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**OYSTER CREEK** **NUCLEAR GENERATING STATION**

JCP&L / GPU

Jersey Central Power & Light Company is a Member of the General Public Utilities System

(609) 693-6000 P.O. BOX 388 • FORKED RIVER • NEW JERSEY • 08731

September 18, 1981


Mr. Ronald Haynes, Director
Office of Inspection and Enforcement
Region I
United States Nuclear Regulatory Commission
631 Park Avenue
King of Prussia, Pennsylvania 19406

Dear Mr. Haynes:

SUBJECT: Oyster Creek Nuclear Generating Station
Docket No. 50-219
Licensee Event Report
Reportable Occurrence No. 50-219/81-39/3L

This letter forwards three copies of a Licensee Event Report to report Reportable Occurrence No. 50-219/81-39/3L in compliance with paragraph 6.9.2.b.4 of the Technical Specifications.

Very truly yours,

John P. Pullrich Jr.

J. T. Carroll, Jr.
Acting Director Oyster Creek

JTC:dh
Enclosures

cc: Director (40 copies)
Office of Inspection and Enforcement
United States Nuclear Regulatory Commission
Washington, D.C. 20555

Director (3)
Office of Management Information
and Program Control
United States Nuclear Regulatory Commission
Washington, D. C. 20555

NRC Resident Inspector (1)
Oyster Creek Nuclear Generating Station
Forked River, N. J.

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OYSTER CREEK NUCLEAR GENERATING STATION
Forked River, New Jersey 08731

Licensee Event Report
Reportable Occurrence No. 50-219/81-39/3L

Report Date

September 18, 1981

Occurrence Date

August 19, 1981 (Discovery of occurrence)

Identification of Occurrence

An unmonitored release of radioactive water due to Reactor Building Closed Cooling Water Heat Exchanger failure.

This event is considered to be a reportable occurrence as defined in the Technical Specifications, paragraph 6.9.2.b.4.

Conditions Prior to Occurrence

The plant operated through a full range of operating conditions during the occurrence. Just prior to discovery of the occurrence the plant was in a shutdown condition.

Description of Occurrence

On August 11, 1981 a flow integrator was installed on the automatic demineralized water makeup system to the Reactor Building Closed Cooling Water (RBCCW) Surge Tank. After installation and calibration it was discovered that a 4.3 gpm leak existed somewhere in the RBCCW system. Due to heat load on the RBCCW system two pump and two heat exchanger operation was necessary and no attempt was made to isolate the heat exchangers.

On August 14, 1981 a plant shutdown was commenced and on August 19 with the plant in the cold condition (<212°F) and decay heat diminished, the West RBCCW heat exchanger was isolated. Upon isolation the RBCCW makeup rate was reduced from 4.3 gpm to .5 gallons per hour indicating that the leak was stopped.

The heat exchanger remained isolated and the system was in a two pump and one heat exchanger mode until approximately 4:00 A.M. on August 23, 1981. At this time an attempt was made to operate in the one pump one heat exchanger mode. When an RBCCW pump was removed from service, discharge pressure on the other pump dropped to less than 90 psig, the minimum required by procedure. The second pump was restarted with its discharge valve open and the heat exchanger flow bypass valve essentially closed. The starting of the second pump caused tube vibration in the east heat exchanger that was heard by th operaor. Shortly after restarting the second pump the RBCCW surge tank low level alarm was annunciated, indicating a larger leak in the east heat exchanger to the service water system. The west RBCCW heat exchanger was placed in service and the east isolated. The west heat exchanger remained in service until approximately 1320 on August 26 until the east heat exchanger was repaired by tube plugging and placed in service.

Apparent Cause of Occurrence

The cause of the tube leaks appears to be tube vibration resulting from inadequate procedures.

Analysis of Occurrence

In January 1981 in response to a TMI Lessons Learned requirement the demineralized water makeup to the RBCCW Surge Tank was placed in automatic operation. This mode of operation had not been used for many years of plant operation. When placed in automatic operation there was no indication of heat exchanger tube leakage, however, for the purpose of analysis it is assumed that the 4.3 gpm leak rate existed from January 1, 1981 to August 26, 1981.

From weekly analyses of the RBCCW System minimum, maximum and average isotopic concentrations were developed.

| Time Period | Minimum Concentration | Average Concentration | Maximum Concentration |
|---|---|---|---|
| 12-26-80 to 9-10-81 | 4.35E-6 µCi/ml | 1.15E-4 µCi/ml | 1.34E-3 µCi/ml |

With a 4 gpm leak into a minimum of 6000 gpm service water flow a dilution factor of 7.0E-4 is applied to the average to give a concentration of 8.05E-8µCi/ml at the point of discharge. An additional circulating water flow of 460,000 gpm gives a concentration of 1.8E-13µCi/ml in the discharge canal which is well below the allowable concentration for radioactive effluent discharge.

Based on the above, the consequence of this event is considered minimal.

Corrective Action

Immediate corrective action consisted of isolating the heat exchanger with major leakage and after its repair isolating the heat exhanger with the smaller leak.

Both heat exchangers were repaired by plugging leaking tubes and those immediately surrounding the leaking tubes.

In order to prevent recurrence the procedures governing RBCCW and Service Water System operation are being reviewed and revised as necessary to ensure future tube bundle vibration does not occur. To prevent any possible long term undetected leakage the newly installed integrator is being used.

In addition, an engineering evaluation regarding tube replacement is being conducted to determine if and when the tube bundles should possibly be replaced.