

CATEGORY 1

REGULATORY INFORMATION DISTRIBUTION SYSTEM (RIDS)

ACCESSION NBR: 9806100099 DOC. DATE: 98/06/01 NOTARIZED: NO DOCKET #
 FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
 AUTH. NAME, AUTHOR AFFILIATION
 SCHOEPP, P. American Electric Power Co., Inc.
 SAMPSON, J.R. American Electric Power Co., Inc.
 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 98-026-00: on 980430, TS SR 4.6.5.1.b.2 was not met. Caused by failure to accurately transfer SR into plant procedures. Software used to support ice condenser surveillance program will either be revised or replaced. W/980601 ltr.

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 TITLE: 50.73/50.9 Licensee Event Report (LER), Incident Rpt, etc.

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



June 1, 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:

98-026-00

Sincerely,

A handwritten signature in black ink, appearing to read 'J. R. Sampson', is written over the typed name.

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

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Jerr

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

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TITLE (4)

Technical Specification Surveillance Requirement 4.6.5.1.b.2 Not Met Due to Failure to Accurately Transfer Requirements into Plant Procedure

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
04	30	98	98	-- 026 --	00	06	01	98	Cook - Unit 2	50-316
									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)(i)		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)(I)		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

TELEPHONE NUMBER (Include Area Code)

Mr. Paul Schoepf, Safety Related Mechanical Engineering Superintendent

616/465-5901, x2408

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 30, 1998, with Unit 1 and Unit 2 in Mode 5, plant personnel determined that the surveillance requirements of Technical Specification (T/S) 4.6.5.1.b.2 were not being met. The surveillance requires, in part, that if any basket is found to contain less than the T/S required ice weight, then a representative sample of 20 additional baskets from the same bay must be weighed. The average weight of these 21 baskets must meet the T/S required ice weight at a 95 percent level of confidence. Contrary to these requirements, the average weight of the group of 21 baskets was not statistically analyzed separately from the remainder of the basket weight data. This was determined to represent an unanalyzed condition, and in accordance with 10CFR50.72(a)(2)(i) and ENS notification was made at 1838 hours EST that day. This LER is therefore submitted in accordance with 10CFR50.73(a)(2)(ii) for an unanalyzed condition.

The cause of this condition was the failure to accurately transfer the T/S surveillance requirements into the plant surveillance procedures, and the utilization of inadequate software programs. To correct any potential maldistribution of ice, the ice condensers for both units will be melted out and reloaded with fresh ice. The basis of the ice condenser surveillance program will be reconstituted. The software used to support the ice condenser surveillance program will either be revised or replaced.

The safety significance of this condition was assessed. The assessment concluded that the ice mass contained in the ice condenser as a whole was in excess of the amount used in the long term containment analysis, and that the containment pressure would have remained below the design pressure value of 12 psig. Therefore, this condition was of minimal safety significance.

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)

Conditions Prior to Event

Unit 1 was in Mode 5, Cold Shutdown

Unit 2 was in Mode 5, Cold Shutdown

Description of Event

The function of the ice condenser system is dependent upon the quantity and distribution of the ice mass within the ice condenser. The ice mass is contained within an array of 1944 ice baskets. Eighty-one ice baskets, arranged in a 9 by 9 grid, are located in each of the 24 bays of the ice condenser. The ice baskets are 48 feet tall with an approximate diameter of 12 inches. The vertical portion of the basket is substantially open to accommodate heat transfer. The ice mass provides sufficient heat removal capability to condense the reactor coolant system volume released during a Loss of Coolant Accident (LOCA) or a Main Steam Line Break (MSLB) event.

The T/S ice bed weight surveillance provides assurance that the required ice inventory will be resident in an adequate distribution in the ice condenser. The surveillance is accomplished through a statistical analysis of a representative sample of individual ice basket weights in lieu of a 100 percent ice basket weight surveillance.

During the investigation of another condition related to the ice condenser, plant personnel determined that the requirements of Technical Specification surveillance 4.6.5.1.b.2 were not being met. The surveillance requirement states, in part, that the operability of the ice condenser shall be verified at least once per 18 months by:

Weighting a representative sample of at least 144 ice baskets and verifying each basket contains at least 1333 pounds of ice. The representative sample shall include 6 baskets from each of the 24 ice condenser bays and shall be constituted of one basket each from Radial Rows 1, 2, 4, 6, 8, and 9 (or from the same row of an adjacent bay if a basket from a designated row cannot be obtained for weighing) within each bay. If any basket is found to contain less than 1333 pounds of ice, a representative sample of 20 additional baskets from the same bay shall be weighed. The minimum average weight of the ice from the 20 additional baskets and the discrepant basket shall not be less than 1333 pounds per basket at a 95 percent level of confidence.

The investigation revealed that implementation of the ice bed weight surveillance is accomplished by **12 EHP 4030.STP.211, "Ice Condenser Surveillance". The guidance provided in this procedure deals mainly with the physical work methods to be used for ice basket weighing and maintenance activities. The procedure does not provide guidance on the selection of baskets to be weighed or on the statistical analysis of the data. During performance of this surveillance, random selection of the initial 144 ice baskets to be weighed is accomplished by computer program. The software program used is not referenced in the procedure.

Statistical analysis of the individual ice basket weight data is performed using the NSLICE software program. Input for NSLICE is from data gathered from the weighing of ice baskets in accordance with **12 EHP 4030.STP.211. The data represents weights collected during the as-found weighing, the after mass addition weighing, and the as left weighing. No procedural guidance is provided for the input of data, or the use of the output tables from the NSLICE program. The output tables depict individual ice basket ice mass, average ice mass for individual radial rows, each bay within the ice bed, each row-group average, and for the total ice bed mass at the 95% confidence factor. No provisions exist in NSLICE for averaging the expanded sample weights of the discrepant basket plus 20 as required by T/S.

LICENSEE EVENT CONTINUATION

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

Description of Event (cont'd)

The minimum 144 ice basket sample is required to be expanded for 20 additional ice baskets for each ice basket determined to be below the T/S average weight. The expanded sample is performed in the same bay as the discrepant basket and is considered to be representative of the ice baskets. ICEPICK, a computer software random number generator, is utilized to pick the initial 144 ice basket sample. The 20 baskets, however, are selected by the lead test engineer, as ICEPICK has no capability to perform the sample expansion of 20 additional ice baskets. The acceptance criteria in the plant surveillance procedure requires the completion of the 20 ice basket sample expansion required by T/S, but does not require the confirmation of acceptable average weight of the 21 basket group. No record of the 21 basket group average being calculated could be retrieved.

The current T/S surveillance requirements for the ice basket weights evolved from a requirement to weigh a sample of 60 baskets to a requirement to weigh 96 representative baskets due to weighing results which indicated non-uniform sublimation rates in the ice condenser. The 96 sample weights were to be collected from radial rows 2, 4, 6 and 8 in each of the 24 bays. During the early weighing program, attempts at weighing the baskets in radial rows 1 and 9, the wall baskets, proved unsuccessful. Later, improvements in weighing methods resulted in the acquisition of wall basket ice weights. Evaluation of this additional data revealed that the adjacent radial row ice basket weights were not representative of the wall ice basket weights due to sublimation. This resulted in radial rows 1 and 9 sample ice weights being added to the T/S surveillance. This change resulted in the ice basket weighing program requirements embodied in the current requirements of T/S 4.6.5.1.b.2.

The as-found weighing program and the expanded weighing program have evolved as advances in weighing methods have occurred. Additional ice basket weights were acquired and added to the NSLICE input data sets, which represented baskets from all rows, including baskets with structural interferences from the intermediate deck structure.

A review of past correspondence to and from the NRC relating to the ice basket weighing program shows that bay averages were frequently presented, however, the 21 basket group averages were not. The average ice basket weight on a bay basis has never been required by the T/S. If only the minimum ice basket sample weights required by the T/S had been analyzed separately by NSLICE without the inclusion of the additional sample weights collected during the expanded weighing program, the bay average would represent a 21 ice basket group. However, as more ice basket weights were collected during the expanded weighing program and added to the NSLICE input data, the bay average was no longer representative of a 21 basket group.

Based on historical information, it appears that originally the bay average was considered to be equivalent to the 21 basket group. The original ice weight surveillance practices and the bases of the statistical analysis depicted in the NSLICE program were closely aligned. As a result of changes in maintenance and surveillance practices related to the ice basket mass, the statistical analyses were no longer aligned.

Cause of Event

The cause of this condition was the failure to accurately transfer the T/S surveillance requirements into the plant surveillance procedures, and the utilization of inadequate software programs, NSLICE and ICEPICK.

Analysis of Event

This condition was determined to represent an unanalyzed condition, and in accordance with 10CFR50.72(b)(2)(i) and ENS notification was made. This LER is therefore submitted in accordance with 10CFR50.73(a)(2)(ii) for an unanalyzed condition.

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)

Analysis of Event (cont'd)

The safety significance of this condition was assessed by Westinghouse. The assessment concluded that the ice mass contained in the ice condenser as a whole was in excess of the amount used in the long term containment analysis, and that containment pressure would have remained below the design basis value. Therefore, any potential maldistribution of ice, which may not have been discovered due to the failure to perform the 21 basket average, was determined to be of minimal safety significance.

Corrective Actions

To correct any potential maldistribution of ice, the ice condensers for both units will be melted out and reloaded with fresh ice. The melt out of Unit 1 is complete, and the production of fresh ice is in progress. The melt out of Unit 2 will commence in the near future.

The basis of the ice condenser surveillance program will be reconstituted and incorporated into the Design Basis Documents. Utilizing the reconstituted surveillance basis, all ice condenser surveillance procedures will either be revised or completely rewritten. As part of the reconstitution process, the surveillance methodology as well as the selection and acceptance criteria for individual ice basket and various basket groupings will be reviewed for compliance with both the T/S and the analytical basis of the ice condenser system.

The software used to support the ice condenser surveillance program will either be revised or replaced. The selection process for all ice baskets to be weighed will be established and incorporated into procedures, as well as the acceptance criteria for individual baskets and basket groupings.

A comprehensive assessment of the plant surveillance program is being performed as part of the Restart Plan. This assessment will be completed prior to restart of either unit. Specific actions that arise from this assessment will be communicated to the NRC during the restart process.

Failed Component Identification

Not Applicable

Previous Similar Events

315/98-025-00

