



A Centerior Energy Company

EDISON PLAZA
300 MADISON AVENUE
TOLEDO, OHIO 43652-0001

NP-33-96-004
AB-96-0017

Docket No. 50-346

License No. NPF-3

May 17, 1996

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

Gentlemen:

LER 96-004
Davis-Besse Nuclear Power Station, Unit No. 1
Date of Occurrence - April 17, 1996

Enclosed please find Licensee Event Report 96-004, which is being submitted to provide 30 days written notification of the subject occurrence. This LER is being submitted in accordance with 10CFR50.73(a)(2)(i) and 10CFR50.73(a)(2)(ii).

Very truly yours,

John K. Wood
Plant Manager
Davis-Besse Nuclear Power Station

JKW/llh

Enclosure

cc: Mr. H. J. Miller
Regional Administrator
USNRC Region III

Mr. Stan Stasek
DB-1 NRC Sr. Resident Inspector

Utility Radiological Safety Board

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LICENSEE EVENT REPORT (LER)

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ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS
INFORMATION COLLECTION REQUEST: 50.3 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.

FACILITY NAME (1)

Davis-Besse Unit Number 1

DOCKET NUMBER (2)

05000 - 346

PAGE (3)

1 OF 5

TITLE (4)

Inadequate Compensatory Actions for Thermo-Lag for Radiant Energy Shields

EVENT DATE (5)			LER NUMBER (6)			REPORT NUMBER (7)			OTHER FACILITIES INVOLVED (8)	
MONTH	DAY	YEAR	YEAR	SEQUENTIAL NUMBER	REVISION NUMBER	MONTH	DAY	YEAR	FACILITY NAME	DOCKET NUMBER
04	17	96	96	-- 004 --	00	05	17	96	FACILITY NAME	DOCKET NUMBER
										05000
										05000
OPERATING MODE (9)		6	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		0	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	
			20.405(a)(1)(iii)		X 50.73(a)(2)(i)		50.73(a)(2)(viii)(A)		(Specify in Abstract below and in text, NRC Form 366A)	
			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

Dale L. Miller, Senior Engineer - Licensing

TELEPHONE NUMBER (Include Area Code)

(419) 321-7264

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)

YES (If yes, complete EXPECTED SUBMISSION DATE)	X NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On April 17, 1996, a Potential Condition Adverse to Quality Report (PCAQR) documented failure to initiate the required compensatory actions identified in technical and operating specifications for radiant energy shields located in the containment and containment annulus. Radiant energy shields utilizing Thermo-Lag are installed at the Davis-Besse Nuclear Power Station (DBNPS). Technical Specification (TS) 3.7.10, until deleted by License Amendment 174, required all fire barriers separating portions of redundant safe shutdown equipment to be operable. During the Nuclear Regulatory Commission (NRC) evaluation of a pending exemption request, the radiant energy shields in the exemption-affected fire area, were not treated as inoperable. This would have been a violation of TS 3.7.10, reportable in accordance with 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the TS. On May 31, 1995, NRC Information Notice (IN) 95-27 was issued which stated the NRC position that the NRC would not accept the use of Thermo-Lag in applications where non-combustible materials are specified by NRC fire protection requirements. Consequently, this condition is also reportable in accordance with 10CFR50.73(a)(2)(ii)(B) as a condition outside the design basis. This occurred due to an inadequate review of IN 95-27 and inadequate operability consideration by DBNPS personnel. The DBNPS currently has submitted plans to the NRC to replace Thermo-Lag.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

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.

FACILITY NAME (1)	DOCKET NUMBER (2)	LER NUMBER (6)			PAGE (3)
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Davis-Besse Unit Number 1	05900-346	96	-- 004 --	00	2 OF 5

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

Description of Occurrence:

On April 17, 1996, a PCAQR (96-0512) documented failure to initiate the required compensatory actions identified in technical and operating specifications for radiant energy shields located in the containment and containment annulus. Radiant energy shields utilizing Thermo-Lag were installed at the DBNPS in response to 10CFR50, Appendix R. The radiant energy shields in containment are installed on electrical circuits for Containment Air Cooler (CAC) 1-1 power, CAC 1-3 power and Pressurizer level channel 2 instrumentation. Containment penetrations P1P3B, P2P5F and P2C5G are protected by radiant energy shields in the containment annulus.

On May 30, 1991, the NRC issued the safety evaluation report (SER) of fire protection measures at the DBNPS and documented the NRC staff assessment of compliance to 10CFR50, Appendix R. The SER recognized a pending request to exempt the three containment penetrations from the separation criteria of 10CFR50, Appendix R, Section III.G.2. Technical Specification (TS) 3.7.10 required all fire barriers separating portions of redundant safe shutdown equipment to be operable in the event of a fire. Since the exemption request was pending NRC approval, the radiant energy shields were technically inoperable which required implementation of the action statement for TS 3.7.10. Fire barrier requirements were deleted from the TS by License Amendment 174, which was implemented December 21, 1992. The former fire barrier TS requirements were replaced by the Operating Specifications of the Fire Hazards Analysis Report (FHAR). Since the radiant energy shields were not treated as inoperable, subject to approval of the pending exemption request, this is considered a violation of TS 3.7.10 and is reportable in accordance with 10CFR50.73(a)(2)(i)(B) as a condition prohibited by the TS. Although not reportable per the requirements of 10CFR50.73, the action associated with the FHAR Operating Specification 8.1.4 was not implemented when Amendment 174 deleted TS 3.7.10.

On May 31, 1995, NRC IN 95-27 was issued which provided the results for the NRC review of the Nuclear Energy Institute (NEI) Thermo-Lag 330-1 Combustibility Evaluation Methodology Plant Screening Guide. The NRC informed NEI that fire protection requirements preclude the use of combustible materials to: (1) enclose other combustibles, such as cables, between redundant safe shutdown trains or; (2) provide radiant energy heat shield protection for safe shutdown components inside containment. Since the DBNPS uses Thermo-Lag material for the radiant energy shields in the containment and containment annulus, the radiant energy shields are considered to constitute a condition outside the design basis.

LICENSEE EVENT REPORT (LER)
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TEXT (If more space is required, use additional copies of NRC Form 366A) (17)

Description of Occurrence: (continued)

Compensatory actions for fire barriers in the containment and containment annulus required by FHAR Operating Specification 8.1.4 were not implemented when IN 95-27 was issued. Consequently, this condition is reportable in accordance with 10CFR50.73(a)(2)(ii)(B), as a condition outside the plant design basis.

Apparent Cause of Occurrence

On May 18, 1990, the DBNPS submitted an Appendix R exemption request to the NRC based, in part, on the existence of radiant energy shields which separate redundant trains of safe shutdown circuits within the containment annulus. This pending exemption request was acknowledged in the May 30, 1991, NRC SER of fire protection measures at the DBNPS. During the time this exemption request was pending within the NRC, DBNPS personnel did not take into consideration that until the exemption was actually approved by the NRC, the DBNPS did not meet Appendix R requirements.

Evaluation of issues associated with the use of Thermo-Lag 330-1 have been on-going since 1992. The NRC IN 95-27 specifically addressed the unacceptability of using Thermo-Lag for radiant energy shields protecting safe shutdown components inside containment. The IN was evaluated and subsequently considered by DBNPS personnel tasked with resolving Thermo-Lag issues. However, the review of the IN was inadequate because the significance of using Thermo-Lag for radiant energy shields was not recognized by these personnel as an operability issue. Consequently, operability and reportability were not addressed until identified as an issue on April 17, 1996.

Analysis of Occurrence

Radiant energy heat shields are used on three containment penetrations in the annulus. Safe shutdown circuits found in these penetrations involve the following electrical circuits:

Containment Air Cooler 1-1	Power Circuit
Containment Air Cooler 1-2	Power Circuit
Pressurizer Vent/Sample Isolation Valve (RC239A)	Power & Control Circuits
Pressurizer/Containment Vent Header Isolation Valve (RC200)	Power & Control Circuits

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

Analysis of Occurrence: (continued)

Pilot Operated Relief Valve (RC2A) Power & Indication Circuits
Reactor Coolant System Loop 2 Hot
Leg Vent Solenoid Operated
Valve (RC4610A) Control Circuit

Radiant energy shields in containment are used on the following electrical circuits:

Containment Air Cooler 1-1	Power Circuit
Containment Air Cooler 1-3	Power Circuit
Pressurizer Level Transmitter - Channel 2	Instrumentation Circuit

The need for these circuits to be protected from a fire is discussed in the DENPS FHAR. As a result of Thermo-Lag being considered combustible material, a fire in containment or the containment annulus could affect the ability to safely achieve and maintain safe shutdown. Although Thermo-Lag is considered to be a combustible material, it still affords some degree of fire protection in areas with low fire loadings. Additionally, during the time that compensatory actions were not in place, no fires occurred in the vicinity of the radiant energy shields and these circuits were not challenged. The probability of a fire occurring in these areas is very low due to the lack of an ignition source and the low combustible loadings.

Corrective Actions:

Toledo Edison submitted plans to the NRC on February 20, 1996 (Serial Number 2358) to replace Thermo-Lag in the plant. Compensatory actions were put in place during the Tenth Refueling Outage to conduct the required fire watches on the Thermo-Lag radiant energy shields. During the plant operation the required periodic fire watches will continue to be conducted for radiant energy shields in the containment annulus by remote monitoring using a video camera. For Thermo-Lag inside containment, CAC inlet temperature will be monitored as required by the FHAR Operating Specifications.

Toledo Edison withdrew from the NRC the pending exemption request on April 24, 1996, and is instituting the above compensatory actions for the containment annulus. In the meantime, Toledo Edison is evaluating alternative approaches for achieving compliance with Appendix R for the containment annulus.

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TEXT CONTINUATION

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

Corrective Actions: (Continued)

If an exemption request is again submitted for the containment annulus, the containment annulus will be considered as not meeting Appendix R requirements and compensatory actions will be maintained until the exemption is approved by the NRC.

The process used to review and evaluate INs issued by the NRC will be evaluated for enhancements with regard to operability and reportability requirements. Operability evaluation ensures TS or FHAR Operating Specification actions are taken in a timely manner. Evaluation of the process utilized to review and evaluate INs will be completed by August 16, 1996. A schedule for implementation of identified enhancements will be developed as part of the evaluation.

NP-33-96-004

PCAQR 96-0512