



Commonwealth Edison

Dresden Nuclear Power Station
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July 16, 1992

CWS LTR #92-413

U.S. Nuclear Regulatory Commission
Document Control Desk
Washington, D.C. 20555

Licensee Event Report 92-20-00, Docket 050237 is being submitted as required by Technical Specification 6.6, NUREG 1022 and 10 CFR 50.73(a)(2)(ii)(B).

L. F. Kerner for 7/17/92
Charles W. Schroeder
Station Manager
Dresden Nuclear Power Station

CWS/cfq

Enclosure

cc: A. Bert Davis, Regional Administrator, Region III
NRC Resident Inspector's Office
File/NRC
File/Numerical

(ZDVR/679)

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LICENSEE EVENT REPORT (LER)

Form Rev 2.0

Facility Name (1) Dresden Nuclear Power Station, Unit 2 Docket Number (2) 0 | 5 | 0 | 0 | 0 | 2 | 3 | 7 | 1 | of | 0 | 4 Page (3)

Title (4) Unit 2 Reactor Vessel Exceeded Design Basis Due to Non-Conservative Pressure-Temperature Curves

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	6	2	9	2	0	2	0	0	7	1	6	9	2	N/A	
														N/A	

OPERATING MODE (9)		THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10CFR (Check one or more of the following) (11)											
POWER LEVEL (10)		N		20.402(b)		20.405(c)		50.73(a)(2)(iv)		73.71(b)			
0 9 3				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)			
				20.405(a)(1)(iii)		50.73(a)(2)(i)		50.73(a)(2)(viii)(A)					
				20.405(a)(1)(iv)		X 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: G. Whitman, ISI/IST Group Leader Telephone Number: 8 | 1 | 5 | 9 | 4 | 2 | -2 | 9 | 2 | 0 AREA CODE Ext. 2351

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

SUPPLEMENTAL REPORT EXPECTED (14)

Expected Submission Date (15) X | NO

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

At approximately 1553 hours on June 26, 1992, with Unit 2 at 93% power, Dresden Station was informed that the Unit 2 Reactor Vessel Pressure-Temperature Curves (Technical Specification Figure 3.6.1) are non-conservative. The curves were found to be non-conservative as a result of a review of data for the vessel beltline welds. The review revealed that the material properties used in development of the new curves, which were incorporated into the Technical Specifications in September of 1991, were obtained from a welding procedure qualification test assembly instead of the actual materials contained in the Unit 2 vessel. The Production Services Department informed the station that the more conservative Unit 3 curves should be used in place of the Unit 2 curves. A review of operating history, after the incorporation of the new Unit 2 curve, revealed that on one occasion, during a vessel hydrostatic test, the Unit 2 vessel temperature was approximately 7° F below the temperature required by the Unit 3 curve. An operability determination was performed by Nuclear Engineering Department (NED) and it was determined that this small deviation in temperature had no effect on the vessel integrity. The operability determination also included an ASME Section XI, Appendix E evaluation of this unanticipated event. The safety significance of this event is minimal as indicated by the ASME Section XI, Appendix E evaluation which showed a margin significantly higher than that required for unanticipated events. Corrective actions include revising the procedures that utilize the Unit 2 Pressure-Temperature curves to require the use of the Unit 3 curves, and revising the curves in the Unit 2 Technical Specifications. An evaluation for 10 CFR Part 21 reportability is also being completed by Commonwealth Edison. No other previous events similar to this were identified.

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TEXT Energy Industry Identification System (EIIIS) codes are identified in the text as [XX]

PLANT AND SYSTEM IDENTIFICATION:

General Electric - Boiling Water Reactor - 2527 Mwt rated core thermal power

Nuclear Tracking System (NTS) tracking code numbers are identified in the text as (XXX-XXX-XX-XXXX)

EVENT IDENTIFICATION:

Unit 2 Reactor Vessel Exceeded Design Basis Due to Non-Conservative Pressure-Temperature curves

A. CONDITIONS PRIOR TO EVENT:

Unit: 2

Event Date: 06/26/92

Event Time: 1553 Hours

Reactor Mode: N

Mode Name: Run

Power Level: 93%

Reactor Coolant System (RCS) Pressure: 991.8 psig

B. DESCRIPTION OF EVENT:

At approximately 1553 hours on June 26, 1992, with Unit 2 at 93% power, Dresden Station was informed by the Production Services Department (PSD) that the Unit 2 Reactor Vessel Pressure-Temperature curve (Technical Specification Figure 3.6.1) were non-conservative. The curves were found to be non-conservative as a result of a review of the data for the vessel beltline region welds. This review was being performed in preparation for Commonwealth Edison's response to Generic Letter 92-01. During the review it was determined that the material properties and the initial reference nil-ductility temperature RT_{NDT} that were used to develop the Pressure-Temperature curves were not based on data from the Unit 2 Vessel Material, but on data from procedure qualification testing. The use of this data resulted in Pressure-Temperature curves that were non-conservative. PSD representatives stated that the more conservative Unit 3 curves should be used in place of the Unit 2 curves. The Unit 2 curves in the Technical Specifications were revised in order to reflect Revision 2 of Regulatory Guide 1.99. This revision had been performed under Technical Specification Amendment 114 on September 5, 1991.

A review of the Unit 2 curves against the Unit 3 curves show that the critical areas of concern for Unit 2 are vessel head bolt-up and vessel hydrostatic testing, where the Unit 2 curve requires lower temperatures for the same pressure. A review was immediately initiated to determine bolt-up and vessel hydrostatic test conditions. It was determined that a minimum bolt-up temperature requirement of 100⁰ F was utilized during the two bolt-up evolutions that occurred since the incorporation of the new curve. Because this is the same temperature required by the Unit 3 curves it was determined that the previous bolt-up evolutions provided no concerns. Two vessel hydrostatic tests had also been performed since the incorporation of the new Technical Specification curves. These tests were performed under Special Procedures SP 90-10-123 and SP 91-3-52. A review of the vessel temperatures during these tests showed that during one of the hydrostatic tests, although the temperature requirements of the Unit 2 Technical Specification curves were met, the temperatures did not meet those required by the Unit 3 curves. The maximum deviation from the Unit 3 Pressure-Temperature curve that was experienced was approximately 7⁰ F. This placed the Unit 2 vessel outside of its design basis.

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An ENS 1 hour red phone notification was made at 1650 hours on June 26, 1992. An operability determination was completed by the Nuclear Engineering Department (NED) in accordance with procedure ENC-QE-40.1, and the Unit 2 reactor vessel was determined to be intact and operable. As part of this operability determination an ASME Section XI, Appendix E evaluation was performed to determine the effect of the unanticipated event described above on the reactor vessel integrity. This evaluation revealed that the deviation from the Unit 3 minimum metal temperature curve would result in a decrease in the margin against crack initiation from 3.0 to 2.8. Appendix E requires a minimum margin against crack initiation of 2 for unanticipated events. Therefore the operability and integrity of the Unit 2 vessel were not degraded due to this event. In addition, the operability determination identified the administrative implementation of the Unit 3 curve for the Unit 2 vessel as a mitigating action required to support operability of the Unit 2 vessel. Operating Daily Orders were written on June 26, 1992 advising Control Room personnel of the problem with the Unit 2 curves, and directing them to use the Unit 3 curves for Unit 2 operations.

C. APPARENT CAUSE OF EVENT:

The cause of the deviation from design basis for the Unit 2 reactor vessel was the incorrect Technical Specification Curves. The Station procedures used to perform the reactor vessel hydrostatic test were performed correctly within the bounds required by the Technical Specifications, but the Technical Specifications were incorrect. The curves were in error because the material properties and the initial reference nil-ductility temperature used in their development were not from the actual vessel material but from a welding procedure qualification test assembly.

D. SAFETY ANALYSIS OF EVENT:

The safety significance of this event is minimal. Although the system condition during the hydrostatic test did exceed the design basis, the Section XI, Appendix E evaluation indicated a margin well above that required for unanticipated events. Consequently no degradation of the vessel integrity occurred.

E. CORRECTIVE ACTIONS:

Immediate corrective actions taken included the initiation of Daily Orders to inform Operations personnel of the problems encountered with the Unit 2 Pressure-Temperature curves, and directing them to use the Unit 3 curves for Unit 2 operations. Also, Temporary Procedure Changes were completed to change the following procedures to require the use of the Unit 3 curves for Unit 2 operation:

- DGP 01-01, Unit 2(3) Normal Startup
- DGP 01-02, Unit 2(3) Startup to Hot Standby
- DGP 1-2, Unit 2(3) Normal Shutdown
- DGP 1-S1, Unit 2(3) Master Startup Checklist
- DGP 1-S2, Unit 2(3) Minimum Startup Checklist
- DOS 201-01 Reactor Vessel 1000 psi leakage test

These temporary procedure changes will be incorporated into permanent procedure revisions by the Operations Department staff by January 2, 1993 (237-200-92-12101).

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Procedure DMP 0200-18, Reactor Head Installation, will be updated by the Mechanical Maintenance staff to reflect a minimum bolt-up temperature of 100° F. This procedure did not receive a Temporary Procedure Change because it is only utilized during installation of the vessel head and it will be revised prior to its next use. This procedure will be revised by January 3, 1993 (237-200-92-12102).

This issue was reviewed for 10 CFR 21 reportability and it was determined that an evaluation would be necessary. The Commonwealth Edison 10 CFR 21 coordinator will complete this evaluation and ensure proper reporting has been completed by August 29, 1992.(237-200-92-12103)

A Technical Specification Change will be submitted to the Nuclear Licensing Department, proposing a conservative reactor vessel Pressure-Temperature curve for Unit 2 by September 7, 1992 (237-200-92-12104).

F. PREVIOUS OCCURENCES:

A review of recent history indicates no other occurences of this type of event.

G. COMPONENT FAILURE DATA:

Manufacturer Nomenclature Model Number Mfg. Part Number

This section is not applicable because no component failure occurred.