

U. S. ATOMIC ENERGY COMMISSION
DIRECTORATE OF REGULATORY OPERATIONS
REGION I

RO Inspection Report No.: 50-219/73-07

Docket No.: 50-219

Licensee: Jersey Central Power & Light Company

License No.: DPR-16

Madison Avenue at Punch Bowl Rd.

Priority: _____

Morristown, New Jersey

Category: C

Location: Forked River, New Jersey

Type of Licensee: BWR, 1930 MWt

Type of Inspection: Routine, Announced

Dates of Inspection: April 18-20, 1973

Dates of Previous Inspection: April 9-11, 1973

Reporting Inspector: R. J. Meyer
R.J. Meyer, Radiation Specialist

5/25/73
Date

Accompanying Inspectors: R. J. Meyer
for W.R. Lorenz, Radiation Specialist

5/25/73
Date

Other Accompanying Personnel: None

Reviewed by: R. H. Smith
R.H. Smith, Acting Senior, Facilities
Radiological Protection Section

May 25 1973
Date

SUMMARY OF FINDINGS

Enforcement Action

A. Violations

None

B. Safety Items

None

Licensee Action on Previously Identified Enforcement Items

A. Violations

1. A review of corrective actions that the licensee has initiated to correct previous violations* showed that those actions have been effective and were as described in the licensee's letter**. It was noted that the licensee is continuing to implement those actions to prevent recurrence. The items listed below were noted to be corrected. (Details, Paras. 2-5 and 8)
 - a. Excessive levels in an unrestricted area.
 - b. Failure to provide personnel monitoring equipment to an individual.
 - c. Failure to instruct personnel.
 - d. Failure to properly post radiation areas.
 - e. Failure to properly label containers of radioactive materials.
 - f. Failure to properly post entrances to a building containing radioactive materials.
 - g. Failure to conduct required surveys.
 - h. Failure to properly store solid radioactive waste.
2. It was noted that corrective actions for the below listed items have been initiated but not completed. Corrective action includes fabrication and procurement of hardware with subsequent installation. These items will be reviewed during the next inspection.
 - a. Failure to properly post and control access to high radiation areas.
 - b. Failure to direct catch basin drains to the 1-9 radwaste sump.

B. Safety Items

1. Inspection findings showed that actions have been initiated by

*RO Inspection Report, 50-219/73-02

**Letter, Donald A. Ross to Directorate of Regulatory Operations, Region 1, dated March 28, 1973

the licensee to correct previously identified safety items*. A review of those actions showed that they are consistent with that described in the licensee's letter**. In that corrective actions include long range planning and implementation, items a and b below will be reviewed during subsequent inspections. (Details, Paras. 2-5 and 8)

- a. Deficiencies in management control systems relative to the radiation protection program.
- b. Deficiencies in exposure control program.

Design Changes

Not inspected

Unusual Occurrences

- A. External exposures in excess of 3 rems described in licensee letter to Directorate of Regulatory Operations, dated April 3, 1973. (Details, Para. 6)
- B. Excessive concentrations of radioactivity in air during reactor head removal. (Details, Paras. 7a and b)

Other Significant Findings

A. Current Findings

1. Inspection findings showed that personnel changes in station management positions occurred during April 1973. J. Carroll, Operations Supervisor, was named to the position of Station Superintendent. D. Reeves, Technical Engineer, was named to the position of Operations Supervisor. Additionally, changes in the Radiation Protection organization are currently under review. Significant improvements in radiological conditions were noted. Solid radioactive waste inventory had been substantially reduced. Management control problems were being reviewed and changes being implemented.
2. The reactor was down for a scheduled refueling outage and turbine inspection. The reactor head was removed on April 17, 1973. Fuel sipping was tentatively scheduled to begin on April 22, 1973.

B. Status of Previously Reported Unresolved Items

Not inspected

*RO Inspection Report 50-219/73-02

**Letter, Donald A. Ross, to Directorate of Regulatory Operations, Region 1, dated March 28, 1973

Management Interview

The following individuals attended the management interview held at the conclusion of the inspection on April 20, 1973.

J. Carroll, Station Superintendent
J. Sullivan, Technical Supervisor
D. Reeves, Operations Supervisor

The following subjects were discussed:

- A. The inspector stated that no violations or safety items had been noted during the inspection.
- B. Previous Violations - The inspector stated that observations, radiation measurements, and a review of corrective actions showed that items had been corrected or actions initiated to correct. The licensee stated that they would continue to implement and expand on methods to prevent recurrence. (Details, Paras 2-5 and 8)
- C. Safety Items - The inspector stated that the actions initiated by the licensee appeared to be an effective approach to resolving management control problems. The inspector emphasized that priority attention must be given to staffing and reorganization of the radiation protection program. The licensee stated that staffing was getting priority attention, responsibilities were being redefined, and continued efforts would be made at measuring the effectiveness of contemplated changes in the overall program. The inspector stated that these areas would continue to be reviewed during subsequent inspections. (Details, Paras 2-5 and 8)
- D. The inspector stated that the exposures reported by the licensee had been reviewed and that he had no further questions. (Details, Para. 6)
- E. The inspector stated that a review of the licensee's evaluations of high air concentrations during reactor head removal indicated that no overexposures had occurred; but that an evaluation should be made of the whole body count results. The licensee stated that they were intending to do this. (Details, Para. 7)
- F. The inspector stated that observations of outage work indicated that procedures were being followed and that radiological conditions were defined and under control. The licensee stated that the supplemental radiation technicians would provide radiological controls. (Details, Para. 8)

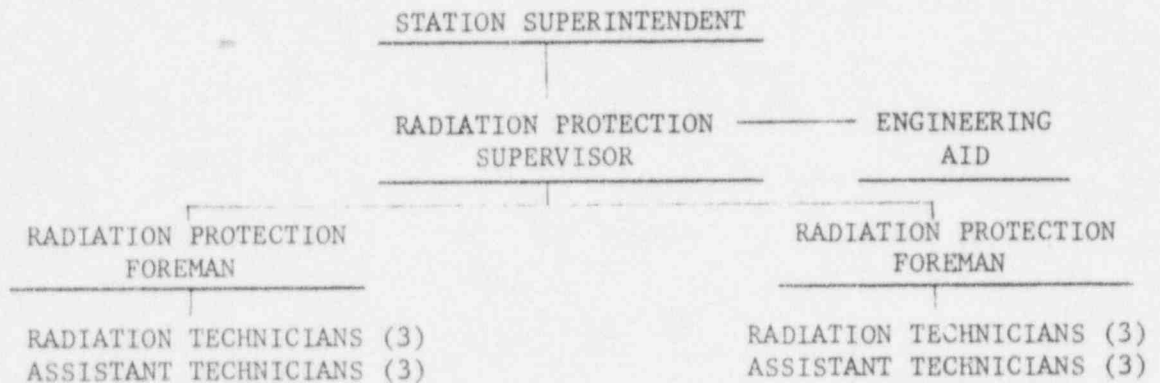
DETAILS

1. Individuals Contacted

- J. Carroll, Station Superintendent
- J. Sullivan, Technical Supervisor
- D. Reeves, Operations Supervisor
- D. Kaulbach, Radiation Protection Supervisor
- R. Stoudnour, Engineer
- R. Bright, Associate Engineer
- Radiation Technicians
- Operator, Radwaste Building
- R. Hettler, GPU Service Corporation
- D. Helms, Radiation Management Corporation (Consultant Organization)

2. Organization - Radiation Protection

- a. As described by the licensee, efforts to improve management controls in the areas of radiation protection are currently under review. Priority attention is being given to re-organization which will include additional supervisory positions along with additions at the technician grade level. The organizational alignment, as described by the licensee, is shown below:



- b. The licensee stated that the individual named to the Radiation Protection Supervisor (RPS) position would be a certified Health Physicist, with vested responsibility for the radiation protection program. This responsibility will be written into the position description. Reportedly, candidate interviews have been conducted for the RPS position and resume' reviews are currently being made

for other positions. The licensee stated that this was getting priority attention.

3. Administrative Controls

- a. Inspection findings showed that administrative controls were being defined and initiated. It was noted that weekly internal inspections were being conducted for purposes of measuring the effectiveness of the current radiation protection program, relative to compliance with AEC regulations and conformance to plant procedures. Inspection results were recorded and communicated in writing to responsible management. Corrective actions were recorded. It was noted that housekeeping was included as a part of the inspections.
- b. It was noted that Radiation Work Procedures were current and posted. Survey schedules were being formulated. A memo had been issued to provide for a shiftwise inspection of the chromated water storage tanks with reporting requirements defined. An outside contractor was on plant, working under the direction of the licensee, to reduce the solid waste inventory. Memos relative to outage instructions, exposure control requirements, and other instructions pertinent to radiation protection had been issued.

4. Training

- a. The inspectors determined that retraining has been initiated. Immediate retraining is being accomplished during routine safety meetings with the plant forces. The licensee's consultant is currently reviewing the training needs for the radiation technicians and will provide for refresher training. Refresher training on 10CFR20 requirements was currently in progress.

5. Exposure Reduction & Controls

- a. Observations and radiation measurements* by the inspectors showed that radiation areas, high radiation areas, and contaminated areas were properly posted and access controlled as required by 10CFR20 and licensee procedures, except that a locking mechanism had not yet been installed on the inside door to the solid waste storage. Radiation survey results were posted at various locations in the facility buildings for information purposes. No high level waste drums were noted to be in evidence other than in proper storage in the radwaste building.

*Victoreen, Model 7400, Cutie Pie

The waste drum capping machine was in service and the waste drum inventory had been significantly reduced, with subsequent reductions in radiation levels in and around the radwaste facility. Housekeeping in the radwaste facility was good. Radiation levels at the unrestricted area were less than 0.5 mR/hr. Floors were clean with minimal smearable contamination levels available. The pump room floor had been decontaminated, and drains were open. Radiation levels in the subject room had been reduced to a general background of 30 mR/hr, down from 300 mR/hr noted during the previous inspection.

6. External Exposures

- a. The inspectors review of exposure records showed that with two exceptions, personnel exposures for the first quarter 1973, had been maintained within applicable limits as defined in 10CFR20.101. The two exceptions were reported* by the licensee. A review of the circumstances showed that the licensee had followed exposure control procedures and the overexposures occurred because of an unexplained discrepancy between pocket dosimeter results and badge results in the one case, and a beta dose in the other. Licensee records showed exposures as follows:

	<u>Jan</u>		<u>Feb</u>		<u>Mar.</u>		<u>Total</u>	
	Dosimeter	Badge	Dosimeter	Badge	Dosimeter	Badge	Dosimeter	Badge
#1	1270	1460	520	1300	185(1)	380	1925	3140
#2	1250	1200(2)	660	990	0	0	1830	3290
		1170						

Notes:

- (1) Upon receipt of film badge results employee was restricted from radiation work as evidenced by Exposure Permission Record and Pocket Dosimeter Record.
- (2) Reported as a beta dose by film processor. Employee **was restricted** from radiation work upon receipt of film badge results. Licensee assumed the beta dose could have been to the lens of the eyes and included the exposure as whole body.

7. Exposures To Airborne Radioactivity

- a. A review of air sampling records showed that concentrations of airborne radioactivity exceeded the limits specified in 10CFR20, Appendix B, Column 1 for short periods of time during removal of the reactor head on April 16 and 17, 1973. As evidenced by records

*Letter, Donald A. Ross, to Directorate of Regulatory Operations, dated April 3, 1973

the isotopes of concern were xenon 133 and 135. Iodine concentrations were noted to be less than the applicable limits during the subject periods.

- b. The maximum concentrations (24 x MPC-Xenons) occurred during initial lifting of the reactor head. The records showed that the air was being continuously monitored for gas, particulate and iodine with a continuous air monitor (NMC). Additionally, the air was being sampled for particulates and iodines by portable sampler. When the head was lifted, an increase in the continuous air monitor was noted. The head was then lowered back into place and the area evacuated. A grab gas sample was taken during this period of time. Particulate and iodine collection filters were also removed. It was noted that these times were in good agreement with the peak time recorded on the continuous air monitor strip chart. The results of air samples and exposure times (max. 15 min.) resulted in exposures to the individuals involved of approximately 6 MPCa hours. The licensee was maintaining records of exposure times and air concentrations relative to maintaining individual exposures within applicable limits. As a backup to air sample results, the licensee had all individuals, that may have been exposed to elevated air concentrations, whole body counted. Results were not yet available at the conclusion of the inspection.

8. Outage - General

- a. Observations and radiation measurements made by the inspector showed that radiological conditions, as noted by the inspector, were documented by surveys. Radiation Work Permits were conveniently displayed and up to date. Procedural requirements were being effected. A special work force and system for maintaining exposure control records, and reporting to responsible supervisors on a daily basis, had been established. Additional radiation technicians, supplied by a vendor, were on plant to supplement the radiation protection program. Housekeeping was in general good order.

Jersey Central Power & Light Company



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

May 30, 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
Failure of Liquid Poison Pump, NPO1A

This event is considered to be an abnormal occurrence as defined in the Technical Specifications, Paragraph 1.15.E. Notification of this event as required by the Technical Specifications, Paragraph 6.6.B, was made to AEC Region 1, Directorate of Regulatory Operations, on Friday, May 18, 1973.

A functional test, required at refueling outage intervals, was being conducted whereby demineralized water is injected into the reactor vessel using the keylock switch on panel 4F in the Control Room. Upon initiating the "A" Liquid Poison System, the squib valve fired, the pump started, and the Clean-Up System isolated as required. However, after running for approximately 10 seconds and pumping no more than 5 gallons of water into the vessel, the pump stopped. A restart was attempted using the keylock switch and an attempt was made to run the pump using the local start push button, both to no avail.

In troubleshooting the circuit, the logic control power fuse which supplies both the pump and squib firing circuits was found blown. The fuse installed was of 3 ampere capacity; the circuit drawings indicated a 10 ampere fuse should have been installed.

The reason for the blown control power fuse was traced to a low resistance (5 ohms to ground) in each of the already fired squib primer circuits (2 primer circuits per squib). Although each primer circuit is provided with 2 amp fuses, both were found intact. Normally these grounds would not have caused any additional current to be drawn since, by design, the logic circuit is ungrounded. However, when the circuit was initially installed, a ground was provided in the 460 v motor control center for personnel protection. A check was made with the squib valve manufacturer, CONAX, and it was indicated that one could expect either a ground or an open circuit to occur once the primer circuit

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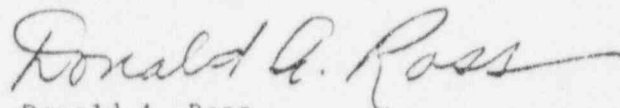
May 30, 1973

was fired, with no degree of certainty as to which it would be. The circuit was fused as intended, i.e. a 10 amp control power fuse and 2 amp primer circuit fuses, and the system returned to service. A satisfactory surveillance test of the "A" Liquid Poison System was conducted with the circuit fused as discussed above.

The Liquid Poison System is designed to bring the reactor to a cold shutdown condition from full power at any time in core life independent of the CRD System capabilities. As demonstrated during this functional test, this objective would have been performed by the "B" Liquid Poison System. The safety significance of this event, then, is that the system did not have its designed redundancy.

To prevent the reoccurrence of this type failure, the following action will be taken. Fuse locations will be tagged or identified in some manner so that should future fuse replacement be required, the proper size will be installed. Other safety related circuit fuses will be checked to insure the fuses installed are of the proper design capacity.

Very truly yours,



Donald A. Ross
Manager, Nuclear Generating Stations

DAR:cs

Enclosures (40)

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