

U.S. ATOMIC ENERGY COMMISSIO.

DIRECTORATE OF REGULATORY OPERATIONS

REGION I

RO Inspection Report No.: 50-219/73-16

Docket No.: 50-219

Licensee: Jersey Central Power & Light Company (JCP&L)

License No.: DPR-16

Madison Avenue at Punch Bowl Road

- Priority: -

Morristown, New Jersey 07960

- Category: C

Location: Oyster Creek Nuclear Station (OC)  
Forked River, New Jersey

Type of Licensee: 640 MWe - BWR (GE)

Type of Inspection: Routine - Unannounced (Environmental Monitoring)

Dates of Inspection: October 1, 1973

Dates of Previous Inspection: September 10-12, 1973

Reporting Inspector: Charles O. Gallina  
C. O. Gallina, Ph.D., Radiation Specialist

11/9/73  
Date

Accompanying Inspectors: \_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_

\_\_\_\_\_  
Date

\_\_\_\_\_

\_\_\_\_\_  
Date

Other Accompanying Personnel: None

\_\_\_\_\_  
Date

Reviewed by: J. P. Stohr  
J. P. Stohr, Senior Environmental Scientist

11/13/73  
Date

\_\_\_\_\_

\_\_\_\_\_  
Date

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## SUMMARY OF FINDINGS

### Enforcement Action

None

### Licensee Action on Previously Identified Enforcement Items (Environmental Monitoring)

Thirteen violations were identified in RO Inspection Report No. 50-219/73-03 relating to the failure of the licensee to perform the following in accordance with OC Technical Specifications, Section 4.6, B(3):

- A. Measurement of atmospheric radiation every four weeks.
- B. Measurement of air particulate samples from five locations.
- C. Changing air particulate filters every two weeks.
- D. Gross alpha analysis on air particulate filters every twelve weeks.
- E. Soil samples from five locations every four weeks.
- F. Vegetation samples from five locations every four weeks.
- G. Rainwater samples from five locations every four weeks.
- H. Domestic water samples from six locations every four weeks.
- I. Analysis of domestic water for Uranium, Tritium, K-40, Ra-226 and Ra-228 every 12 weeks.
- J. Surface water samples from five locations every four weeks.
- K. Silt samples from five locations every 12 weeks.
- L. Clam samples from three locations every four weeks.
- M. Analysis of clam samples for K-40, Sr-90, I-131, Cs-137, Co-58, Co-60 and Zn-65 every twelve weeks.

The above violations were reviewed during the course of this inspection and were found to have been corrected. (Paragraph 4)

### Design Changes

None

### Unusual Occurrences

None

### Other Significant Findings

#### A. Current Findings

No violations were identified during this inspection.

B. Status of Previously Reported Unresolved Items (Environmental Monitoring)

None identified.

Management Interview

On October 1, 1973 a meeting was held at the OC site with Mr. J. T. Carroll, Station Superintendent at the conclusion of the inspection. During this meeting the following items were discussed:

A. Environmental Monitoring Programs:

The licensee stated that the overall environmental monitoring program (radiological and non-radiological) for the OC site had been reviewed and upgraded to meet current standards. This upgraded program was to be submitted to the AEC in conjunction with the upcoming submission of Environmental Technical Specifications scheduled for November 1, 1973. (Paragraph 3)

B. Sampling and Analytical Procedures:

The licensee stated that in accordance with a request made by the inspector, sampling, analytical and quality control procedures utilized by the licensee's consultant (Teledyne Isotopes of Westwood, New Jersey) would be forwarded to the inspector as soon as possible. (Paragraph 6)

## DETAILS

### 1. Persons Contacted

Mr. J. T. Carroll, Station Superintendent, OC  
Mr. J. L. Sullivan, Technical Supervisor, OC  
Mr. R. L. Stoudnour, Chemical Engineer, OC

### 2. General

The inspection consisted of a review of the licensee's operational environmental monitoring program as delineated in Section 4.6, B(3) of the Oyster Creek Technical Specifications,\* conducted to determine the licensee's compliance therewith. The inspection included a detailed review of all environmental monitoring records from January 1973 through September 1973, inclusively. Specific attention was given to those aspects of the environmental program conducted subsequent to the licensee's letter to DRO:Region I dated May 22, 1973 describing the licensee's corrective actions with respect to the violations identified in RO Inspection Report No. 50-219/73-03 and RO letter dated April 26, 1973.

The inspector noted that although various samples had not been taken according to the OC Technical Specifications prior to June 1973, the licensee appeared to be in compliance subsequent to that date and within the time frame delineated in the licensee's letter of May 22, 1973.

### 3. Organization and Administration

The inspector reviewed the organization and administration of the licensee's environmental monitoring programs at the OC site with specific attention given to changes effected since the last inspection in this area. The licensee stated that an individual had been assigned to supervise the environmental monitoring programs at the site on a full time basis and that an engineering assistant had also been assigned to aid in this operation. The inspector reviewed the new functions in detail as well as any associated changes in the mechanics of the environmental program initiated to date.

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\* The detailed description of the operational environmental monitoring program is contained in Table B-II-1 of Section B.II.6 of Amendment 65 of the application for a Reactor License. Section B.II.6 is referenced by the aforementioned section of the OC Technical Specifications.

The licensee stated that a program had been set up in June 1973 whereby closer control was maintained over environmental sampling schedules and the evaluation of resultant analytical data. Scheduling check lists had been prepared and routine inspection of air particulate sampling stations on a rotating basis had been initiated. The licensee stated that charcoal cartridges had been installed at all air sampling stations in order to measure airborne iodine and that new pumps had been installed at all stations in order to alleviate the maintenance problems encountered earlier. The licensee stated that all environmental monitoring programs (radiological and non-radiological) were soon to be upgraded in conjunction with the submission of Environmental Technical Specifications (ETS) for the OC site. The licensee stated that this submission was scheduled for November 1, 1973. The licensee also stated that the upgraded environmental monitoring program was being prepared in conjunction with Dr. G. H. Whipple and Pickard, Low and Associates, Incorporated in Washington, D. C.

4. Review of Environmental Monitoring Records

The inspector reviewed all environmental monitoring records from January through September 1973. The inspector noted that various radiogas, air particulate, well water and crop samples had not been taken but that these omissions had occurred prior to the corrective action proposed in the licensee's letter of May 22, 1973. The inspector did note, however, that radiogas samples from January 16, 1973 through February 14, 1973 were higher than normal (up to 18 mrad above background where samples are normally at background levels) and asked the licensee if any evaluation had been made as to the cause of these higher readings. The licensee stated that these readings had been evaluated but that no definitive cause could be attributed to the higher readings. The inspector also noted a very significant decrease in the activity normally being detected in crops (600 to 2000 pCi/gram down to 16 to 41 pCi/gram) and inquired if any significant sampling or analytical procedure had been altered to explain this drop in reported activity. The licensee stated that he was unaware of any change of procedure but would look further into possible causes of this activity reduction.



In reviewing all environmental data subsequent to the initiation of the licensee's corrective action as described in the aforementioned letter, the inspector noted that the licensee was conducting the environmental monitoring program (radiological) in apparent conformance with requirements as delineated in the OC Technical Specifications.

5. Data Evaluation

The inspector reviewed the licensee's program for evaluating the results of the environmental monitoring program at the OC site. The licensee stated that all results were evaluated upon receipt from Teledyne Isotopes of Westwood, New Jersey or Radiation Detection Company of Sunnyvale, California (film badges), the two primary consultants to OC in the environmental monitoring area. The licensee stated that due to the limited background of OC personnel in these areas, all results were initially compared to preoperational radioactivity levels for the various sampling locations and types. The licensee stated that a table had been prepared showing the minimum, average and maximum activity levels detected at the various sampling locations before OC became operational and as long as reported operational levels fell within this range, no further evaluation was provided. Should activity levels exceed the maximum preoperational values, further evaluation was provided primarily by contact with the consultant providing the data (e.g., Teledyne Isotopes or Radiation Detection Company). The inspector verified documentation provided by the licensee showing instances where this further evaluation had been utilized in the past. The licensee stated that some in-house capability in this area would in all probability be developed in the near future but that a specific commitment could not be made at this time.

The inspector also questioned the licensee as to the degree of evaluation provided at upper management levels at the OC site, JCP&L and General Public Utilities Corporation (GPU), the parent organization. The licensee stated that although further evaluation of environmental data was provided at the OC site, evaluation by JCP&L and GPU would have to be considered minimal at this time. The inspector stated that this entire area would be re-evaluated subsequent to the submission of the upgraded environmental program to insure that an appropriate degree of supervision and evaluation was being provided commensurate with the objectives and scope of the environmental programs at the OC site.

6. Sampling and Analytical Procedures

The inspector stated that during the last inspection of the environmental programs at the OC site (RO Inspection Report No. 50-219/73-03), the licensee stated that sampling, analytical and quality control procedures utilized by the licensee's consultant (Teledyne Isotopes) would be forwarded to the inspector for review. The inspector stated that to date, these procedures had not been received. The licensee stated that this was probably an oversight and that the aforementioned procedures would be forwarded to the inspector as soon as possible.

7. Other Areas: Radiological and Non-radiological

The inspector noted that various other modifications had been initiated with respect to the environmental monitoring program at the OC site and reviewed these items with the licensee. These items included the following:

- 1) Addition of chromium and copper analyses on various well water samples.
- 2) Removal of rubber covers from film badges at radiogas monitoring stations.
- 3) Evaluation of thermoluminescent dosimeters for measurement of radiation levels (LiF for internal Health Physics and  $\text{CaSO}_4$  for environmental monitoring).\*
- 4) Development of procedures to be followed in the event of fish kills.

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\* Results of this evaluation were inconclusive at the time of the inspection.

# Jersey Central Power & Light Company

## MEMORANDUM

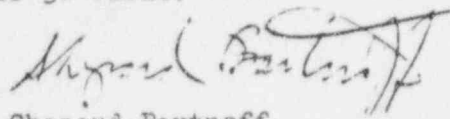
SUBJECT: Oyster Creek Management Audit Committee

November 9, 1973

TO: Messrs. W. M. Creitz  
H. M. Dieckamp  
W. G. Kuhns  
R. H. Sims  
W. A. Verrochi

A Management Audit Committee for the Oyster Creek Station is hereby established, consisting of those to whom this letter is addressed, and with myself as Chairman. Mr. Kenneth A. Greene, Nuclear Committee Coordinator in the GPU Service Corporation, is designated as permanent Secretary of the Committee.

The first visit of the Audit team to the Oyster Creek site will be on November 30, 1973 at 10:00 A.M. In accordance with our telephone conversation, I am requesting Mr. Tom Crimmins, Manager of Safety and Licensing, GPUSC, to prepare an agenda for the November 30 visit.



Shepard Bartnoff

SB:EMT

cc to Messrs. J. T. Carroll  
T. M. Crimmins  
I. R. Finfrock  
K. A. Greene  
D. A. Ross

see to Mr. J. P. O'Reilly ✓

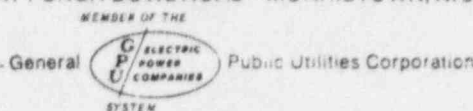
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# Jersey Central Power & Light Company



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



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  $1.9 \times 10^{-4}$   $\mu\text{Ci/ml}$  in a sample taken on September 26, 1973. The activity was identified to be primarily  $\text{Cs}^{134}$  and  $\text{Cs}^{137}$ .

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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November 8, 1973

indicated a concentration of  $6.3 \times 10^{-5}$   $\mu\text{Ci/ml}$ , 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  $2.5 \times 10^{-5}$   $\mu\text{Ci/ml}$ .

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  $1.1 \times 10^{-4}$   $\mu\text{Ci/ml}$   $\text{Cs}^{137}$  and  $0.8 \times 10^{-4}$   $\mu\text{Ci/ml}$   $\text{Cs}^{134}$ . Using a discharge canal flow of  $4.5 \times 10^5$  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:

Isotope	Canal Concentration	Allowable MPC (With Recirculation)*	% of MPC
$\text{Cs}^{137}$	$2.4 \times 10^{-10}$ $\mu\text{Ci/ml}$	$5.4 \times 10^{-6}$ $\mu\text{Ci/ml}$	0.0044%
$\text{Cs}^{134}$	$1.74 \times 10^{-10}$ $\mu\text{Ci/ml}$	$2.4 \times 10^{-6}$ $\mu\text{Ci/ml}$	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  $3.3 \times 10^{-9}$  to  $7.8 \times 10^{-10}$   $\mu\text{Ci/ml}$  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.

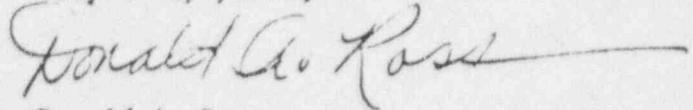
Mr. Giambusso

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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