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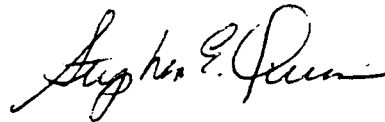
March 18, 1996

Re: Indian Point Unit No. 2
Docket No. 50-247
LER 95-21-01

Document Control Desk
US Nuclear Regulatory Commission
Mail Station P1-137
Washington, DC 20555

The Attached Licensee Event Report LER 95-21-01 is hereby submitted in accordance with the requirements of 10 CFR 50.73.

Very truly yours,



Attachment

cc: Mr. Thomas T. Martin
Regional Administrator-Region I
US Nuclear Regulatory Commission
475 Allendale Road
King of Prussia, PA 19406

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**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 RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20555, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

FACILITY NAME (1) Indian Point Unit No. 2	DOCKET NUMBER (2) 0500024795	LER NUMBER (6)			PAGE (3)	
		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		95	021	01	02	OF 04

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

PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor

IDENTIFICATION OF OCCURRENCE:

Plant Shutdown Due to Entry into Technical Specification 3.0.1

EVENT DATE:

October 9, 1995

REPORT DUE DATE:

November 8, 1995

REFERENCE:

Significant Occurrence Reports (SOR) 95-689 and 95-696

PAST SIMILAR OCCURRENCES:

None

DESCRIPTION OF OCCURRENCE:

On September 27, 1995, Con Edison personnel observed that the lubrication oil level for 23EDG was abnormally high. Since the oil was also discolored, a sample was obtained for chemical analysis. This analysis confirmed the presence of water contamination. The source of the water infiltration was determined to be from degraded tubes within the diesel lube oil cooler, which allowed service water into the lube oil crankcase. All tubes within 23EDG lube oil cooler were subjected to an eddy current examination. Six out of a total 326 tubes within the tube bundle of 23EDG lube oil cooler were found to have worn to their minimum allowable wall thickness limit. These tubes were plugged. 23EDG was returned to service on September 29, 1995.

On October 3, 1995 21CCP had been taken out of service for a planned modification. At that time Technical Specification 3.3.E.2.a was entered resulting in a 14-day Limiting Condition for Operation. On October 9, 1995 it was discovered that the engine lubrication oil level for 23EDG was abnormally high and that the oil was discolored, which is indicative of water contamination.

**LICENSEE EVENT REPORT (LER)
TEXT CONTINUATION**

ESTIMATED BURDEN PER RESPONSE TO COMPLY WITH THIS INFORMATION COLLECTION REQUEST: 500 HRS. FORWARD COMMENTS REGARDING BURDEN ESTIMATE TO THE RECORDS AND REPORTS MANAGEMENT BRANCH (P-530), U.S. NUCLEAR REGULATORY COMMISSION, WASHINGTON, DC 20585, AND TO THE PAPERWORK REDUCTION PROJECT (3150-0104), OFFICE OF MANAGEMENT AND BUDGET, WASHINGTON, DC 20503.

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		YEAR	SEQUENTIAL NUMBER	REVISION NUMBER		
		9 5	- 0 2 1	- 0 1	0 3	OF 0 4

TEXT (If more space is required, use additional NRC Form 388A's) (17)

DESCRIPTION OF OCCURRENCE: (continued)

23EDG was taken out of service and declared inoperable. Technical Specification 3.7.B.1 would have allowed plant operation to continue for seven days provided that 138 kV and 13.8 kV sources of offsite power were available and that the remaining diesel generators and the engineered safety features associated with those diesel generator buses were operable. However, with 21CCP still out of service an engineered safety feature associated with one of the operable diesel generators was inoperable. Accordingly, the plant entered Technical Specification 3.0.1 and a plant shutdown and cooldown was initiated. Investigation subsequently determined that a tube leak had developed in the lube oil cooler for 23EDG. All equipment was subsequently repaired and returned to service on October 9 at 2350 hours. A plant startup was then initiated.

ANALYSIS OF OCCURRENCE:

On September 27, 1995, Con Edison personnel observed that the lubrication oil level for 23EDG was abnormally high. Since the oil was also discolored, a sample was obtained for chemical analysis. This analysis confirmed the presence of water contamination. The source of the water infiltration was determined to be from degraded tubes within the diesel lube oil cooler, which allowed service water into the lube oil crankcase. All tubes within 23EDG lube oil cooler were subjected to an eddy current examination. Six out of a total 326 tubes within the tube bundle of 23EDG lube oil cooler were found to have worn to their minimum allowable wall thickness limit. These tubes were plugged. The total number of plugged tubes were well within the design cooling capacity of the lube oil cooler. 23EDG was returned to service on September 29, 1995.

On October 3, 1995, Technical Specification 3.3.E.2.a was entered to begin work on 21CCP, resulting in a 14-day Limiting Condition for Operation. The work activity consisted of replacement of the existing 21CCP with a pump featuring a new design split mechanical seal.

On October 9, 1995, while modifications to 21CCP were ongoing, Con Edison personnel again observed the lubrication oil level for 23EDG to be discolored and abnormally high. Because Technical Specification 3.7.B.1 requires that the remaining diesel generators and the engineered safety features associated with those diesel generator buses be operable, the plant entered Technical Specification 3.0.1 and a plant shutdown began. Investigation revealed that another tube had developed a leak allowing water to infiltrate into the diesel lube oil crankcase.

CAUSE OF OCCURRENCE:

The cause of this event is attributed to the failure of a tube in 23EDG lube oil cooler occurring coincident with a planned modification to 21CCP which rendered it out of service.

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CORRECTIVE ACTION:

The immediate corrective action taken was to plug the degraded tubes within 23EDG lube oil cooler. This tube bundle was subsequently replaced on November 20, 1995 with a spare. A baseline for the tube bundles was not determined at the time of original installation in 1993. Therefore, our opportunity for drawing inferences from eddy current testing after it failed in 1995 are limited. With respect to the replacement bundle, we did perform eddy current testing at time of installation and will therefore be able to track tube bundle degradation should it occur in the replacement bundle. 21 and 22EDG lube oil and jacket water coolers were similarly examined. Based upon these examinations, we determined that replacement of these tube bundles was necessary in order to prevent recurrence of the 23EDG failure. 21 and 22EDG lube oil and jacket water cooler tube bundles were replaced with new bundles containing thicker walled tubes on December 18, 1995 and January 9, 1996 respectively.

Tube samples removed from the failed 23EDG lube oil cooler were sent to an independent laboratory to determine the cause of the failure of the tube material. These examinations indicate that the tubes had sustained erosion on their inner surfaces due to high velocity and turbulence in the cooling water. The impingement of water had caused localized breakdown within the tubes, subjecting them to increased corrosion attack. We believe the erosion was caused by high localized flow due to foreign material lodged within the tubes. Our long term plan is to replace these new tube bundles with ones manufactured from a more erosion-resistant material.

Visual examination of the two "leaker" tubes within 23EDG lube oil cooler revealed a sharp circumferentially oriented groove. The groove was "V" shaped in appearance and the leak was located at the bottom of each groove. We believe the groove was a manufacturing defect. No other defects of this nature were found from this tube bundle, the tube bundles for 21 and 22EDGs, or the spare tube bundle.