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

Region I

Report No. 50-219/80-30

Docket No. 50-219

License No. DPR-16 Priority -- Category C

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

Madison Avenue at Punch Bowl Road

Morristown, New Jersey 07960

Facility Name: Oyster Creek Nuclear Generating Station (OCNGS)

Inspection at: Oyster Creek Nuclear Generating Station, Lacey Township, N.J.

Inspection conducted: September 22-26, 1980

Inspectors: T. J. Jackson
T. J. Jackson, Radiation Specialist — 1-23-81 date signed

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Approved by: Robert J. Bores
R. J. Bores, Chief, Environmental & Special Projects Section, FF&MS Branch — 1-23-81 date signed

Inspection Summary: Inspection on September 22-26, October 15, 1980 (Report Number 50-219/80-30)

Areas Inspected: Routine, unannounced inspection of environmental monitoring programs for operations at OCNGS, including: the management controls for these programs; the licensee's program for quality control of analytical measurements; implementation of the environmental monitoring programs - radiological; implementation of the environmental monitoring programs - biological/ecological; and nonradiological effluent release rates and limits. The inspection involved 49 direct inspector-hours by one regionally-based NRC inspector.

Results: Of the five areas inspected, no items of noncompliance were identified in two areas. Five items of noncompliance (Infraction - failure to follow QA procedure - Paragraph 3.b; Infraction - failure to have procedures - Paragraphs 6.b.ii and 8.a.(i); Infraction - Failure to conform to Regulatory Guide 1.23 - Paragraph 7; Infraction - Failure to perform required calibrations and channel checks of thermal monitoring system - Paragraph 8.a(2); and Deficiency - Failure to have all required thermal monitoring instrumentation - Paragraph 6.b.ii) and one deviation (Inadequate air sampler design pursuant to ANSI N13.1-1969) were identified in three areas.

DETAILS

1. Persons Contacted

Jersey Central Power & Light Company (JCP&L)

+,* J. Carroll, Jr., Director-Oyster Creek Operations
* K. Fickeissen, Manager-Plant Engineering
*,** D. Weigle, Engineering Associate
* R. Hillman, Chemistry Department
J. Vouglitois, Environmental Scientist
T. Gaffney, Instrument Group Supervisor
K. Staudt, Environmental Licensing Engineer
D. Turner, Manager-Radiological Controls
R. Huston, Deputy Manager-Radiological Controls
R. Stoudnour, Engineer

Others

* M. Roche, Manager-Environmental Controls, GPU Nuclear Group
I. Jones, Site Manager, Ecological Analysts, Inc.
D. Conning, Consultant, Technical Environmental Enterprises

* Denotes those present at the exit interview.
** Contacted by telephone on October 20, 1980.
+ Contacted by telephone on October 21, 1980.

2. Licensee Action on Previous Inspection Findings

(Closed) Deficiency (78-05-01): Failure to collect required environmental air particulate samples. During the last inspection of this area (50-219/78-05) it was determined that a number of air samples had not been collected during 1977 for various reasons. The inspector reviewed the corrective actions taken in response to this item as stated in the licensee's reply dated June 9, 1978, and determined through discussion with the licensee and selective review of air sampling data collected since the the last inspection, that air samples from this period were collected and analyzed as required. The inspector stated that based on the adequacy of the corrective actions taken this item is considered closed. (See Detail 5.a.)

(Closed) Deficiency (78-05-02): Failure to collect required environmental direct radiation data. The inspector reviewed the licensee's corrective actions taken in response to this item as stated in the licensee's reply dated June 9, 1978, and direct radiation monitoring data collected since the last inspection and noted that dosimeters were recovered and data was collected as required. The inspector stated that this item is therefore closed (Detail 5.c).

(Closed) Unresolved Item (78-05-03): Meteorological Data Recovery. The inspector reviewed the corrective actions taken in response to this item and determined through discussion with the licensee and review of meteorological data that annual data recovery since the issuance of the Oyster Creek Environmental Technical Specifications (OCETS) has been greater than 90%. This item is therefore closed.

3. Management Controls

a. Organization

The inspector reviewed the licensee's management controls for the environmental monitoring programs. The licensee stated that the General Public Utilities Nuclear Group (GPUNG) would be assuming responsibility for operation of those parts of the environmental monitoring programs not directly related to operation of the plant, as described in Amendment No. 50 to the ETS, dated September 15, 1980. Under this new organization, environmental monitoring programs at Oyster Creek will be performed by two groups. The biological studies programs will be conducted by the Environmental Sciences group, and all other environmental programs (including radiological monitoring, meteorology, and other programs not included in plant operations) will be conducted by the Surveillance & Controls group. Each of these two groups will consist of a supervisor and three scientists. The respective supervisors of these groups will report to the Oyster Creek Manager of Environmental Controls, who will supervise all environmental monitoring programs at the site. This individual will then report to the GPU Nuclear Group (GPUNG) Manager of Environmental Controls, who reports to the GPUNG Director of Radiological and Environmental Controls. The Chief Operating Executive of the GPUNG has direct authority over these programs. The licensee stated that it was expected that current employees working in the environmental monitoring area would, in the short-term, retain similar responsibilities under the new organization and, therefore, be available to assure program stability during the transition period from the old to the new organization.

The inspector determined that organizational changes of the environmental programs management as described in Technical Specification Amendment No. 50 will offer the same or higher level of management controls as found during the previous inspections.

b. Licensee Audits

The inspector examined two reports of audits of the nonradiological and radiological environmental monitoring programs performed by the licensee's Internal Safety Review Group (ISRG) since the last NRC

inspection of the area (ISRG Audit No. 78-28, dated December 22, 1978 and ISRG Audit No. 79-20, dated December 21, 1979). The inspector noted that Audit No. 79-20 had disclosed nine "findings" and six "observations", as described in a letter issued with the report on January 25, 1980. The inspector noted that, at the time of the current inspection (September 26, 1980), there had been no reply to the licensee's audit findings. The inspector reviewed the licensee's Quality Assurance Procedure No. 4008, Rev. 5, "Requirements for the Operational QA Audit Program", dated May 22, 1978 (in effect at the time of the audit), which requires in Section 5.5, "Followup & Closeout", that responses to "findings" be made within 30 days and that responses to "observations" be made within six months. The inspector stated that failure to respond to the audit findings and observations in a timely manner as required by QA Procedure 4008 was an item of noncompliance with OC ETS 5.5.1 (50-219/80-30-01).

4. Licensee Program for Quality Control of Analytical Measurements

a. Radiological Environmental Monitoring Program (REMP)

The inspector and licensee representatives discussed the quality control (QC) program for analytical measurements. The licensee stated that the current QC program consisted of an analysis of duplicate samples of the following media.

Medium	Analysis
well water	tritium, gross beta, gross alpha, K-40, Ra-226, Ra-228, total Uranium
rain water	gross beta (when sufficient sample is available)
earth (soil)	gross beta
vegetation	gross beta
clams	gamma scan, gross alpha, gross beta, Sr-90, stable Ca
surface water	gamma scan, gross alpha, gross beta, tritium, Sr-90, Ra-226, Ra-228, total Uranium, stable Ca
silt	gamma scan, gross alpha, gross beta

The inspector discussed with the licensee those additional considerations necessary for a complete analytical QC program including:

1. Inclusion of all sample media and analyses

2. Spikes, used to evaluate lab performance in the measurement of specific nuclides at expected environmental levels

3. Regular laboratory audits and review of procedures

4. Specific criteria for the acceptance/rejection of QC data

5. Followup actions required to correct identified deficiencies

6. Audit followup

The licensee stated that the current QC program does not include the comparative analysis of air particulates, air iodine, and direct radiation measurements (film badges/TLDs), or of any spiked samples. The licensee stated that criteria for the acceptance or rejection of QC data are under development. The inspector noted that the last licensee audit of the contractor radioanalytical lab (Radiation Management Corp) had been performed in 1976. The licensee stated that it was intended to incorporate the above features into the REMP QC program as soon as possible. The inspector stated that the REMP QC program would be reexamined during a subsequent inspection of the area (50-219/80-30-02).

No items of noncompliance were identified in the above area.

b. Biological/Ecological

The inspector discussed with the licensee the biological QC program including the activities of the licensee's contractor, Ecological Analysts, Inc. (EA). The inspector reviewed selected monthly progress reports and monthly audits of EA completed since the issuance of the OCETS in June 1979 by the JCP&L Environmental Affairs Department, and also reviewed selected EA sampling schedules. The inspector noted that, in addition to the above, EA maintains a reference species collection. The licensee stated that EA also performs periodic QC checks on species identification and confirmatory recounts on sample collections. The inspector had no further questions in this area at this time.

5. Implementation of the Environmental Monitoring Program - Radiological

a. Direct Observations

The inspector examined selected air sampling and direct radiation measurement stations and noted that all equipment at these stations was functioning properly at the time of the inspection.

The inspector discussed with the licensee the methodology of radiological sampling of air. The inspector had noted that the air sampler inlet tubing (one centimeter inside-diameter and 10 centimeters in length) had a 90^{o} turn through which the inlet air must pass before reaching the particulate filter and iodine collector. The inspector stated that air passage through this inlet tube could selectively remove particulates from the air stream as described in ANSI N13.1-1969 and that any iodine in the air could adsorb to the walls of the inlet tube during passage. The inspector discussed the advantages of having the particulate filter exposed directly to the air being sampled, which would minimize effects of sample apparatus on the sampling and analytical results. The inspector stated that the current sample inlet apparatus construction is a deviation from standard industry practice as recommended by ANSI N13.1-1969 (50-219/80-30-03).

The inspector discussed with the licensee the effects of fluctuations in ambient temperatures on the air sample volume measured by the gas volume meters. The inspector noted that the gas meters in use did not compensate for ambient temperature fluctuations, and that the gas meters are calibrated at $60^{o}F$. The licensee stated that it is intended that temperature compensated gas meters will be obtained and installed as part of the radiological air monitoring system as soon as possible. The inspector stated that this item will be re-examined during a subsequent inspection (50-219/80-30-04).

The inspector determined through discussions with the licensee and review of records that the gas volume meters were calibrated, as required, by a contractor. The licensee stated that a certification of traceability to the National Bureau of Standards for volume calibrations would be obtained from this contractor. The inspector discussed with the licensee the accuracy and calibration of the vacuum gauges used to compensate for pressure drop across the sample filters. The licensee stated that the vacuum gauges are currently not calibrated according to a schedule, but in the future would be checked on the same calibration schedule as the gas volume meters. The inspector stated that this area and the determination of the traceability of contractor calibrations would be re-examined during a subsequent inspection (50-219/80-30-04).

b. Review of Reports

The inspector reviewed portions of the following Semiannual Effluent Release Reports discussing environmental monitoring programs as part of this inspection.

Report No.	Dates Covered
78-1	January 1 - June 30, 1978
78-2	July 1 - December 31, 1978
79-1	January 1 - June 30, 1979
79-2	July 1 - December 31, 1979
80-1	January 1 - June 30, 1980

No items of noncompliance were identified in this area.

c. Other Records

The inspector reviewed selected records of REMP data collected since the last NRC inspection of this area and noted that samples had included the media required by the Technical Specifications and were collected at the frequency required by the Technical Specifications. The inspector noted that direct radiation data is currently expressed in terms of exposure per exposure period, which is a variable unit of time. The inspector discussed with the licensee the advantages of normalizing direct radiation data to a standard unit of time. The licensee stated that a conversion to such a format would be evaluated. The inspector also examined the licensee's procedures for sampling and analysis of environmental samples. The inspector reviewed Procedure No. 1203.5, "Soil Sample Collection," and discussed with the licensee the section directing the sample collector to gather "one quart of soil". The inspector stated that since the purpose of sampling soil is to measure deposition of any plant-related materials over an extended period of time, it is necessary to standardize a depth and/or area of sample collection. The licensee stated that Procedure No. 1203.5 would be revised to insure that soil samples will be collected in a uniform manner. The inspector stated that the revision to this procedure would be reexamined during a subsequent inspection (50-219/80-30-05).

6. Implementation of the Environmental Monitoring Programs - Biological/Ecological

a. Direct Observations

The inspector observed the licensee's contractor collecting impingement and entrainment samples. The inspector noted that the basket used to collect the impingement samples did not fit tightly against the end of the sluiceway through which the screen wash was delivered to the basket, and that small organisms could possibly escape collection in the sample cage. The licensee stated that the water escaping through the cage mesh and around the cage opening would be monitored in order to collect any escaping organisms and to evaluate the effect of the loose-fitting basket entrance on the impingement species and number data. The inspector stated that this evaluation would be examined during a subsequent inspection (50-219/80-30-06).

b. Reports and Records

i. Routine

The inspector reviewed the following reports as part of this inspection:

-- Annual Environmental Operating Report for 1979

-- Progress Report of Ecological Studies at OCNGS, April-August 1979

-- Woodborer Study Annual Report, December 1, 1978 to November 30, 1979

-- Quarterly Woodborer Study Report No. 17, May 5, 1979 - August 8, 1979

-- Quarterly Woodborer Study Report No. 18, August 9, 1979 - November 8, 1979

-- Quarterly Woodborer Study Report No. 19, November 9, 1979 - February 8, 1980

-- Quarterly Woodborer Study Report No. 20, February 9, 1980 - May 10, 1980

-- Quarterly Woodborer Study Report No. 21, May 11-August 10, 1980

The inspector identified no items of noncompliance relative to the above reports.

The inspector noted that several sections of Chapter 3 of the OCETS require statistical correlations to be made using the various physical parameters measured at the time the required studies are being performed, and that these inter- and intra-study analyses be included in the report to be submitted in February of each year (to cover the preceding 12 months of sampling and four months of data analysis). The licensee stated that the inter- and intra-study analyses had not been included in the 1980 Ecological Studies Progress Report because the period of data collection since the issuance of the OCETS in June 1979 had been too short, and that this program data will be included in the data base to be used for statistical analyses in the 1981 report. The inspector stated that the 1981 Ecological Studies Progress report would be reviewed to verify that the 1979 data is included in the data analyses (50-219/80-30-07).

ii. Non-routine

The inspector reviewed the circumstances and licensee's evaluations relative to the licensee's Nonroutine Environmental Operating Report (NEOR) No. 79-5 (September 10, 1979) and NEOR No. 80-1 (January 15, 1980) concerning fish kills subsequent to thermal discharges from OCNGS. The inspector reviewed pertinent records of condenser discharge temperature and delta T for the dates in question, and reviewed licensee actions pertaining to the requirements of Section 2.1.5 of the OCETS, "Rate of Change of Discharge Canal Temperature During Winter Shutdowns." The inspector also reviewed a Technical Report by JCP&L concerning the January 5, 1980 fish kill, submitted to the NRC on March 26, 1980. No items of noncompliance were identified relative to the above occurrences.

The inspector discussed with the licensee NEOR Nos. 79-1 and 80-6 which concerned calibration errors in the condenser discharge temperature monitoring channel and thermal high temperature discharges, respectively. The inspector reviewed the pertinent thermal discharge records and confirmed that an "emergency need for power" as defined by the Appendix B Technical Specifications did exist on the date in question. No items of noncompliance were identified relative to the above occurrences.

The inspector also reviewed the circumstances described in NEOR No. 79-2 (August 10, 1979) concerning the failure to meet the thermal monitoring system accuracy with redundant sensors. The inspector noted that, at the time of the inspection, the thermal monitoring system met the required accuracy of $\pm 1.0^{o}F$ ($0.55^{o}C$) with only one sensor, not two as required by Sections 2.1.1, 2.1.2, 2.1.3, 2.1.4 and 2.1.5 of the OCETS. The inspector stated that continued failure to meet the required system accuracy specification with both of the required redundant thermal sensors was in noncompliance with the above sections of the OCETS (50-219/80-30-08).

The inspector also reviewed the circumstances and licensee's evaluations concerning the following NEORs describing problems with the operation of plant dilution pumps.

NEOR No.	Report Date	Event Date	Cause
79-3	8/14/79	7/19/79	Low seal water pressure
79-4	8/21/79	8/1/79	Oil pump oil temperature switch out of calibration
79-6	9/19/79	8/1/79	Low seal water pressure

NEOR No.	Report Date	Event Date	Cause
79-7	10/18/79	10/9/79	Plugged lube oil cooler and lube oil filter and/ or possible degradation of shaft driven lube oil pump
79-8	1/7/80	12/28/79	Low seal water pressure
80-3	7/30/80	7/20/80	Dilution pump nos. 1-1 and 2-1 out of service due to repairs
80-4	8/7/80	7/27,28,29/80	High lubricating oil temperature caused by low cooling water pressure
80-5	8/26/80	8/8, 9, 11, 12/80	High lubricating oil temperature caused by low cooling water pressure
80-7	9/19/80	9/1,2,4/80	Various
80-8	9/25/80	9/10/80	Dilution pump No. 1-1 inboard motor bearing overheated and damaged

The inspector discussed with the licensee the results of a study, produced for the licensee by Stone & Webster Engineering Company (dated February 15, 1980), of long term recommendations for ensuring the continued operability of the plant dilution pumps and the status of implementation of these recommendations. The licensee stated that a final decision on those actions to be taken had not yet been made. The inspector stated that future actions to be taken to ensure operability of the plant dilution pumps as required will be reviewed during a subsequent inspection (50-219/80-30-09).

The inspector discussed with the licensee NEOR No. 80-2 (July 29, 1980) which described a failure to operate dilution pumps as required on November 25-26, 1979 due to an inadequate procedure. The inspector reviewed Procedure No. 324, "Thermal Dilution Pumps", Revision 4, dated March 18, 1980, and noted that the procedure revision, described in NEOR No. 80-2 as the corrective action to prevent recurrence, had not yet been initiated as of October 20, 1980. The inspector stated that the current version of this procedure was still inadequate to prevent recurrence of the incident

and therefore was in noncompliance with regulatory requirements of OCETS 5.5.1 (see Detail 8.a for a related item) (50-219/80-30-10).

7. Meteorology

The inspector examined the licensee's meteorological monitoring program and discussed with the licensee the operation, maintenance, and calibration of the meteorological monitoring equipment. The inspector determined through review of calibration procedures and records that wind direction calibrations were in error by -7°. The inspector reviewed a licensee report which stated that on November 17, 1978, the meteorological tower had been resurveyed and at that time it was determined that the old meteorological tower (used as a calibration reference point) was located at 147°, and not at 140° as it had previously been marked. The next calibration of the wind direction sensors (April 3-6, 1979) used the 147° reference point but all subsequent calibrations had used the old reference point of 140°, thereby introducing a -7° error which existed at the time of the inspection. The licensee stated that the wind direction sensors were correctly recalibrated to the 147° reference point during the scheduled meteorological instrument calibration on October 15, 1980. The inspector noted that the specified instrument accuracy recommended by Regulatory Guide 1.23 was ±5° and that Section 3.3 of the OCETS requires that the meteorological program conform with Regulatory Guide 1.23 (February 1972). The inspector stated that the failure to maintain the wind direction sensor within this specification was an item of noncompliance with OCETS 3.3 (50-219/80-30-11).

The inspector noted that the results of the November 1978 survey of the meteorological tower indicated that all wind direction data collected before this time also contained a -7° error. The inspector discussed with the licensee the importance of notifying those individuals holding copies of the FSAR and/or receiving the semiannual effluent release report or any other documents containing meteorological data of the need for revision of historical data. The licensee stated that most of these individuals will also receive copies of this inspection report, but that the need to notify others would be evaluated on receipt of this inspection report.

The inspector examined the control room meteorological monitoring chart recorders (showing wind speed and direction at 33' and 380', 380' ambient temperature, and 380'-33' delta T) which would be used by the plant operators to obtain real-time data necessary to assess short-term consequences of any accidental releases of radioactive materials. The inspector determined through review of I&C department maintenance records that the wind speed and wind direction recorders had last been calibrated on September 29, 1979 and that there was no record of any calibration of the 380' ambient temperature and delta T recorder. The inspector noted that Section C.5 of Regulatory Guide 1.23 states that meteorological instruments should be calibrated at least semiannually. The inspector stated that failure to calibrate the control room meteorological recorders at least semiannually is an item of noncompliance with OCETS Section 3.3 (50-219/80-30-11).

The inspector also determined that the licensee's meteorological calibration procedures did not contain any provisions for calibration of the control room meteorological recorders. The inspector stated that failure to have provision for regular (semiannual) routine calibrations of these control room recorders was an item of noncompliance with Section 5.5.1 of the OCETS. The licensee stated that these recorders would be regularly performed in the future, and the inspector noted that a job order for these calibrations was initiated on September 26, 1980 (50-219/80-30-10).

The inspector also noted at the time of the inspection that the control room recorder chart time markings did not correspond with the correct time. This misalignment was also present on the environs temperature recorder. The environs temperature recorder was apparently malfunctioning in another way, because the chart had moved only two inches in the preceding 16 hours. The licensee stated that the correct chart speed for the environs temperature recorder was one inch per hour. The inspector noted that I&C department records showed that this recorder had last been checked and calibrated on September 26, 1979. The inspector noted that in addition to the time of day line-up problem, the six-point recorder showing 380' ambient air temperature and 380'-33' delta temperature was apparently indicating channels incorrectly. A small, lighted number indicated the channel on the recorder which was being monitored at a particular time, and this number agreed with the labeled key on the glass cover of the recorder; however, the numeral printed on the chart was not the same as the number shown by the channel indicator. When the channel indicator showed channel four being monitored, the numeral three was printed on the chart, and all the channels as displayed were in error by one digit from the numerals as printed. The inspector stated that it was difficult to obtain accurate information from the charts because of inadequate recorder maintenance, and that the adequacy of control room recorder maintenance and operation will remain an unresolved item pending repair of the recorders examined and determination that incorrect read-outs are not occurring on other recorders (50-219/80-30-12).

8. Nonradioactive Effluent Release Rates and Limits

a. Thermal

(1) Instrumentation

The inspector examined the thermal monitoring system as installed and discussed with the licensee the system capabilities. The inspector noted that the system met the requirements of the OCETS with the exception noted in Detail 6.b. of this report (item 50-219/80-30-08).

The inspector reviewed Procedure No. 323, Rev. 8, "Circulating Water System", dated June 30, 1980 and noted that there were no provisions for actions to be taken if the installed thermal monitoring system should fail. The licensee stated that current procedures do not provide for these actions, including back-up to

the microprocessor (which is the primary data source) or the use and methodology of manual measurements as described in Sections 2.1.1, 2.1.2, 2.1.3, 2.1.4, and 2.1.5 of the OCETS. The inspector stated that failure to have procedures which address these requirements of the OCETS was an item of noncompliance with regulatory requirements of OCETS 5.5.1 (see Detail 6.b.ii for a related item) (50-219/80-30-10).

(2) Records

The inspector reviewed selected records of the thermal monitoring system measurements and calibrations performed since the last NRC inspection of the area. The inspector noted that Chapter 2 of the OCETS requires a monthly calibration and a weekly channel check of the thermal monitoring system, which are covered by the licensee's Procedures No. 664.3.002, Rev. 0, "Environs Temperature Surveillance Calibration", dated September 14, 1979, and No. 677.4.001, Rev. 1, "Environs Temperature Monitoring-Weekly Channel and Alarm Check", dated June 9, 1980. The inspector determined that there was no record of a calibration of the thermal monitoring system from the date of issuance of the OCETS (June 6, 1979) until October 5, 1979, and there was no record of weekly channel or alarm checks until November 20, 1979. The licensee stated that the above listed calibrations and channel checks had not been performed. The inspector stated that failure to perform the monthly calibrations and weekly channel and alarm checks of the thermal monitoring system as required by Sections 2.1.1, 2.1.2, 2.1.3, 2.1.4, and 2.1.5 of the OCETS was an item of noncompliance (50-219/80-30-13).

b. Chemical Releases

The inspector reviewed the records of chemicals released from the Oyster Creek site since April 1978. No items of noncompliance were identified in this area.

9. Unresolved Items

Unresolved items are matters about what more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. One unresolved item was disclosed during this inspection and is described in Detail 7.

10. Exit Interview

On September 26, 1980, at the conclusion of the inspection, the inspector met with the individuals denoted in Detail 1. During this meeting the purpose and scope of the inspection were summarized and the inspection findings, including all but one item of noncompliance, were discussed. On October 21, 1980 the inspector discussed on the telephone with the licensee an additional item of noncompliance. The licensee acknowledged the items of noncompliance.