

### LICENSEE EVENT REPORT

CONTROL BLOCK: \_\_\_\_\_ (1) (PLEASE PRINT OR TYPE ALL REQUIRED INFORMATION)

0 1 N E F C S 1 2 0 0 - 0 0 0 0 0 - 0 0 0 3 4 1 1 1 1 1 4 5  
7 8 9 14 15 25 26 30 57 CAT 58  
 LICENSEE CODE LICENSE NUMBER LICENSE TYPE

CON'T  
 0 1 REPORT SOURCE L 6 0 5 0 0 0 2 8 5 7 0 4 0 5 8 3 8 0 4 1 1 9 8 3 9  
7 8 60 61 68 69 74 75 80  
 DOCKET NUMBER EVENT DATE REPORT DATE

EVENT DESCRIPTION AND PROBABLE CONSEQUENCES (10)

0 2 The Technical Specification heatup and cooldown curves in use since December, 1979  
 0 3 were found to be 12<sup>0</sup> non-conservative with respect to the licensing basis under which  
 0 4 these curves were approved. However, subsequent Charpy data on weld material demon-  
 0 5 strates that the curves have always been at least 10<sup>0</sup> conservative and heatups and  
 0 6 cooldowns since December, 1979 would not have exceeded actual NDT limits.

0 9 SYSTEM CODE CAUSE CODE CAUSE SUBCODE COMPONENT CODE COMP. SUBCODE VALVE SUBCODE  
9 10 11 12 13 18 19 20  
 C A A F V E S S E L L A Z  
 17 LER/RO REPORT NUMBER EVENT YEAR SEQUENTIAL REPORT NO. OCCURRENCE CODE REPORT TYPE REVISION NO.  
21 22 23 24 26 27 28 29 30 31 32  
 8 3 - 0 0 3 / 0 1 T - 0  
 ACTION TAKEN FUTURE ACTION EFFECT ON PLANT SHUTDOWN METHOD HOURS ATTACHMENT SUBMITTED NPRD-4 FORM SUB. PRIME COMP. SUPPLIER COMPONENT MANUFACTURER  
33 34 35 36 37 40 41 42 43 44 47  
 X Z C Z 0 0 0 Y N Z Z 9 9 9

CAUSE DESCRIPTION AND CORRECTIVE ACTIONS (27)

1 0 The bases for the baseline curve information supplied in 1979 were inadequately de-  
 1 1 fined. As a result, the curves were improperly applied and requirements of Branch  
 1 2 Technical Position MTEB 5-2 were not met. The power escalation in progress at time of  
 1 3 discovery was stopped until corrected curves were supplied to the plant and operating  
 1 4 data since 1979 was reviewed to ensure corrected limits had not been exceeded. (See  
 Attachment 2 for more information.)

1 5 FACILITY STATUS % POWER OTHER STATUS METHOD OF DISCOVERY DISCOVERY DESCRIPTION  
7 8 9 10 12 13 44 45 46 80  
 B 0 0 0 N/A Z Correspondence Review

1 6 ACTIVITY CONTENT RELEASED OF RELEASE AMOUNT OF ACTIVITY LOCATION OF RELEASE  
7 8 9 10 11 44 45 80  
 Z Z N/A N/A

1 7 PERSONNEL EXPOSURES NUMBER TYPE DESCRIPTION  
7 8 9 11 12 13 80  
 0 0 0 Z N/A

1 8 PERSONNEL INJURIES NUMBER DESCRIPTION  
7 8 9 11 12 80  
 0 0 0 N/A

1 9 LOSS OF OR DAMAGE TO FACILITY TYPE DESCRIPTION  
7 8 9 10 80  
 Z N/A

2 0 PUBLICITY ISSUED DESCRIPTION  
7 8 9 10 80  
 N N/A

8304260208 830419  
 PDR ADDCK 05000285  
 S PDR

NRC USE ONLY

NAME OF PREPARER

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LER No. 83-003  
Omaha Public Power District  
Fort Calhoun Station Unit No. 1  
Docket No. 05000285

ATTACHMENT NO. 1

Safety Analysis

All components in the reactor coolant system are designed to withstand the effects of cyclic loads due to reactor coolant system temperature and pressure changes. These cyclic loads are introduced by normal unit load transients, reactor trips, and startup and shutdown operation.

The maximum allowable reactor coolant system pressure at any temperature is based upon stress limitations for brittle fracture considerations. Heatup and cooldown curves developed from baseline reference curves are shifted periodically to account for fast neutron irradiation in the region of the core and the corresponding increase in nil-ductility transition temperature (NDTT). The 1/4 thickness weld material is the limiting material for the Fort Calhoun reactor vessel. Branch Technical Position MTEB 5-2 was used to establish a plate material initial NDTT reference temperature of  $-12^{\circ}$ . For weld material,  $0^{\circ}$  had to be assumed for the initial NDTT reference temperature in the absence of Charpy data. Since the welds are the limiting material, baseline curves for them must be used to develop the heatup and cooldown curves. While attempting to verify the baseline curves supplied in October, 1979 by the District's NSSS vendor, it was discovered that they were for a  $-12^{\circ}$  initial NDTT plate material.

This is  $12^{\circ}$  non-conservative from a licensing standpoint. However, recent Charpy data submitted with the District's pending license renewal application incorporates an initial NDTT for weld material of  $-22^{\circ}$ . This information demonstrates that the presently approved curves are technically  $10^{\circ}$  conservative and therefore no safety hazard exists.

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ATTACHMENT NO. 2

Cause and Corrective Action

A review of documents supporting heatup/cooldown curve derivation revealed that information received from the vendor in 1979 had not clearly identified the basis for the non-irradiated pressure vessel material baseline curves. Further, discussions with the vendor at that time did not clearly define the procedure for applying them and differentiating between weld and plate material. As a result, the curves were improperly applied and Branch Technical Position MTEB 5-2 requirements were not met for weld material without Charpy data.

Charpy data supplied as a result of "NRC Staff Evaluation of Pressurized Thermal Shock; SECY 82-465" demonstrates a conservative initial  $RT_{NDT}$  for weld material of  $-22^{\circ}$  for the Fort Calhoun Station reactor vessel. Therefore, from a safety standpoint, the curves were  $10^{\circ}$  more conservative than necessary.

To correct the current curves, they were shifted  $12^{\circ}$  to make them consistent with Branch Technical Position MTEB 5-2 and the basis of the existing Technical Specification. The corrected curves were incorporated into the Technical Data Book and appropriate changes were made to the Emergency Procedures and Operating Instructions. Reactor coolant system pressure versus temperature strip charts for all heatups and cooldowns since December, 1979 were examined and it was verified that the corrected curves were not violated. The return to power operation following the 1983 refueling outage was delayed until all the necessary corrections were made to the Operating Manual and it was verified that past heatups and cooldowns had not caused the reactor coolant system to be overstressed. Licensed reactor operators were given training, prior to coming on shift, on the revised heatup and cooldown curves and the procedure changes made to the Emergency Procedures and Operating Instructions to include the basis for the changes.

The Fort Calhoun Station NSSS vendor is presently preparing the revised baseline curve which will be incorporated into the pending amendment application to allow operation beyond 6.2 EFPY.

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ATTACHMENT NO. 3

Failure Data

This is the first reportable occurrence involving an error in the Fort Calhoun Station heatup and cooldown curves.