NRC FORM 366 (5-92) U.S. NUCLEAR REGULATORY COMMISSION

APPROVED BY OMB NO. 3150-0104
EXPIRES 5/31/95

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 50.0 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (MNBB 7714), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555-0001, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

# LICENSEE EVENT REPORT (LER)

| FACILITY NAME (1) | DOCKET NUMBER (2) | PAGE (3) |
|---|---|---|
| Dresden Nuclear Power Station, Unit 2 | 05000237 | 1 OF 4 |

TITLE (4)
250V ESF Battery Not Tested As Required By Technical Specifications Due to Changes in Battery Loading Not Being Reflected in the Service Testing

| 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 NAME | DOCKET NUMBER |
| | | | | | | | | | Dresden Unit 3 | 05000249 |
| 11 | 11 | 96 | 96 | -- 019 -- | 00 | 12 | 10 | 96 | FACILITY NAME | DOCKET NUMBER |

| | | THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11) | | | | | |
|---|---|---|---|---|---|---|---|
| OPERATING MODE (9) | N | | 20.2201(b) | | 20.2203(a)(3)(i) | | 50.73(a)(2)(iii) | | 73.71(b) |
| POWER LEVEL (10) | 097 | | 20.2203(a)(1) | | 20.2203(a)(3)(ii) | | 50.73(a)(2)(iv) | | 73.71(c) |
| | | | 20.2203(a)(2)(i) | | 20.2203(a)(4) | | 50.73(a)(2)(v) | | OTHER |
| | | | 20.2203(a)(2)(ii) | | 50.36(c)(1) | | 50.73(a)(2)(vii) | | (Specify in Abstract below and in Text, NRC Form 366A) |
| | | | 20.2203(a)(2)(iii) | | 50.36(c)(2) | | 50.73(a)(2)(viii)(A) | | |
| | | | 20.2203(a)(2)(iv) | X | 50.73(a)(2)(i) | | 50.73(a)(2)(viii)(B) | | |
| | | | 20.2203(a)(2)(v) | | 50.73(a)(2)(ii) | | 50.73(a)(2)(x) | | |

LICENSEE CONTACT FOR THIS LER (12)

| NAME | TELEPHONE NUMBER (Include Area Code) |
|---|---|
| J. Coyle, System Engineer Ext. 2337 | (815) 942-2920 |

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 |
|---|---|---|---|---|---|---|
| X | YES (If yes, complete EXPECTED SUBMISSION DATE). | NO | | 02 | 28 | 97 |


ABSTRACT (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

During an Independent Safety Inspection conducted by the NRC, it was identified that the 250 VDC System design load profile was incorrectly modeled for the actuation of several Motor Operated Valves (MOVs). Though modeled as starting at separate times, testing revealed overlap of starting currents. The model was revised to show simultaneous starts resulting in a higher peak current during battery loading. Both Unit 2 and 3 250V Batteries were affected.

Technical Specifications require the batteries to be tested to verify that capacity is adequate to supply emergency loads for the design duty cycle when the battery is subjected to a service test. Contrary to this, the most recent testing for the Unit 2 and Unit 3 250V Batteries did not account for a load profile representative of the associated MOVs starting simultaneously.

A battery capability analysis determined that battery capacity was adequate. Since the Unit 2 Battery service test did not account for the expected loading, the Unit 2 250V Battery was declared inoperable at 1810 hours on November 11, 1996.

The 250V Batteries provide DC power to emergency loads in the opposite unit. Since Unit 3 was in cold shutdown, several Unit 3 DC components were placed out of service to reduce the projected load on the Unit 2 250 Battery. The Unit 2 250V Battery was declared operable at 1824 hours on November 11, 1996.

PLANT AND SYSTEM IDENTIFICATION

General Electric - Boiling Water Reactor - 2527 MWt rated core thermal power.

Energy Industry Identification System (EIIS) codes are identified in the text as [XX] and are obtained from IEEE Standard 805-1984, IEEE Recommendation Practice for System Identification in Nuclear Power Plants and Related Facilities.

EVENT IDENTIFICATION:

250V ESF Battery not tested as required by Technical Specifications due to changes in battery loading not being reflected in the service testing.

A. PLANT CONDITIONS PRIOR TO EVENT:

Unit: 2(3) Event Date: 11/11/96 Event Time: 1810

Reactor Mode: N(N) Mode Name: Run(S/D) Power Level: 97(0)

Reactor Coolant System Pressure: 980(0) psig

B. DESCRIPTION OF EVENT:

This issue is reportable pursuant to 10CFR50.73 (a)(2)(i)(B) which requires that the licensee report any operation or condition prohibited by the plant's Technical Specifications. The 250V ESF Battery [EJ] was determined to have not been tested in accordance with Technical Specification 3/4.9 surveillance requirements.

During an Independent Safety Inspection conducted by the NRC, it was identified that the 250 VDC System design load profile was incorrectly modeled for the actuation of several Motor Operated Valves (MOVs) associated with the High Pressure Coolant Injection system. The MOVs had been modeled as starting at separate times but a review of testing revealed overlap of starting currents. The model was revised to show simultaneous starts resulting in a higher peak current during the first minute of battery loading. Both Unit 2 and 3 250V Batteries were affected.

Technical Specifications require the batteries to be tested to verify that capacity is adequate to supply emergency loads for the design duty cycle when the battery is subjected to a service test. Contrary to this, the most recent testing for the Unit 2 and Unit 3 250V Batteries did not account for a load profile representative of the associated MOVs starting simultaneously.

A battery capability analysis was performed, with the results showing that the batteries could sustain the larger peak current during the first minute, and still supply their design load profiles for the remainder of the required four hour period. An evaluation of the Unit 3 250V Battery showed that its most recent service test was more demanding than the new design load profile. The evaluation for the Unit 2 Battery determined that the most recent service test did not account for the expected loading. Since the capacity had not been verified by test, the Unit 2 250V Battery was declared inoperable at 1810 hours on November 11, 1996.

The 250V Batteries provide DC power to normal operating loads in their associated unit and to emergency loads in the opposite unit. Since Unit 3 was in cold shutdown, several Unit 3 HPCI valves and the Aux. Oil Pump were placed out of service. This action reduced the projected load on the Unit 2 250 Battery below the value simulated in its most recent service test. The Unit 2 250V Battery was declared operable at 1824 hours on November 11, 1996.

No structures, systems, or components were inoperable at the start of or during this event which could have contributed to the event. In addition, no manual or automatic engineered safety feature (ESF) [JE] actuation occurred as a result of this event.

C. CAUSE OF EVENT:

A review of actual equipment operating times measured during VOTES testing indicated that the inrush current peaks from several motor operated valves overlapped, rather than being sequential, as the model assumed. The previous model of equipment operating times which was used to determine load profiles at the time of the last battery service test took credit for relay operating times which were found to be subsequently less than assumed values.

The cause of this event will be determined and reported in a supplement to this report. Preliminary investigation indicates a programmatic deficiency (Cause Code E) in the failure to revise test procedures to reflect field test data.

D. SAFETY ANALYSIS:

The safety significance of this event is minimal, given that the capacity of the 250V Station Batteries has been calculated to be adequate for the maximum load sequence. No event occurred which required the full loading of 250V Station Batteries.

E. CORRECTIVE ACTIONS:

1. Immediate actions were to removed loads from the unit 2 battery in order to bring the analytical load profile to a value within the values tested during the last service test. This action allowed the battery to be declared operable. (Complete)

2. Restore Unit 3 HPCI battery loads to service while maintaining the Unit 2 battery surveillances within the parameters tested as required by Technical Specifications prior to Unit 3 startup from the current outage. (2371809601901)

3. A review will be performed of all 125Vdc and 250Vdc battery calculations to determine if any similar situations exist. (2371009620100)

4. A supplement to this LER will be initiated to describe why the load profile did not contain the available VOTES testing information that identified the various HPCI MOV's as operating simultaneously. (2371809601902)

F. PRIOR SIMILAR OCCURRENCES:

A review of prior LERs was conducted for significant similar issues related to station batteries or programmatic breakdowns of this nature. No similar issues were identified.

G. COMPONENT FAILURE DATA:

Not Applicable.