

LICENSEE EVENT REPORT (LER)

FACILITY NAME (1) D. C. Cook Nuclear Plant, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 1 5 1	PAGE (3) OF 0 3
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TITLE (4)
Glass Test Specimen for Containment Airlock Failed When Exposed to Beta Radiation

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 4	1 1	8 6	8 6	0 0 5	0 0 0	0 4	1 6	8 6	D. C. Cook, Unit 2		0 5 0 0 0 3 1 6
											0 5 0 0 0

OPERATING MODE (8) 1	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR 5: (Check one or more of the following) (11)									
POWER LEVEL (10) 0 9 0	<input type="checkbox"/> 20.402(b)	<input type="checkbox"/> 20.405(c)	<input type="checkbox"/> 50.73(a)(2)(iv)	<input type="checkbox"/> 73.71(b)						
	<input type="checkbox"/> 20.405(a)(1)(i)	<input type="checkbox"/> 50.36(c)(1)	<input checked="" 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(c)(2)	<input type="checkbox"/> 50.73(a)(2)(vii)	<input checked="" type="checkbox"/> OTHER (Specify in Abstract below and in Text, NRC Form 366A)						
	<input type="checkbox"/> 20.405(a)(1)(iii)	<input 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 A. A. Blind - Assistant Plant Manager	TELEPHONE NUMBER AREA CODE: 6 1 6 4 6 5 - 5 9 0 1
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COMPLETE ONE LINE FOR EACH COMPONENT FAILURE DESCRIBED IN THIS REPORT (13)

CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS	CAUSE	SYSTEM	COMPONENT	MANUFACTURER	REPORTABLE TO NPROS

SUPPLEMENTAL REPORT EXPECTED (14)

YES (If yes, complete EXPECTED SUBMISSION DATE)	<input checked="" type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR

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

On December 16, 1985, it was discovered, during a review of vendor-supplied information regarding a change in the containment airlock door seal material, that the report contained information regarding the failure of observation window glass test specimens. This information revealed that the test specimens, which were made of tempered glass, shattered when exposed to a beta radiation dose of 2.5 megarads over a 10-second period. The test data was compared with the conditions expected to occur at the D.C. Cook Plant following a loss-of-coolant accident. Since there was uncertainty whether the test was applicable to the D.C. Cook Plant, design and installation of Beta shields in the form of 3/8-inch thick steel cover plates commenced as a precautionary measure. The installation of these plates was completed on December 31, 1985.

Based on a review of the closeout of the design change package and our reevaluation of the Enerfab Test Report on April 11, 1986, we have been unable to determine if the test results are applicable to the glass used in the D.C. Cook glasses.

For this reason, we feel that there may be a potential problem with the ability of the sight glass to withstand beta radiation exposure. We are therefore reporting this pursuant to 10 CFR 21 and 50.73(a)(2)(v).

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LICENSEE EVENT REPORT (LER) TEXT CONTINUATION

FACILITY NAME (1) D. C. Cook Nuclear Plant, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 1 5	LER NUMBER (4)			PAGE (3)		
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER			
		8 6	- 0 0 5	- 0 0	0 2	OF	0 3

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

Conditions Prior to Occurrence

Unit 1 - Mode 1 - Reactor Power 90 Percent

Unit 2 - No Fuel in Core

Description of Event

On December 16, 1985, it was discovered, during a review of vendor-supplied information regarding a change in the containment airlock (IEEE/BD) door seal material, that the report contained information regarding the failure of observation window glass test specimens. This information revealed that the test specimens, which were made of tempered glass, shattered when exposed to a beta radiation dose of 2.5 megarads over a 10-second period. The source of the beta radiation was a 3 MeV Electron Beam Accelerator. The test data was compared with the conditions expected to occur at the D.C. Cook Plant following a loss-of-coolant accident.

Analysis of Event

Integrated beta radiation doses have been calculated for the D.C. Cook window glass, which is made of untempered glass. These calculations were based on an energy range distribution of approximately 0.1 - 1.5 MeV, and they showed that a level of 2.5 megarads would be reached in less than one hour. However, because of differences between the test conditions and the postulated accident conditions, we are uncertain whether the test is applicable to the D.C. Cook Plant.

The glass used in the D.C. Cook Plant is untempered. The glass was supplied by the W.J. Woolley Company (since acquired by Enerfab, Inc., Cincinnati, Ohio) in accordance with an American Electric Power specification. Qualification testing was done using gamma radiation only.

Each unit of the D.C. Cook Plant contains two airlocks, one in the upper containment, the other in the lower containment. There are two doors per airlock, an inner door and an outer door. Each door contains an observation glass. Thus, there are four glasses per unit, two of which are directly exposed to the containment atmosphere. The airlocks form part of the containment boundary, and failure of the redundant glasses would violate containment integrity.

Preventive/Corrective Action

The failure of the glass mentioned in the Enerfab report was noted by us on December 16, 1985. At that time, since there was uncertainty whether the test was applicable to the D.C. Cook Plant, design and installation of Beta shields in the form of 3/8-inch thick steel cover plates commenced as a

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FACILITY NAME (1) D. C. Cook Nuclear Plant, Unit 1	DOCKET NUMBER (2) 0 5 0 0 0 3 1 5	LER NUMBER (6)			PAGE (3)		
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		8 6	- 0 0 5	- 0 0	0 3	OF	0 3

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

precautionary measure. These cover plates are placed over the inner door glasses in each unit and are required to be in place when the unit is in operation. The installation of these plates was completed on December 31, 1985.

Coincident with the installation of the plates, the vendor was contacted and asked to provide a copy of the test report. Following receipt of this report an evaluation of the test's applicability to the D.C. Cook Plant glass was conducted.

Based on a review of the closeout of the design change package and our reevaluation of the Enerfab Test Report on April 11, 1986, we have been unable to determine if the test results are applicable to the glass used in the D.C. Cook glasses.

For this reason, we feel that there may be a potential problem with the ability of the sight glass to withstand beta radiation exposure. We are therefore reporting this pursuant to 10 CFR 21 and 50.73(a)(2)(v).

Please be advised that the vendor who supplied the test report was Enerfab, Inc., 4955 Spring Grove Avenue, Cincinnati, Ohio 45232. The vendor has advised us that the report is proprietary and has not given permission for its release.

Failed Component Identification

Not applicable - no component failures occurred prior to, or during the course of, the subject event.

Previous Similar Events

No previous similar events have occurred.



INDIANA & MICHIGAN ELECTRIC COMPANY

Donald C. Cook Nuclear Plant
P.O. Box 459, Bridgman, Michigan 49106

April 16, 1986

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

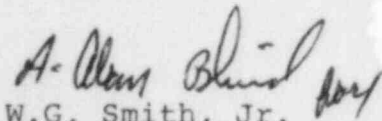
Operating License DPR-58
Docket No. 50-315

Document Control Manager:

In accordance with the criteria established by 10CFR50.73 entitled Licensee Event Reporting System, the following report/s are being submitted:

86-005-0

Sincerely,


W.G. Smith, Jr.
Plant Manager

/cbm

Attachment

cc: John E. Dolan
J.G. Keppler, RO:III
M.P. Alexich
R.F. Kroeger
H.G. Brugger
R.W. Jurgensen
NRC Resident Inspector
R.C. Callen, MPSC
G. Charnoff, Esq.
D. Hahn
INPO
PNSRC
A.A. Blind
Dottie Sherman, ANI Library
W. Jones
File

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