

CATEGORY 1

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ACCESSION NBR: 9806100417 DOC. DATE: 98/06/05 NOTARIZED: NO DOCKET #
 FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
 AUTH. NAME AUTHOR AFFILIATION
 RUCCIA, N. American Electric Power Co., Inc.
 SAMPSON, J. R. American Electric Power Co., Inc.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 98-011-01: on 980305, steel containment liner pitting was noted in excess of design basis. Caused by inadequate installation practices. Existing seal was removed, surface was prepared & new seals applied. W/980605 ltr

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American Electric Power
Cook Nuclear Plant
One Cook Place
Bridgman, MI 49106
616 465 5901



June 5, 1998

United States Nuclear Regulatory Commission
Document Control Desk
Washington, DC 20555

Operating Licenses DPR-58
Docket No. 50-315

Document Control Manager:

In accordance with the criteria established by 10 CFR 50.73 entitled Licensee Event Report System, the following report is being submitted:

98-011-01

Sincerely,

A handwritten signature in black ink, appearing to read "J. R. Sampson", is written over a horizontal line.

J. R. Sampson
Site Vice President

/mbd

Attachment

c: C. J. Paperiello (Acting), Region III
J. R. Sampson
P. A. Barrett
S. J. Brewer
R. Whale
D. Hahn
Records Center, INPO
NRC Resident Inspector

9806100417 980605
PDR ADOCK 05000315
S PDR

IE22

LICENSEE EVENT REPORT (LER)

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 (MNB 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)
Donald C. Cook Nuclear Plant - Unit 1DOCKET NUMBER (2)
50-315

Page 1 of 3

TITLE (4)

Interim LER - Steel Containment Liner Pitting in Excess of Design Basis

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
03	05	98	98	-- 011 --	01	06	05	98	FACILITY NAME	DOCKET NUMBER
OPERATING MODE (9)		5	THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR §: (Check one or more) (11)							
POWER LEVEL (10)		0	20.2201(b)		20.2203(a)(3)(I)		50.73(a)(2)(iii)		73.71(b)	
			20.2203(a)(1)		20.2203(a)(3)(ii)		50.73(a)(2)(iv)		73.71c	
			20.2203(a)(2)(1)		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)		50.73(a)(2)(1)		50.73(a)(2)(viii)(B)			
			20.2203(a)(2)(v)		X 50.73(a)(2)(ii)		50.73(a)(2)(x)			

LICENSEE CONTACT FOR THIS LER (12)

NAME
Mr. Nick Ruccia, Structural Engineering ManagerTELEPHONE NUMBER (Include Area Code)
616/697-5535

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)

<input checked="" type="checkbox"/> YES (If yes, complete EXPECTED SUBMISSION DATE).	<input type="checkbox"/> NO	EXPECTED SUBMISSION DATE (15)	MONTH	DAY	YEAR
			08	31	98

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

On March 5, 1998, with Unit 1 in Mode 5, an inspection of the steel containment liner identified pitting which resulted in the thickness of the steel containment liner to be less than 0.250 inches. The location of the pitting is at the bottom of the containment near where the vertical section of liner joins the horizontal section and is in close proximity to the seal located between the concrete floor slab and the steel liner. With pitting of this magnitude the steel containment liner would potentially not meet the stress assumptions made in the design basis. This event was reported in accordance with 10 CFR 50.72(b)(2)(I), as a condition which was found while the reactor was shutdown, which if it had been found while the reactor was operating, would have resulted in the nuclear power plant being in an unanalyzed condition, outside the design basis. The ENS notification was made at 1522 hours EST on March 5, 1998. This LER is being submitted in accordance with 10 CFR 50.73(a)(2)(ii).

The cause of the pitting was determined to have been caused by inadequate installation practices at the time of original construction and lack of proper maintenance of the seal. The existing seal has been removed and the surface on the containment liner plate prepared, coated and new seals applied. Appropriate VT-3 and VT-1 visual examination have been performed on the accessible floor-liner seal surface area, and the liner in the area of the seal removal.

An engineering analysis is underway to determine the safety significance of the pitting and repair plans will be developed based on this analysis. A follow-up report will be submitted by August 31, 1998.

LICENSEE EVENT 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 (MNB 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.

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Cook Nuclear Plant - Unit 1	50-315	YEAR	SEQUENTIAL	REVISION	2 OF 3
		98	- 011 -	01	

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

Condition Prior to Event

Unit 1 was in Mode Five, Cold Shutdown.

Description of Event

In response to NRC IN97-10, "Liner Plate Corrosion in Concrete Containments", a visual inspection of the Unit 1 containment liner plate in the floor seal area was performed in March 1998. On March 5, 1998, during visual examination, corrosion was measured to a depth of 0.171 inches, which resulted in the thickness of the steel containment liner to be less than 0.250 inches. With pitting of this magnitude the steel containment liner would potentially not meet the stress assumptions made in the design basis. The examination identified more than 40 occurrences which resulted in the thickness of the steel containment liner being less than 0.250 inches. Engineering had evaluated the pitting/corrosion and developed an acceptance criteria to remain within the design basis. Based on calculations it was concluded that the liner plate would stay within the design basis if the wall thickness was 0.250 inches or greater.

A visual inspection of the Unit 2 containment liner plate in the floor seal area has been completed. Pitting similar to that identified in Unit 1 was discovered. However, the magnitude of the pitting was not as severe and the measured wall thickness of the Unit 2 steel containment liner never was less than the minimum acceptable wall thickness of 0.250 inches.

Cause of Event

The root cause for the above events can be attributed to the lack of procedural controls that require rigorous inspection of the liner plate. The following discussion provides background information.

After the original installation of the liner plate until 1991, no procedure to inspect liner plates existed. In December 1989, the NRC issued IN89-79 and IN89-79 Supplement 1 describing the potential for corrosive deterioration of steel containment liners. In response to these notices, inspections were performed of Unit 1 and Unit 2 liner plate coatings in upper and lower containment and found them acceptable. That inspection did not include inaccessible areas such as those where the current pitting was discovered. Then in May 1991, Engineering Guideline EC-CE-001, Protective Coating Surveillance Inspections, was developed for containment coating inspection.

The engineering guide provided adequate information on assessing the condition of the protective coatings, however, the product of the survey focused on a listing of future coating maintenance and not on an assessment of the integrity of the protective coating. The engineering guide did not delineate the need to apply engineering rigor to the assessment of the containment coating condition on the containment system. In short, the engineering guideline provided general simplified inspection criteria but did not provide a specific detailed program for more venerable areas.

Analysis of Event

This event was reported in accordance with 10 CFR 50.72(b)(2)(I), as a condition which was found while the reactor was shutdown, which if it had been found while the reactor was operating, would have resulted in the nuclear power plant being in an unanalyzed condition, outside the design basis. The ENS notification was made at 1522 hours EST on March 5, 1998. This LER is being submitted in accordance with 10 CFR 50.73(a)(2)(ii).

An engineering analysis is underway to determine the safety significance of the pitting and repair plans will be developed based on this analysis. A follow-up report will be submitted by August 31, 1998.

LICENSEE EVENT 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.

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

Corrective Actions

A visual inspection of the containment liner plate in the area of the annulus floor slab, where the pitting is most prominent, has been completed. The pitting was mapped and the severity of the pitting determined by depth measurements of the pits and wall thickness measurement of the containment liner in the areas of the pitting.

The existing seal has been removed and the surface on the containment liner plate at the seal area directly above and below the annulus floor slab has been prepared and coated with the self-priming Carboline-890 Epoxy. New seals were then applied.

To determine the effectiveness of the new seal a VT-3 visual examination will be performed on the accessible floor-liner seal surface area. These inspections will be made approximately every three years for the next three consecutive 3-year periods. This commitment will be made as part of the Containment ISI Program, which is currently under development and will be completed by March 1, 1999.

Failed Component Identification

None

Previous Similar Events

None