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

Region I

Report No. 50-219/78-27

Docket No. 50-219

License No. DPR-16 Priority -- Category C

Licensee: Jersey Central Power and Light Company

Madison Avenue at Punch Bowl Road

Morristown, New Jersey 07960

Facility Name: Oyster Creek Nuclear Generating Station

Inspection at: Forked River, New Jersey

Inspection conducted: October 17-19, 1978

Inspectors: D. R. Neely, Radiation Specialist — 11/17/78 date signed

G. P. Yuhas, Radiation Specialist — 11-17-78 date signed

date signed

Approved by: H. W. Crocker, Acting Chief, Radiation Support Section — 11/21/78 date signed

Inspection Summary

Inspection on October 17-19, 1978 (Report No. 50-219/78-27)
Areas Inspected: Special, unannounced inspection by regional based inspectors of the radiation protection program during refueling: including implementation of licensee commitments relating to program supervision; followup to employee concerns expressed during Inspection 78-23; and tours of the facility. Upon arrival at 8:30 p.m., October 17, 1978, areas where work was being conducted were examined to review radiation safety practices and procedures. This inspection involved 34 inspector-hours on site by two NRC regional based inspectors.
Results: Of the three areas inspected, no items of noncompliance were found in one area; two apparent items of noncompliance were found in two areas, (Infraction - failure to barricade a high radiation area, Technical Specification 6.13.1.a; Infraction - failure to adhere to radiation protection procedures, Technical Specification 6.11 - Paragraphs 3 and 4).

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DETAILS

1. Persons Contacted

*J. F. Carroll, Jr., Station Superintendent
*E. D. Scalsky, Radiation Protection Supervisor
L. Samilek, Health Physicist
D. Arbach, Group Radiation Protection Supervisor
D. Kaulback, Group Radiation Protection Supervisor
M. Oberstaedt, Group Radiation Protection Supervisor
B. Watson, Health Physics Supervisor, Institute of Resource Management
B. Barrett, Training Administrator

*denotes those in attendence at meeting on October 19, 1978.

The inspector also talked with and interviewed several other licensee employees including members of the radiation protection staff (Station and Contractor), reactor and equipment operators, and maintenance personnel.

2. Implementation of Licensee Commitments

The findings of NRC Inspection 78-23 included numerous and recurrent items of apparent noncompliance in the health physics area. Region I expressed concern to Licensee Corporate Representatives as a result of these findings. On October 11, 1978, a Corporate Representative presented orally to Region I several commitments intended to improve the Oyster Creek health physics program.

During tours, interviews and record reviews to determine the implementation and effectiveness of these measures the following was observed:

-- The Health Physics Program is being implemented as proposed in the licensee's August 9, 1978 letter to Region I.

-- As of October 19, 1978, operation of the Radwaste Centrifuge has been limited to a contingency basis.

-- Corporate representatives have given more attention to the implementation of the Station Health Physics Program.

The inspector interviewed a representative of each level of health physics supervision. From these interviews the inspector learned that:

1. No formal audit plan to evaluate the effectiveness and implementation of the health physics program has been established for utilization of the health physics supervisors in their tours of work areas.

2. Supervisory tours of actual Radioactive Work Permit (RWP) job sites located in the Radwaste Building, Drywell, Turbine Deck and Condenser Bay are infrequent as shown in the Table below.

3. Reviews of control point logs by the Supervisor, Health Physics were behind as much as two weeks.

4. All the individuals interviewed expressed concern that an apparent worker attitude problem may be contributory to the apparent instances of failure to adhere to health physics procedures.

TABLE

Approximate number of times that Health Physics Supervisors toured the Radioactive Work Permit (RWP) areas since October 10, 1978.

	Radwaste Building	Reactor Building	Drywell	Turbine Deck	Condenser Bay
Supervisor, Health Physics	0	3	1	0	0
Health Physics Supervisor	2	6/day	3	1	1
Group Radiation Protection Supervisor	2	5/day	didn't ask	0	3
Area Supervisor (Drywell)	N/A	N/A	Several	N/A	N/A

3. Employee Concerns

During Inspection 78-23 and in subsequent telephone calls to Region I, several station employees expressed concern with respect to the following matters.

-- Reason for downward adjustment of employee dose tracking records.

-- Lack of employee training on recent changes to Radiation Work Permit (RWP) procedure.

-- Adequacy of airborne surveys used to initate RWP 273478.

The inspector reviewed these matters against the following requirements:

-- Technical Specification 6.8, "Procedures"

-- Technical Specification 6.11, "Radiation Protection Program"

-- 10 CFR 20, "Standards for Protection Against Radiation"

-- ANSI N18.7-1972, "Administrative Controls for Nuclear Power Plants"

-- Regulatory Guide 1.33-1972, Appendix A, "Typical Procedures for Pressurized Water Reactors and Boiling Water Reactors"

a. Personnel Monitoring (Dose Tracking Records)

The licensee uses self reading pocket dosimeters and thermoluminescent dosimeters (TLD) to monitor personnel for radiation exposure. Daily exposure is reported by each individual from his self reading pocket dosimeter and accumulated on the computer dose tracking printout. At the end of each wear period the TLD is read at Oyster Creek and the result is compared to the total accumulated dose from the self reading pocket dosimeters for that wear period. The licensee selects the highest of the two measurements and adjusts the computer dose tracking printout accordingly. This is done to assure a degree of conservatism in exposure planning. The TLD for that wear period is then sent to an independent dosimetry vendor. In a few weeks the vendor results for that wear period are received and reviewed by the licensee. In nearly all cases

these vendor supplied results are accepted by the licensee as being the most accurate measurement of the dose received by an individual. For this reason, when the vendor results are received the computer dose tracking printout is adjusted and the dose is entered on the individuals offical exposure record.

The inspector reviewed the exposure records of eight individuals for the following wear periods of 1978: June 16 to July 1; July 1 to July 16; July 16 to August 1; August 1 to August 16; and August 16 to September 1.

For the entire period reviewed, the self reading pocket dosimeter results and vendor supplied TLD results were in acceptable agreement. For the 120 results reviewed, the self reading pocket dosimeter read 14% higher than the vendor TLD results. During the period June 16 thru August 1, the TLD's read at Oyster Creek indicated a dose of 186% of that reported by the self reading pocket dosimeters, and 207% of that reported from vendor TLD results.

Since the vendor TLD results were in closer agreement with the self reading pocket dosimeter results, the licensee adjusted the computer dose tracking printout to reflect the vendor TLD results. This major change generated concern on the part of the workers. At about the same time an adminstrative error resulted in incorrect input to the computer. The licensee corrected this error, but the noticeable change in the printout again caused worker concern.

The inspector reviewed records and interviewed licensee representatives in an effort to determine the reason for the discrepancies in exposure results.

During the wear periods June 16 thru August 16, 1978, the onsite TLD readers were calibrated about 8% high, for conservativeness; and the onsite TLD results were not corrected for background exposure. These two factors combined might be expected to cause the onsite TLD results to read about 10-20% higher than the vendor's results.

Technical Specification 6.11, "Radiation Protection Program", requires that procedures for personnel radiation be prepared consistent with the requirements of 10 CFR 20, and be approved, maintained, and adhered to for all operations involving personnel radiation exposure.

Oyster Creek Procedure No. 906.7, "Reading TLD's", Revision 1, dated May 22, 1978 developed pursuant to the above, states as a prerequisite in section 3.2 that "Reader checkouts completed and equipment operational per Procedure 906.3".

Oyster Creek Procedure No. 906.3, "Pre-operational Checkout of TLD Reader", Revision 1, dated May 22, 1978, requires that a pre-operational checkout of the TLD reader be performed prior to reading any TLD dosimeters. The purpose of this checkout is to verify proper operation of the TLD reader and its internal systems. Specific pre-operational checkout requirements are:

(1) In Section 5.6 which states, "In conjunction with 5.7, record the three temperature steps while going thru one cycle in the preheat (130°C) readout (245°C) and anneal (253°C) sequence (maximum variation allowed $\leq$ 2%)."

(2) In Section 5.7 which states, "Record average reading on log sheet".

(3) In Section 5.8 which states, "Under the remarks column on the log sheet, record the name of the person performing the checkout".

The inspector noted from a review of the log sheets maintained pursuant to this procedure, that for the entire period of review, July 11 thru August 16, 1978, the name of the individual performing the TLD checkout was not entered on any of the log sheets as required. The inspector also noted that on July 25-27 and August 8, 1978, the Unit 1 TLD readout temperature was 260°C and on August 1-4 and 7, 1978, the preheat temperature was 135°C, both of which exceeded the $\leq$ 2% maximum allowable variation (procedure did not specify that adjustments should be made). In addition, the average light source value was not recorded on the log sheet on July 26 and August 7, 1978, as required. On July 11 and 26, 1978, the average light source value was lower than the acceptable value and on July 18 and August 7, the average light source value was higher than the acceptable level.

The inspector noted that as a result of not following this procedure and operating the TLD reader with parameters outside their acceptable limits may have been responsible for the high readings reported from the onsite TLD results.

Another area of the personnel monitoring program reviewed by the inspectors, pertained to the testing (spike and leak) of self reading dosimeters.

Oyster Creek Procedure No. 903.2, "Personnel Monitoring" Revision 11, dated July 5, 1978, requires as a prerequiste in Section 3.2, that "all dosimetry has been checked and found to be acceptable for use".

Oyster Creek Procedure No. 906.17, "Spike Testing and Leak Testing Self-Reading Dosimeters", Revision 1, dated May 22, 1978, requires:

(1) In Section 5.1 "Spike Testing", step 5.1.17 that if the dosimeter net value is not within ±10% of the Condenser R-meter reading, the dosimeter shall be removed from immediate service.

(2) In Section 5.2 "Leak Testing", step 5.2.9 that if the dosimeter net value is not within 2% of the full scale reading, for each 24 hour period, the dosimeter shall be removed from immediate service.

On October 18, 1978, the inspectors selected 10 self reading pocket dosimeters at random from the in-service dosimetry storage racks, located in the Main Guard House. The records maintained pursuant to Procedure 906.17 were reviewed to determine if these dosimeters had been tested and found acceptable for use. Dosimeter No. 704221 had been tested on September 30, 1978 and failed both spike and leak tests. According to procedure 906.17 the dosimeter was required to be removed from service and turned over to the Group Radiation Protection Supervisor. Dosimeter No. 602310 had no record of being tested. The dosimeter was not color coded indicating that it had not been tested and should not have been placed in service.

These instances represent an item of noncompliance with Technical Specification 6.11 (50-219/78-27-01).

In addition to this finding, on October 17, 1978, upon exiting the control point on the 119' elevation of the Reactor Building the inspector found that the high range self-reading pocket dosimeter issued to him, had failed (drifted upscale significantly). This was brought to the attention of the inspectors escort who verified that the dosimeter had failed and provided the inspector with a replacement.

b. Training

A station employee expressed concern that workers had not been trained in recent changes in health physics practices and procedures, specifically, the newly revised Radiation Work Permit procedure. The inspectors learned from interviews with the individual that he had not received any annual retraining in health physics practices in several years.

The inspector reviewed the employee's concern regarding the training and retraining against the requirements of 10 CFR 19.12 and Oyster Creek Procedure No. 102.

Technical Specification 6.8, "Procedures", states in Section 6.8.1, "Written procedures shall be established, implemented, and maintained that meet or exceed the requirements of Section 5.1 and 5.3 of American National Standard N18.7-1972 and Appendix "A" of the Nuclear Regulatory Commission's Regulatory Guide 1.33-1972 except as provided in 6.8.2 and 6.8.3 below". Section 6.8.2 states, "Each procedure and administrative policy of 6.8.1 above, and changes thereto, shall be reviewed by the Plant Operations Review Committee and approved by the Station Superintendent prior to implementation and periodically as specified in the Administrative Procedures".

Oyster Creek Procedure No. 102, "Training of Nuclear Generating Station Personnel", Revision 2, dated July 13, 1976, prepared pursuant to the above, requires:

(1) In Section 5.4.1 that all employees assigned to the Oyster Creek Station shall be oriented in health physics practices.

(2) In Section 5.5.3 that employees assigned to the Oyster Creek Station shall be kept updated on any changes in the areas covered in Section 5.4.1 by annual lectures scheduled on the topics and through safety meetings. While all plant personnel will be scheduled to attend these lectures and meetings, 100% attendance is attempted but not required, taking into account illness, vacation, business trips and conflicting requirements.

(3) In Section 5.7.3 that records of the qualifications experience, training, and retraining should be established for each employee at the station and be retained for the life of the plant.

The inspectors noted that the same basic retraining requirement existed in Revision 1 to the procedure dated March 13, 1975, and the original procedure dated July 18, 1974.

A review of training records on October 18, 1978, showed that:

(1) In 1975, from a random selection of 16 individuals, eleven had not received annual retraining.

(2) In 1976, from a random selection of 30 individuals, twenty-four had not received annual retraining.

(3) In 1977, from a random selection of 20 individuals, nine had not received annual retraining.

(4) In 1975 through October 18, 1978, from a random selection of 30 individuals, nine had not received retraining in health physics practices during any of these years.

The inspectors expressed concern to licensee management regarding the inadequacy of Procedure No. 102 and pointed out that the procedure did not specifically require that each employee assigned to Oyster Creek receive annual retraining in health physics practices. The inspector noted that due to the number of individuals who had not received annual retraining, as shown above, it was apparent that the intent of Procedure No. 102 had not been met.

This matter is further addressed in the cover letter transmitting the Notice of Violation for this inspection to the President, Jersey Central Power and Light Company. (50-219/78-27-07)

c. Procedures Required by Regulatory Guide 1.33-1972

During the course of reviewing the employees' concern, discussed in section 3.a above, the inspector found that the licensee does not have an approved procedure covering the operation of their automatic TLD reader. Licensee representatives stated that the new TLD reader (Teledyne Isotopes TLD 9100) was put into use at the Oyster Creek Facility on about August 17, 1978. The inspectors interviewed the technicians assigned to operate the TLD reader. The technicians stated that they learned how to operate the TLD reader from

information in the Teledyne instruction manual and from discussions with Teledyne Representatives. The inspector noted that the automatic TLD reader has been in use onsite since about August 17, 1978 and no procedures covering the operation and pre-operational checkout of the equipment have been established, reviewed by the Plant Operations Review Committee and approved by the Station Superintendent. The inspectors stated that Section G.5 of Appendix "A" to Regulatory Guide 1.33-1972, lists "Personnel Monitoring" as one area that must be covered by written procedures.

Licensee representatives stated that a procedure covering the operating of the TLD Reader would be established and implemented by November 15, 1978.

This matter is considered unresolved pending a review of the procedure (50-219/78-27-02).

The inspector noted that onsite TLD, vendor TLD and self reading pocket dosimeters results for the periods August 1 thru September 1, 1978 were all within 20% of each other.

d. Radiation Work Permits (RWP)

An employee expressed concern that the radiation, contamination and airborne radioactivity surveys performed pursuant to RWP No. 273478 were inadequate, in that the initial airborne radioactivity survey used to establish respiratory protection requirements was not performed in the actual work area and that the radiation and contamination surveys listed on the RWP were not current (several days old).

RWP No. 273478, "Unplug Filter Sludge Line in Small Pump Room", dated September 27, 1978, was issued to cover work in the Small Pump Room of the Radwaste Building.

The employee stated that at least two individuals worked in the Small Pump Room under RWP No. 273478 on the evening of September 27, 1978.

A review of survey records and log books and interviews with licensee representatives indicated that an evaluation had been made to use the particular air sample result (No. 1560-78) to initiate the RWP, and required the individuals to wear respiratory protection devices. As a result of reviewing

records and log books, the inspectors found that an air sample had been taken in the Small Pump Room on the evening of September 27, 1978, during the time the individuals were actually working under RWP No. 273478. The results of this airborne survey showed that the concentrations of airborne radioactivity were within 25% of the value used in the initial evaluation.

A review of other RWP's associated with work in the Rad Waste Building showed that survey data describing the radiological conditions for the particular job location did not appear to be representative of the actual hazards that workers were exposed to. In several cases, the airborne surveys were made in other areas of the building and the radiation and contamination levels were possibly not valid since the Centrifuge had been operated subsequent to when the surveys were performed.

The inspector brought this to the attention of the Supervisor Health Physics who in turn re-instructed his staff in the requirement for using survey data that is current and representative of the actual radiological conditions that exist in the work areas.

This matter will require further review to determine compliance and will be performed during a subsequent inspection. (50-219/78-27-03)

During this inspection two additional concerns were expressed to the inspector by workers. Neither concern was in the form specified by 10 CFR 19.16, accordingly, the workers were reminded of their responsibility to inform the licensee of their concerns. These matters will be reviewed in a subsequent inspection. (50-219/78-27-04)

4. Tours

The inspector made two tours of the Reactor Building at other than normal working hours to evaluate the effectiveness of increased health physics supervisory attention.

The inspectors noted that since the last inspection general housekeeping has improved in areas of the Reactor Building.

Prior to entering the Reactor Building, a licensee representative's instrument, a PIC-6A, was field checked against the source provided. The instrument was erratic and had to be tapped in order to meet the value specified by the licensee for the check source. The instrument was not used on the tour. Instrumentation problems have been previously discussed with licensee management during Inspections 78-09 and 78-23.

Surveys of various areas posted in the monitor change room were as much as 30 days old. The Supervisor Health Physics instructed the health physics technician to post the most recent copies of surveys for these areas.

During the tours, the following observations were made by the inspectors:

-- An individual was observed preparing to enter the Condenser Bay for work under an RWP that required extremity monitoring. The inspector asked the individual if he was wearing the required extremity monitoring pursuant to the RWP. The inspector determined that he was not wearing the required extremity monitoring. The Supervisor Health Physics re-instructed the control point monitor to verify that all personnel were dressed in compliance with their RWP requirements.

-- The contractor supplied Health Physics Supervisor at the Drywell control point appeared to have several days growth of facial hair. This individual is frequently required to wear respiratory protective equipment. The Supervisor of Health Physics requested the individual to shave.

-- In the presence of Health Physics Supervisors, an individual was observed smoking while leaning against a rope barricade used to designate the contaminated area boundary of the Drywell control point. The inspector brought this to the attention of the Supervisor, Health Physics.

The inspector had no further questions regarding these matters.

Technical Specification 6.13, "High Radiation Area", requires in 6.13.1.a that each high radiation area in which the intensity of radiation is greater than 100 mrem/hr but less than 1000 mrem/hr be barricaded and conspicuously posted as a high radiation area.

On October 17, 1978, while touring the 75' elevation of the Reactor Building, the inspectors observed a caution, high radiation area sign hanging from a pipe in the over head. The inspectors and a licensee representative surveyed the area near the sign. The major source of radiation appeared to be the Reactor Cavity Drain Line located about seven feet above floor level. The intensity of the radiation at head level (about six feet above floor level), measured by the inspectors and confirmed by the licensee representative, was 120 mrem/hr. No barricade was provided to prevent an individual from inadvertently walking into this high radiation area.

The inspector noted the area was barricaded as required on October 18, 1978.

This instance represents an item of noncompliance with Technical Specification 6.13.1.a. (50-219/78-27-05)

The inspector noted that Procedure No. 902.2, "Identification and Posting Controlled Areas", Revision 1, dated October 10, 1975, section 5.5, "High Radiation Area," states in steps 5.6 and 5.7 that, "Whenever possible and reasonable the physical barrier shall be placed at the boundary of the area limits of the posting. For areas of noncontamination conditions a physical barrier is not required but the posting shall be conspicuously placed so as to alert an individual to the specific hazard". The inspector stated to the Supervisor Health Physics that this statement is not consistent with Technical Specification 6.13.1.a.

Technical Specification 6.11, "Radiation Protection Program", requires that procedures for personnel radiation be prepared consistent with the requirements of 10 CFR 20, and be approved maintained, and adhered to for all operations involving personnel radiation exposure.

Procedure No. 902.1, "Radioactive Work Permits", Revision 14, dated September 13, 1978, requires in section 4.2 that, "All applicable radiological limits and precautions shall be held in strict compliance by all personnel".

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On October 18, 1978, a senior health physics technican was observed on the 75' elevation of the Reactor Building in a posted and barricaded high radiation and contamination area performing a survey. The inspector reviewed the protective equipment specified on RWP No. 273178. The individual was not wearing a; high range self reader; surgeon's cap; plastic gloves; and rubber shoe covers as required on the RWP.

The Supervisor Health Physics immediately relieved the individual and the control point monitor of their responsibilities.

This instance represents an item of noncompliance with Technical Specification 6.11. (50-219/78-27-06)

5. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. An unresolved item disclosed during the inspection is discussed in Paragraph 3.c.

6. Exit Interview

The inspector met with licensee representatives (denoted in Paragraph 1) on October 19, 1978. The inspector summarized the scope and findings of the inspection and expressed concern with the radiation protection program.

The licensee representative reviewed the commitments made to Region I as discussed in Paragraph 2 of this report. He expressed his intentions to insure those commitments are implemented.

With respect to the findings relating to employee training, the representatives stated they will develop an appropriate program and make a commitment to Region I regarding this matter.

In addition, on November 8, 1978, Mr. G. H. Smith, Chief, Fuel Facility and Materials Safety Branch and Mr. E. C. McCabe, Chief, Reactor Projects Section No. 2, Reactor Operations and Nuclear Support Branch, toured the licensee's facility and discussed the results of inspections No. 50-219/78-23 and 50-219/78-27 with corporate management representatives.