 and February 11, 1991 it can be concluded that the High Flux/Number of RCPs On trip setpoint was exceeded, however, calibration adjustments made on those same days corrected the non-conservative trip setpoint. "As left" data from April 3, 1989 and August 21, 1989 indicate that the setpoint for the High Flux/Number of RCPs On trip function was slightly non-conservative, however, functional testing performed on May 1, 1989 and September 18, 1989 was completed satisfactorily.

This event is being reported in accordance with 10 CFR 50.73(a)(2)(i)(B) as a condition prohibited by Technical Specifications since the appropriate action statement was not entered for the out-of-tolerance channel.

Apparent Cause of Occurrence:

The apparent cause of this event can be attributed to deficiencies in the procedures used for calibrating the High Flux, the Flux/Delta Flux/Flow, and the High Flux/Number of RCPs On trip functions. These procedures do not properly account for the impact that adjustments and instrument drift of the circuitry common to all three trip functions may have on the High Flux/Number of RCPs On trip function setpoint.

Quarterly calibration of the High Flux and the Flux/Delta Flux/Flow trip functions, including the circuitry common to all three trip functions, is performed in accordance with procedures DB-MI-03057 through DB-MI-03060. Eighteen-month calibration of the High Flux/Number of RCPs On trip function is performed in accordance with DB-MI-03025 through DB-MI-03028. While this surveillance scheme meets the TS requirements of Surveillance Requirement 4.3.1.1.1, Table 4.3-1, it does not ensure that functional testing of the High Flux/Number of RCPs On trip function is performed before and after adjustments are made to the common circuitry during quarterly calibrations of the High Flux and the Flux/Delta Flux/Flow trip functions.

In addition, the acceptance criteria for the Contact Monitor output voltages in DB-MI-03025 through DB-MI-03028 do not properly account for instrument drift which may occur in the Top Linear Amplifier, the Bottom Linear Amplifier, the Summing Amplifier, and the High Flux/RCP On Trip Bistable. Had a proper Contact Monitor setpoint been established, none of the four identified non-conservative setpoints would have occurred.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 600 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (F-630), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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| FACILITY NAME (1) Davis-Besse Unit No. 1 | DOCKET NUMBER (2) 0 5 0 0 0 3 4 6 9 2 | LER NUMBER (6) | | | PAGE (3) | |
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TEXT (If more space is required, use additional NRC Form 386A's) (17)

Analysis of Occurrence:

This event is of minimal safety significance. As previously stated, a review of RPS test data from January 1988 to present identified only four instances where the TS Allowable Value trip setpoint for the High Flux/Number of RCPs On trip function was exceeded. At no time, was more than one of the four channels in excess of TS limits.

The affected portion of the High Flux/Number of RCPs On trip function provides a reactor trip if reactor power is greater than 0 percent and two RCPs are lost in a single loop. In each of the four identified instances, the TS Allowable Value trip setpoint was exceeded by less than 0.2 percent of rated thermal power. Therefore, with reactor power above 0.2 percent of rated thermal power the channel would function properly.

Corrective Actions:

On July 23, 1992, a review of the most recent test data of each channel of the High Flux/Number of RCPs On trip function was completed. It was determined that no TS violations currently exist.

On July 24, 1992, prior to quarterly calibration of channel 2 of the High Flux and the Flux/Delta Flux/Flow trip functions, functional testing was performed on channel 2 of the High Flux/Number of RCPs On trip function. The July 24, 1992 calibration data was reviewed to ensure that the High Flux/Number of RCPs On trip function setpoint remained within TS limits.

Industry notification of this issue was made on August 18, 1992 via INPO Nuclear Network.

Plant procedures DB-MI-03057 through DB-MI-03060, governing quarterly calibration of the High Flux and the Flux/Delta Flux/Flow trip functions, will be revised to incorporate calibration of the High Flux/Number of RCPs On trip function and procedures DB-MI-03025 through DB-MI-03028 will be canceled. The High Flux/Number of RCPs On trip function will be calibrated quarterly in conjunction with calibration of the other two trip functions. These procedure revisions will be completed prior to the next required quarterly calibration for each channel. In addition, to properly account for instrument drifts, the Contact Monitor output voltages acceptance criteria will be revised.

Failure Data:

Previous reports involving inadequate procedures for safety system testing are LER 91-004, Deficient Reactor Protection System Response Time Surveillance Testing and LER 91-001, Monthly Functional Test of Reactor Trip Module Logic Did Not Verify All Combinations.

NP 33-92-06

PCAQR 92-0302