

U. S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT  
REGION I

IE Inspection Report No: 50-219/75-08

Docket No: 50-219

Licensee: Jersey Central Power and 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 Generating Station (OC) at  
Forked River, New Jersey

Safeguards  
Group: \_\_\_\_\_

Type of Licensee: BWR, 650 MWe (GE)

Type of Inspection: Environmental, Routine, Unannounced

Dates of Inspection: March 18-20, 1975

Dates of Previous Inspection: March 10-14, 1975

Reporting Inspector: *R. J. Bores*  
R. J. Bores, Radiation Specialist

4/4/75  
DATE

Accompanying Inspectors: None

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DATE

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Other Accompanying Personnel: None

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DATE

Reviewed By: *J. P. Stohr*  
J. P. Stohr, Senior Environmental Scientist

4/4/75  
DATE

*BY 863*

## SUMMARY OF FINDINGS

### Enforcement Action (Environmental Monitoring)

#### Deficiencies

The following items, reported by the licensee in Semi-Annual Report No. 11, covering operations between July 1, 1974 to December 31, 1974, were found to be in noncompliance with the Technical Specifications, Section 4.6.B(3).

1. Surface water sampled at five locations was not analyzed for U, Ra-226 and Ra-228 between July 2, 1974 and October 22, 1974, an interval greater than four weeks. (Details, Paragraph 4.d)
2. Well water sampled at six locations was not analyzed for U, Ra-226 and Ra-228 between July 5, 1974 and December 19, 1974, an interval exceeding 12 weeks. (Details, Paragraph 4.e)

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

None identified

#### Design Changes

None

#### Other Significant Findings (Environmental Monitoring)

##### A. Current Findings (Unresolved Items)

None

##### B. Status of Previously Identified Unresolved Items

None identified

##### C. Other Current Findings

1. The licensee switched radiological analysis vendors as of November 18, 1974.
2. The inspector also reviewed the circumstances surrounding the missing air particulate samples reported by the licensee's letter of August 26, 1974. There are no further questions in this matter. (Details, Paragraph 4.b)

Management Interview

On March 20, 1975, following the inspection onsite, a meeting was held at the Oyster Creek Nuclear Generating Station. The following individuals were in attendance:

Mr. R. J. Bores, Radiation Specialist, USNRC, IE:1  
Mr. D. A. Ross, Manager, Nuclear Generating Stations, JCP&L  
Mr. D. L. Reeves, Chief Engineer, OC  
Mr. E. J. Growney, Technical Engineer, OC  
Mr R. L. Stoudnour, Staff Engineer, OC

During this meeting, the following items were discussed:

A. Analyses of Surface and Well Water Samples

The inspector stated that Appendix A, Technical Specification 4.6.B(3)\* requires, in part, that surface water be sampled at five locations and analyzed for U, Ra-226 and Ra-228 every four weeks and well water be sampled at six locations and analyzed for U, Ra-226 and Ra-228 every 12 weeks. The inspector stated that the records revealed that surface water had not been analyzed for U, Ra-226 and Ra-228 between July 2, 1974 and October 22, 1974, an interval exceeding four weeks, and well water had not been analyzed for U, Ra-226 and Ra-228 between July 5, 1974 and December 19, 1974, an interval exceeding 12 weeks. The inspector noted that these items of noncompliance had been reported by the licensee in the semi-annual operating report covering this period. The inspector stated that the licensee's corrective action in this matter was inadequate to prevent recurrence of these items. (Details, Paragraphs 4.d and 4.e)

B. Quality Assurance/Quality Control Relating to Radiological Environmental Monitoring Programs

The inspector discussed a number of items related to the assurance that the environmental monitoring programs are conducted as required and that the results of the radio-analytical measurements are valid. Items discussed included:

1. The establishment of management audit program to assure that the environmental sampling and analytical requirements are met.

\* The detailed description of the operational environmental monitoring program is contained in Section B.II.6 of Amendment 65 of the Application for a Reactor License, as referenced by Section 4.6.B(3) of the Technical Specifications.

2. The review of current sampling, preparation and analytical procedures to assure that the samples analyzed are representative of the required media and the results are valid.
3. The review of analytical results on a timely basis to assure that atypical results can either be confirmed or disproved and that all required analyses were performed.
4. The establishment of a program to use low-level spike samples, duplicate samples and split samples to verify analytical quality.

The licensee stated that these areas would be reviewed and appropriate action would be taken. (Details, Paragraph 5)

C. Environmental Sampling Techniques

The inspector discussed the procedures used to sample several media including:

1. Recommended methods of taking soil and silt samples.
2. The use of HCl and NaHSO<sub>3</sub> in water samples to prevent plate-out of selective ions on container walls.
3. The location of thermoluminescent dosimeters (TLD's) so as to minimize shielding by surrounding structures.

The licensee stated that these areas would be reviewed and appropriate action would be taken. (Details, Paragraphs 4.a, 4.d and 4.g)

D. Personnel and Storage Space

1. The inspector expressed concern that as presently conducted, the environmental program is dependent on plant operations, in that personnel who normally collect the environmental samples may not always be available when necessary. The inspector noted that the current set of samples was collected March 10, 11, 13, 17 and 18, 1975 and was not ready for shipment to the contractor until March 20, 1975.

2. The inspector also discussed the possibility of contamination of environmental samples in the present storage facilities.

The licensee stated that the above items would be reviewed. (Details, Paragraph 6)

E. Transformer Areas

The inspector stated that in his site tour he noted that the transformer areas were not cofferdammed to contain the transformer oil in the event of a rupture or major spill. The licensee stated that this was being evaluated and appropriate action would be taken. (Details, Paragraph 9)

## DETAILS

### 1. Individuals Contacted

Mr. J. Carroll, Station Superintendent, OC  
Mr. D. Reeves, Chief Engineer, OC  
Mr. E. Gowney, Technical Engineer, OC  
Mr. R. Stoudnour, Staff Engineer, OC  
Mr. D. Weigle, Engineering Assistant, OC  
Mr. C. Konta, Chemical Foreman, OC  
Mr. N. Cole, Shift Foreman, OC  
Mr. D. Ross, Manager, Nuclear Generating Stations, JCP&L  
Mr. M. Roach, Environmental Scientist, JCP&L  
Mr. A. Heteyi, Environmental Scientist, JCP&L  
Mr. L. Lanese, Safety and Licensing Engineer, General Public  
Utilities (GPU)  
Mr. H. Kurtz, Oyster Creek Marina  
Mr. and Mrs. H. Baumgardt, Sands Point Marina

### 2. General

The inspection consisted of a review of the environmental monitoring programs at the Oyster Creek Nuclear Generating Station site, Forked River, New Jersey, encompassing both the radiological and nonradiological aspects of these programs. The licensee's current operational environmental monitoring requirements are specified in the Technical Specifications, Section 4.6.B(3). The licensee has no current Technical Specifications covering the nonradiological aspects but requirements are expected for these areas in the near future in conjunction with the conversion to the Full Term Operating License. The licensee has received a NPDES (National Pollutant Discharge Elimination System) Permit, effective January 31, 1975 from EPA, regulating the thermal and chemical discharges from the plant. In addition, the Final Environmental Statement for Oyster Creek lists a number of conditions recommended for the protection of the environment.

Areas examined during this inspection included selected air sampling, precipitation collecting and gamma dosimetry (radiogas measuring) stations, representative sampling and analytical procedures and program results, quality assurance as related to these programs, meteorology, chemical and thermal monitoring of discharges, the status of programs relating to the shipworm studies, the removal of wood from Oyster Creek, dredging the intake and discharge canals and bank stabilization, fish impingement monitoring, and the entrainment and thermal effects studies.

The inspection consisted of a selective review of records, procedures and results, interviews with the licensee and other personnel and observations by the inspector.

3. Organization and Administration

The inspector reviewed the organization and administration of the environmental monitoring programs at OC with specific attention to changes effected since the last inspection of this area. With respect to the radiological monitoring program, the organization and administration were essentially the same as reported in RO Inspection Report No. 50-219/73-16. The program is under the supervision of Mr. Stoudnour, Staff Engineer, who reports through Mr. Growney, Technical Engineer to Mr. Carroll, Station Superintendent. The licensee stated that sample collection and check-off lists are used to assure that all required samples are collected on schedule and the results are logged for evaluation. The licensee stated that the results are routinely evaluated by Mr. Stoudnour and on a semi-annual basis by Mr. T. Potter of Pickard, Lowe and Associates, Inc., Washington, D. C. The licensee stated that the nonradiological monitoring programs and special studies are under the direction of Mr. W. Baldwin, Environmental Affairs Department, JCP&L.

The licensee stated that film badges used as part of the radiological monitoring program continue to be supplied and processed by Radiation Detection Company, Sunnyvale, California. Teledyne Isotopes, Inc., Westwood, New Jersey had performed all the radiological analyses of environmental samples and supplied TLD's for environmental monitoring until November 18, 1974. At that time both the TLD and radioanalytical programs were transferred to Radiation Management Corporation (RMC), Philadelphia, Pennsylvania. All radiological environmental samples are collected by HP personnel with the exception of some clam and marine life samples which are collected by a local fisherman.

4. Radiological Monitoring Program

Table B-II-1, Section B.II.6 of Amendment 65 to the Application for Reactor Operating License, referenced in Section 4.6.B(3) of the Technical Specifications (hereafter referred to as Table B-II-1 of the TS) describes the applicable requirements for this program.

a. Gamma Dosimetry (Radiogas)

Table B-II-1 of the TS requires that 20 stations be monitored for gamma dose (radiogas) by film badge at 4 week intervals.

The inspector reviewed the results of the film badges since the third quarter 1973 and noted that nearly all results were reported as 0 mrad each month. The licensee stated that the film badge program would probably be discontinued when the new TS are implemented.

The licensee is continuing to evaluate TLD's with which to monitor the monthly environmental gamma radiation. Prior to November 18, 1974 the Teledyne TLD badge with  $\text{CaSO}_4(\text{Dy})$  was employed at each of the 21 film badge locations. After the above date the RMC dosimeters,  $\text{CaSO}_4(\text{Tm})$ , were used at each location including the three background locations. Two monthly TLD's (providing four individual measurements) and a quarterly TLD are used at each station. The review of the 1974 data revealed a typical monthly dose in the range of 4 to 6 millirem. Only the monitoring station at the meteorology shack appeared to be influenced by plant operations.

The inspector observed that the TLD's were attached directly to power line poles and little consideration was given to the orientation of the TLD's with respect to the direction of the plant. The inspector discussed with the licensee methods of minimizing shielding from surrounding structures. The licensee stated that these areas would be evaluated and appropriate action would be taken.

b. Airborne Activity

Table B-II-1 of the TS require that airborne particulates be sampled at five locations and analyzed for gross beta activity every two weeks and for gross alpha every 12 weeks.

The inspector examined selected sampling stations and noted all were operating at the time of inspection. The licensee stated that the air particulate filters (Gelman Type E) and the charcoal cartridges (Cesco Type B) were changed every two weeks and in the alternate weeks the samplers were checked for proper operation. The licensee stated that the pumps are changed out of service every six months for preventative maintenance. Electric interval timers and dry gas meters are used in conjunction with differential pressure measurements to determine the volumes of air sampled. The flow rates are controlled by flow regulators to nominally 1 cfm.



The inspector reviewed the results of the air particulate analyses since the third quarter 1973 and noted that gross beta analyses were performed on two-week samples from eight sampling locations, including three background locations in excess of 20 miles from the station. Gross alpha analyses were performed each 12 weeks, as required. In addition, gamma spectral analyses were performed on each particulate filter. The inspector noted that the latest results received from the radioanalytical contractor were for the samples collected on January 14, 1975.

The inspector discussed with the licensee the missing air particulate filters collected on August 12 and 13, 1974 and reported to the Director, IE:I in a letter dated August 26, 1974. The licensee stated that further investigation into the matter indicated that those filters were sent to the vendor (the glassine envelopes contained evidence of particulates) and it now appears that the filters were misplaced by the vendor. The licensee has increased surveillance in this area with appropriate check sheets to assure that all appropriate samples are collected and sent to the contractor. The inspector stated that he had no further questions in this matter.

The inspector reviewed the results of the charcoal cartridge analyses since the third quarter 1973. The results indicated that the I-131 activity was less than the detectable concentration on almost all filters.\* The Minimum Detectable Concentrations (MDC) reported through the first half of 1974 ranged from about 0.01 to 0.08 pCi/m<sup>3</sup>. During the second half of 1974, however, Teledyne's MDC reached 0.20 pCi/m<sup>3</sup>. The records were unclear as to whether these values had been corrected for decay to the middle of the two-week sampling period. The licensee was unable to clarify this. The apparent cause for this decrease in sensitivity was given as the long delay between the sample collection and analyses. Following the change to RMC, the I-131 concentrations were reported in the range from  $< 4 \times 10^{-3}$  to  $< 6.2 \times 10^{-3}$  pCi/m<sup>3</sup>.

The charcoal analyses reported by Teledyne also indicated the presence of Cs-137 and Co-60 regularly. The inspector reviewed the licensee's action in this regard since the

\* The I-131 activity on the charcoal cartridge for the two-week interval ending April 10, 1974 for a location six miles from the plant was reported as  $7.8 \times 10^{-2}$  pCi/m<sup>3</sup>. The date of analyses was reported as May 1, 1974. No unusual gaseous releases were reported from the plant during this period.

Cs-137 levels reported on the charcoal were a factor of 10 higher than reported on the Gelman Type E prefilter. To resolve the problem, the licensee used two prefilters and also submitted several unused charcoal cartridges for analysis. The results of these analyses indicated approximately the same levels of Cs-137 on these cartridges, indicating a probable contamination of the filters before use, or of the analytical instrumentation. No Cs-137 or Co-60 were reported on the cartridges subsequently analyzed by RMC.

c. Rain Water

Table B-II-1 of the TS requires that rainwater from five stations be analyzed every four weeks for gross beta in the suspended and in the dissolved fractions.

The review of the licensee's records indicated that all the required samples were collected and analyzed appropriately. The licensee also employs three background rainwater stations (greater than 20 miles from the plant). Typical results range from 0.1 to 0.8 nanocuries/m<sup>2</sup> for suspended and 0.1 to 1.5 nanocuries/m<sup>2</sup> gross beta for the dissolved fraction. No significant difference was noted between the background and indicator stations.

d. Surface Water

Table B-II-1 of the TS requires, in part, that surface water be sampled at five locations every four weeks and analyzed for a number of specified nuclides, including U, Ra-226 and Ra-228.

The inspector discussed with the licensee recommended sampling procedures and the use of 2% HCl with NaHSO<sub>3</sub> in water samples to help prevent the selective plate-out of ions on the container walls. The licensee stated that these items would be evaluated for all water samples and appropriate action would be taken.

The inspector reviewed the results of the surface water analyses since the third quarter 1973 and noted that all the required samples were taken, in addition to a background sample each period, and all the analyses were performed with the following exceptions. No surface water samples were analyzed for U, Ra-226 and Ra-228 from July 2, 1974 to September 23, 1974, an interval exceeding four weeks. The inspector stated

that this was in noncompliance with the requirements. The licensee stated that the vendor had apparently changed some procedures and arbitrarily dropped these analyses without notifying the licensee. The licensee further stated that this was one of the reasons for changing radioanalytical vendors. The inspector noted that the reported analyses lagged many weeks after the samples were taken, such that the licensee did not know which analyses were performed until several months later. In the review of the data since the vendor switch, the inspector noted a similar delay in getting the results from the vendor. The inspector stated that switching contractors, by itself did not appear to be adequate to prevent recurrence of similar noncompliance items in view of the current delays in obtaining the results. (Few analytical results were available at the time of inspection for samples taken since November 18, 1974.)

The period in which the U, Ra-226 and Ra-228 analyses were omitted was also the period in which the reported MDC for I-131 in water also increased significantly.

<u>Sampling Date</u>	<u>Reported MDC for I-131 in pCi/l</u>
prior to 7/2/74	< 6
7/2/74	< 6
7/29/74	< 100
8/26/74	< 200
9/23/74	< 100
10/21/74	< 100
11/18/74 (RMC)	< 5

It was also noted that this is the same time interval during which the air particulate filters were lost. (Paragraph 4.b)

The inspector also discussed the results of the H-3 analyses with the licensee in that all the results were reported below the MDC, < 1000 pCi/l. Since ambient levels of H-3 in surface water are typically of the 200 to 400 pCi/l level, no increase in the ambient H-3 levels would be seen until the levels had doubled or tripled. The licensee stated that the MDC for H-3 in water would be reviewed and appropriate action would be taken.

e. Well Water

Table B-II-1 of the TS requires that well water be sampled from six wells and that specified analyses be performed at

4-week and 12-week intervals. U, Ra-226 and Ra-228 analyses are included in those to be performed every 12 weeks.

The inspector reviewed the results of these analyses since the third quarter 1973 and noted that all the required samples were taken. None of the well water samples were analyzed for U, Ra-226 and Ra-228 between July 5, 1974 and December 17, 1974, an interval in excess of the 12 week requirement. The licensee was informed that this was in noncompliance with the requirements and noted that it was reported in the 6-month report. The inspector stated that the same type items related to prevention of recurrence, delay in analyses, HCl addition and MDC for H-3 discussed in Paragraph 4.d were applicable to well water. The licensee stated that these areas would be evaluated.

f. Vegetation

Table B-II-1 of the TS requires that vegetation be sampled every four weeks at five locations and analyzed for gross beta activity.

The inspector reviewed the sampling procedures used and observed vegetation samples awaiting shipment to the vendor for analysis. The current shipment consisted primarily of evergreen twigs and branches, since as the licensee stated, the requirement specifies four-week samples and during the winter months, no other vegetation is normally available.

The review of the results indicated all of the samples were taken as required and were appropriately analyzed. The inspector discussed the meaning, or lack of meaning, of gross beta activity with respect to the types of vegetation sampled. The licensee stated this was realized and would be remedied with the implementation of the new TS.

g. Soil and Silt

Table B-II-1 of the TS requires that soil be sampled every 4-weeks at five locations and analyzed for gross beta activity, and that silt be sampled every 12 weeks at 5 locations and analyzed for gross alpha and gross beta activities.

The inspector reviewed the sampling procedures for these media with the licensee. The licensee stated that a trowel was used to sample the upper 1/2 inch of soil over a 1-foot

square area. The inspector noted that the soil was very loose and because of its sandy nature, most fall-out activity would likely be leached beyond the upper 1/2 inch of soil. The licensee also stated that the trowel was also used to obtain the silt samples. The inspector discussed this sampling technique with respect to obtaining a representative silt sample from the streams or bay. The licensee stated that these sampling procedures would be reevaluated.

The inspector reviewed the results of the sample analyses since the third quarter 1973 and noted all of the required samples were taken and analyzed. The latest reported results were for November 1974.

h. Other Media

Table B-II-1 of the TS also requires that other media such as crops and clams be analyzed at specified frequencies. The inspector reviewed the available data since the third quarter 1973 and noted that all the required samples were taken and analyses were performed. No increase in activity was seen that could be attributed to plant operations.

5. Quality Assurance as Related to Environmental Monitoring

The inspector discussed with the licensee a number of items related to the assurance that the environmental programs are conducted as required and that the results of analyses are valid. Items discussed included:

- a. The establishment of a management audit program to assure that sampling and analytical requirements are met.
- b. The review of current sampling, preparation and analytical procedures to assure that representative environmental samples are taken and appropriately prepared, and that all analyses are carried out in a timely manner. Familiarity with instrumentation used, backgrounds, efficiencies, chemical yields, and computational methods used are essential to evaluate results.
- c. The review of the analytical results in a timely manner, such that atypical results can be either verified or resolved with further analyses or resampling, if necessary, within the same time period.

- d. The establishment of a program to verify the quality of analytical work by submitting low-level spike samples, duplicate samples and split samples to the contractor as blind samples for analysis.

The licensee stated that these areas would be reviewed and appropriate action would be taken.

6. Personnel and Storage Areas

The inspector discussed the collection of environmental samples and their preparation for shipment to the vendor for analyses. The inspector noted that samples collected during the previous week were still at the licensee's facility on Thursday of the following week.

The inspector discussed with the licensee the collection of samples and their prompt dispatch to the vendor for analysis. The analyses of samples for I-131 needs to be performed as soon as practicable after collection. The licensee stated that currently plant personnel are involved in the above procedures and their availability is governed to some extent by plant operations. In addition, their union contract states that they need not collect samples during inclement weather. (It rained 2-1/2 days during the week that the current set of samples were collected.) The licensee stated that the manpower needs and availability for the environmental programs would be reviewed.

The inspector also discussed the area used for storage and preparation of the samples for shipment since this area lacked space and were also used for other activities. The licensee stated that this area would be evaluated also in light of the close proximity of the storage area to the plant and possible contamination of environmental samples.

7. Chemical and Thermal Monitoring of Discharges

The inspector reviewed with the licensee the chemical and thermal monitoring program for discharges from the plant. The licensee received the NPDES Discharge Permit for Oyster Creek Nuclear Generating Station from EPA, effective January 31, 1975. The inspector reviewed the licensee's records since this time to determine the types and methods of monitoring conducted by the licensee. Water quality parameters being monitored include: maximum temperature of discharges, the maximum change in water

temperature from the intake to discharge, the temperature of the discharge at the U. S. Route 9 bridge, pH, free available chlorine, total suspended solids, BOD<sub>5</sub>, fecal coliform and intake velocity.

The inspector reviewed the chlorination procedures and measurements of chlorine residuals. The licensee stated that each section of the condenser is chlorinated for 1/2 hour, every 4 hours, with 1/2 hour wait between sections. The licensee stated that a daily grab sample is taken during chlorination and analyzed for free available chlorine by the orthotolidine-arsenite method. The review of selective logs indicated that all free available chlorine levels were < 0.1 ppm. The licensee stated that the NPDES Permit requires that a continuous chlorine monitor be installed by May 1, 1975.

The inspector reviewed selected logs indicating that the dilution pumps were operated whenever the intake temperature of the water was less than 60°F. The recent intake, discharge and Oyster Creek at U. S. Route 9 temperature charts were also reviewed. The licensee stated that the condensers are backwashed, usually on a daily basis, to clear them of weeds, silt and other debris. The licensee stated that the need to backwash was based on increased circulation pump amperage (increased backpressure) and the backwash typically was 5 to 15 minutes daily. The review of the temperatures at the intake and discharge verified the length of the backwash cycle. No temperature increase was noted at the U. S. Route 9 bridge as a result of the backwash procedure.

The inspector also reviewed the chromated water treatment with respect to releases from the plant. The licensee stated that the chromate was removed from the water via ion exchange columns and that no chromated effluent was released. The effluent containing < 30 ppb chromate was returned to the condensate storage system via the radwaste system. The ion exchange resins were disposed through the solid waste handling. The licensee stated that all the outside storage tanks were now emptied of the chromated water.

#### 8. Meteorology

The inspector reviewed the licensee's current meteorological program and the status of the updated program for Oyster Creek. The current program is as described in RO Inspection Report No. 50-219/73-19 except that the temperature sensors had been removed from the tower approximately a year ago and were not replaced. The licensee stated that this instrumentation was to be used on the new tower but was never installed.

A GPU representative stated that the new meteorological tower was put into service about two weeks ago to supply data for both the Forked River and Oyster Creek sites. He stated that about two months of data were accumulated with it prior to this time. He stated that as of the present time the data is summarized by mini-computer but is not fed into the OC control room. After the planned shut-down of OC at the end of this month, recorders and the necessary telemetry will be installed so that the new system, meeting Regulatory Guide 1.23, will be operable for OC by June 1, 1975.

The representative further stated that the tower is equipped with Teledyne Model 50.1 wind speed, wind direction sensors at 33, 150 and 400 feet, Rosemount 104 MP temperature sensors at these same levels, EG&G Model 110 dew point sensors at 33 and 400 feet, and a visibility detector at 150 feet. EG&G is currently contracted to maintain the instrumentation, Digital Graphics receives the data for evaluation and Pickard, Lowe and Associates prepare the meteorological summary from this data for the 6-month reports.

9. Transformer Areas

During the course of the inspection the inspector toured the station transformer areas and noted the lack of curbing or cofferdams around the transformers. The licensee reported that an evaluation was being made of the transformer areas, as well as, all storage tanks onsite, to assure that any oil or chemical spills would not reach the intake or discharge waters. The licensee stated that in the event of a transformer rupture or major spill, the oil would now drain into the discharge canal, either directly or through a nearby storm drain. The licensee stated that some action would be taken in this matter to prevent spills from entering the waterways or otherwise causing adverse effects.

10. Bank Stabilization Program

The inspector reviewed the status of dredging the intake and discharge canals and the bank stabilization programs. The licensee stated that the intake canal from the railroad bridge on Forked River was dredged during April to July 1974, and the discharge canal as far as the railroad bridge on Oyster Creek was dredged from November 1974 through February 1975. About two weeks of work remained to be done on the Oyster Creek site. The spoils were deposited adjacent to the canal in the general area from which they were extracted. On the intake side the bank stabilization is essentially complete with the exception of one or two small areas.



The spoils were leveled, the banks were riprapped below the waterline and asphalt covered above that level. While less dredging was required on the discharge side, several more weeks of work are required to finish dredging, and landscaping that area. Most of the banks are already finished and asphalted.

The inspector inquired as to any plans for redredging in the future or dredging beyond the U. S. Route 9 bridge in Oyster Creek. The licensee stated that with the banks stabilized no further need to dredge was anticipated, and there were no plans to dredge beyond U. S. Route 9 in Oyster Creek. All dredging that was performed was done onsite and all spoils were deposited onsite.

11. Removal of Wood from the Discharge Canal

The inspector reviewed the status of the removal of pilings, trashwood, bulkheads, etc., from the discharge canal. The licensee stated that a contractor was selected to perform this work and the contract was to be signed momentarily, such that operations to remove tree stumps from the discharge canal and creek area could begin about March 31, 1975. The licensee anticipated that this phase would last from 3 to 5 weeks. Removal of pilings, etc., associated with the marinas would begin after June 1, 1975 following the formal transfer of the marinas to the licensee.

12. Nonradiological Ecological Studies

The inspector reviewed the status of the programs to be initiated by the licensee with regards to (a) the shipworm activity studies in the Barnegat Bay system, and (b) the impingement monitoring, the entrainment, and the thermal effects studies.

The licensee stated that the shipworm activity study in the Barnegat Bay system was to be a nine-month extensive study. Three consultant firms were being considered for this study and the proposals for the study were currently being prepared. The other studies have been submitted to consultant firms with requests for study proposals, prior to requesting bids. These studies should be contracted within the next several weeks.

13. Thermal Plume Monitoring

The licensee stated that since August 1974 thermal plume data were gathered at monthly intervals. Measurements were taken by

boat of water temperatures at 1, 3 and 5 foot depths in Barnegat Bay, salinity measurements were made at the water surface and the bottom, and water velocity measurements were obtained at each location. The data are obtained from a number of fixed points, as well as, from points along and in the thermal plume at the time of sampling.

14. Discussions with Marina Operators

The inspector talked with several marina operators after the site inspection. Discussions included the inspector's review of the radioactivity in clams caught in this area during the last year and analyzed by the licensee's contractor which indicated no increases in activity over those clams from the background station.

The inspector also reviewed a copy of a monthly report from the marina operators' consultant, Dr. Turner, concerning their independent shipworm studies in the bay. The marina operators stated that the complete studies would be turned over to the NRC after the marina sales were formalized.