


Jersey Central Power & Light Company



MADISON AVENUE AT PUNCH BOWL ROAD • MORRISTOWN, N. J. 07960 • 201-539-6111

MEMBER OF THE
General  Public Utilities Corporation

November 8, 1973

Mr. A. Giambusso
Deputy Director for Reactor Projects
Directorate of Licensing
United States Atomic Energy Commission
Washington, D. C. 20545



Dear Mr. Giambusso:

Subject: Oyster Creek Station
Docket No. 50-219
Closed Cooling Water System Leakage

This letter serves to report an unmonitored release due to leakage from the reactor building closed cooling water system to the discharge canal via the service water system. This event is considered to be an abnormal occurrence as defined in the Technical Specifications, paragraph 1.15C. Notification of this event, as required by the Technical Specifications, paragraph 6.6.2.a, was made to AEC Region I, Directorate of Regulatory Operations, by telephone on Tuesday, October 30, 1973 and by telecopier on Wednesday, October 31, 1973.

On September 14, 1973, leakage into the reactor building closed cooling water system from a leak in the fuel pool cooling system was identified and isolated. As a result, the closed cooling water system activity was analyzed on several occasions with the highest concentration calculated to be 1.9×10^{-4} $\mu\text{Ci/ml}$ in a sample taken on September 26, 1973. The activity was identified to be primarily Cs^{134} and Cs^{137} .

On October 19, 1973, leakage from the closed cooling water system was noted as indicated by a decreasing level in the reactor building closed cooling water system surge tank of up to 4-4.5"/hr. (<1.0 gpm).

The cause of the release was a tube leak in the #1-2 reactor building closed cooling water heat exchanger.

Operations personnel began isolating various components of the closed cooling water system in order to identify the source of leakage. As noted above, the rate of leakage from the system was conservatively estimated to be 1.0 gpm. On October 22, 1973, a sample of the closed cooling water system

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indicated a concentration of 6.3×10^{-5} $\mu\text{Ci/ml}$, indicating that leakage had occurred during the period of September 26, 1973 through October 22, 1973. On October 29, 1973, RBCCW heat exchanger #1-2 was identified as the source of leakage. Prior to this date, it was not recognized that the leakage was to the environment. A closed cooling water sample taken on October 30, 1973, following repairs to the heat exchanger, indicates the present activity level to be 2.5×10^{-5} $\mu\text{Ci/ml}$.

Consideration was given to sampling the service water discharge for radioactive concentrations during the early stages of investigation into the source of leakage. Due to the low activity levels present in the closed cooling water system, the added dilution factor of 6000:1 would have made the activity levels in the service water system below detectable limits.

The release was evaluated using a leak rate of one gallon per minute and the maximum concentration of 1.1×10^{-4} $\mu\text{Ci/ml}$ Cs^{137} and 0.8×10^{-4} $\mu\text{Ci/ml}$ Cs^{134} . Using a discharge canal flow of 4.5×10^5 gpm and the appropriate recirculation factor of 3.76, the maximum concentration and permissible concentrations in the discharge canal at the site boundary due to the RBCCW leakage were:

<u>Isotope</u>	<u>Canal Concentration</u>	<u>Allowable MPC (With Recirculation)*</u>	<u>% of MPC</u>
Cs^{137}	2.4×10^{-10} $\mu\text{Ci/ml}$	5.4×10^{-6} $\mu\text{Ci/ml}$	0.0044%
Cs^{134}	1.74×10^{-10} $\mu\text{Ci/ml}$	2.4×10^{-6} $\mu\text{Ci/ml}$	0.0073%

* Based on Appendix B, Table II, Column 2, of 10CFR20, and reduced by the appropriate recirculation factor.

The release rate was, therefore, well within license limits and did not threaten the health or safety of the public.

A total of 14,500 gallons of water was estimated to have been released over a ten-day period. During this period, only four releases were made into the discharge canal from the station. These totaled 6,300 gallons and were all releases from the laundry drain tank. The releases were made on an unidentified bases resulting in a discharge canal concentration ranging from 3.3×10^{-9} to 7.8×10^{-10} $\mu\text{Ci/ml}$ over an accumulative time period of 12 hours.

To prevent a repetition of this occurrence, the station operating staff is determining the best technique for removing the activity from the RBCCW system. This will most likely be a temporary demineralizer flow path in the system. Further, the appropriate procedures will be revised to require in the future, prompt action to identify the location of a system leak plus sampling and analysis of both the closed cooling and service water flow streams for detectable activity.

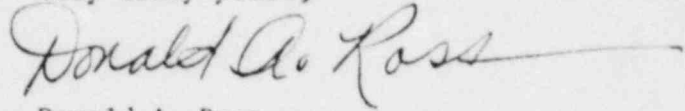
Mr. Giambusso

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November 8, 1973

Enclosed are forty (40) copies of this report.

Very truly yours,

A handwritten signature in cursive script that reads "Donald A. Ross". The signature is written in dark ink and extends across the width of the page.

Donald A. Ross
Manager, Nuclear Generating Stations

DAR:cs

Enclosures

cc: Mr. J. P. O'Reilly, Director
Directorate of Regulatory Operations, Region I