

CATEGORY 1

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 FACIL: 50-315 Donald C. Cook Nuclear Power Plant, Unit 1, Indiana M 05000315
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 RECIP. NAME RECIPIENT AFFILIATION

SUBJECT: LER 98-030-01: on 980604, re incorrect installation of
 containment spray heat exchanger. LER 98-030-00 retracted.
 With 981113 ltr.

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AD

Indiana Michigan
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616 465 5901



November 13, 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:

LER 98-030-01, "Retraction – Incorrect Installation of Containment Spray Heat Exchanger Could Result in an Unanalyzed Condition."

Sincerely,

J. R. Sampson
Site Vice President

/mbd

Attachment

c: J. L. Caldwell (Acting), Region III
R. P. Powers
P. A. Barrett
J. B. Kingseed
R. Whale
D. Hahn
Records Center, INPO
NRC Resident Inspector

IE221

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LICENSEE EVENT REPORT (LER)

(See reverse for required number of
digits/characters for each block)

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS MANDATORY INFORMATION COLLECTION REQUEST: 50.0 HRS. REPORTED LESSONS LEARNED ARE INCORPORATED INTO THE LICENSING PROCESS AND FED BACK TO INDUSTRY. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE INFORMATION AND RECORDS MANAGEMENT BRANCH (T-6 F33), 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) Cook Nuclear Plant Unit 1	DOCKET NUMBER (2) 50-315	PAGE (3) 1 of 2
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TITLE (4)

Retraction - Incorrect Installation of Containment Spray Heat Exchanger Could Result in an Unanalyzed Condition

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	
06	04	98	98	-- 030 --	01	11	13	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)		00	20.2201 (b)		20.2203(a)(2)(v)		50.73(a)(2)(i)		50.73(a)(2)(viii)		
			20.2203(a)(1)		20.2203(a)(3)(i)		X 50.73(a)(2)(ii)		50.73(a)(2)(x)		
			20.2203(a)(2)(i)		20.2203(a)(3)(ii)		50.73(a)(2)(iii)		73.71		
			20.2203(a)(2)(ii)		20.2203(a)(4)		50.73(a)(2)(iv)		OTHER		
			20.2203(a)(2)(iii)		50.36(c)(1)		50.73(a)(2)(v)		Specify in Abstract below or in NRC Form 366A		
			20.2203(a)(2)(iv)		50.36(c)(2)		50.73(a)(2)(vii)				

LICENSEE CONTACT FOR THIS LER (12)

NAME Mr. Frank Pisarsky, Engineering Component Performance	TELEPHONE NUMBER (Include Area Code) (616) 465-5901, x2607
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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
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Abstract (Limit to 1400 spaces, i.e., approximately 15 single-spaced typewritten lines) (16)

On June 4, 1998, with Unit 1 in Mode 5, System Engineering personnel performing Generic Letter 89-13 inspections, "Service Water System Problems Affecting Safety Related Systems," made a preliminary determination that the Unit 1 West Containment Spray (CTS) heat exchanger had been installed 180 degrees from its intended design position. In accordance with 10CFR50.72(b)(2)(i), on June 4, 1998, an ENS notification was made at 0850 hours EDT for the plant potentially being in an unanalyzed condition. An interim LER was submitted on July 6, 1998, in accordance with 10CFR50.73(a)(2)(ii).

A visual inspection of the as-found configuration of the Unit 1 West CTS heat exchanger confirmed the heat exchanger had been installed 180 degrees from its intended design position, with the impingement plate located on the service water outlet side. This condition has existed since original plant construction. Ultrasonic testing of the heat exchanger inlet tubes was performed to determine whether deterioration of the tube's outer surface had occurred. No evidence of tube thinning, degradation, or vibration wear was identified. The Unit 1 West CTS heat exchanger was rotated 180 degrees and reinstalled with the impingement plate located on the inlet side to the service water to return it to its intended design configuration. Visual inspection of the Unit 1 and Unit 2 East heat exchangers was conducted to verify correct installation. Inspection of the Unit 2 West heat exchanger is scheduled for early 1999. However, based on the results of a previous GL 89-13 inspection, there is reasonable assurance the heat exchanger was installed as-designed.

Based on inspection and test results, no performance or structural concerns were identified that would have prevented the heat exchanger from performing its safety function in the as-found condition. Therefore, the plant was within its analyzed condition of operation, and LER 315/98-030-00 is being retracted.

LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION

FACILITY NAME (1)	DOCKET NUMBER(2)	LER NUMBER (6)				PAGE (3)
		YEAR	SEQUENTIAL NUMBER		REVISION NUMBER	
		98	--	030	--	01

Cook Nuclear Plant Unit 1

50-315

2 of 2

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

On June 4, 1998, with Unit 1 in Mode 5, System Engineering personnel performing Generic Letter 89-13 inspections, "Service Water System Problems Affecting Safety Related Systems," made a preliminary determination that the Unit 1 West Containment Spray (CTS) heat exchanger had been installed 180 degrees from its intended design position. The service water inlet appeared to be aligned to the outlet side of the heat exchanger, which resulted in the impingement plate being located on the service water outlet side. The plate is designed to be located on the inlet side of the heat exchanger to prevent sand and silt from impinging on the heat exchanger tubes, which could potentially cause erosion of the tubes. On June 4, 1998, in accordance with 10CFR50.72(b)(2)(i), an ENS notification was made at 0850 hours EDT for the plant potentially being in an unanalyzed condition. An interim LER was submitted on July 6, 1998, in accordance with 10CFR50.73(a)(2)(ii).

Containment Spray is a safety-related system which provides spray cooling water to the containment atmosphere during a Loss of Coolant Accident (LOCA) or a steam line break accident inside containment to prevent overpressurization. The system is comprised of two independent 100 percent capacity flow trains. Each train includes a CTS pump and a vertical shell and tube heat exchanger. The CTS pumps provide flow from the Refueling Water Storage Tank (RWST) to the tube side of the heat exchangers during the injection phase of a LOCA. Essential Service Water (ESW) flow to the shell side of the CTS heat exchangers is isolated during the injection phase of an accident to prevent cooling of the borated RWST water and causing boron precipitation. Once the supply of RWST water is exhausted, the CTS pumps take suction from the containment recirculation sump. During the recirculation phase, ESW flow provides cooling water to the shell side of the CTS heat exchangers.

CTS heat exchanger operation is bounded by the reactor coolant pump suction line large break LOCA. The heat exchangers are designed to remove heat from the recirculation sump water during the recirculation phase of an accident to maintain containment pressure below design. With the heat exchanger installed such that the impingement plate is located on the outlet side of the heat exchanger, the abrasives present in ESW system water could potentially accelerate erosion of the outer surface of the heat exchanger tubes. Although tube degradation does not affect the heat exchanger's thermal performance, tube failure could result in leakage of containment spray (primary) water into the ESW system.

A visual inspection of the as-found configuration of the Unit 1 West CTS heat exchanger confirmed that the heat exchanger had been installed 180 degrees from its intended design position, with the impingement plate located on the service water outlet side. This condition has existed since original plant construction. Ultrasonic testing of the heat exchanger inlet tubes was performed to determine whether deterioration of the tube's outer surface had occurred. No evidence of tube thinning, degradation, or vibration wear was identified. The Unit 1 West CTS heat exchanger was rotated 180 degrees and reinstalled with the impingement plate located on the inlet side to the ESW to return it to its intended design configuration.

Additionally, a visual inspection of the Unit 1 and Unit 2 East heat exchangers was conducted to verify correct installation. Inspection of the Unit 2 West heat exchanger is scheduled to be completed in early 1999. However, based on photographs taken during a previous GL 89-13 inspection, there is reasonable assurance that the heat exchanger was installed as-designed.

Based on inspection and test results, no performance or structural concerns were identified that would have prevented the heat exchanger from performing its safety function in the as-found condition. Therefore, the plant was within its analyzed condition of operation, and LER 315/98-030-00 is being retracted.