U. S. ATOMIC ENERGY COMMISSION

DIRECTORATE OF REGULATORY OPERATIONS

REGION I

RO Inspection Report No.: 50-219/72-05 Docket No.: 50-219

Licensee: Jersey Central Power and Light Company License No.: DPR-16

Oyster Creek Priority: _____

_____ Category: C

_____

Location: Forked River, New Jersey

Type of Licensee: 1930 MWt, BWR

Type of Inspection: Routine, Unannounced

Dates of Inspection: November 9, 10, 12, 13, 17, 20, and December 7 and 8, 1972

Dates of Previous Inspection: July 5 - 7, 10, 12 - 14, 1972

Reporting Inspector: _____ 2/28/73
F. S. Cantrell, Reactor Inspector Date

Accompanying Inspectors: _____ 2-28-73
A. V. J. Burzi, Reactor Inspector Date

_____ _____
Date

Other Accompanying Personnel: NONE

Reviewed By: _____ 3/5/73
D. L. Caphton, Senior Reactor Inspector Date

SUMMARY OF FINDINGS

Enforcement Action

1. 10 CFR 20.201(b) specifies that, "Each licensee shall make or cause to be made such surveys as may be necessary for him to comply with the regulations in this part." 10 CFR 20.105(b) specifies that, "No licensee shall . . . create in any unrestricted area . . . radiation levels . . . in excess of 100 mrem in any seven consecutive days."

   Contrary to the requirements of 10 CFR 20.201(b) and 20.105(b), insufficient surveys were made prior to November 20, 1972, to demonstrate that the exposure rate at the fence East of the waste storage building was less than 100 mrem per seven day period. (Report Details, Paragraph 6.a)

2. 10 CFR 20.201(b) specifies that, "Each licensee shall make or cause to be made such surveys as may be necessary for him to comply with the regulations in this part." 10 CFR 20.101(b) limits whole body exposure to three rem/quarter and defines dose to the whole body to include any dose to the lens of the eye.

   a. Contrary to the requirements of 10 CFR 20.201(b), the shielding glass was removed from the handling truck in the waste drum storage area, without conducting an evaluation to determine the relative exposure between the whole body (that is measured by the film badge) and the lens of the eye when operating the drum handling truck. (Report Details, Paragraph 5.f)

   b. Contrary to the requirements of 10 CFR 20.101(b), the exposure records show that twelve men were exposed in excess of three rem during the April - June, 1972 quarter. (Report Details, Paragraph 6.b)

3. Technical Specification 3.6(c) states in part, "Maximum amount of radioactivity, . . . contained in the radwaste storage tanks outside the radwaste building shall not exceed 10.0 curies."

   Contrary to the above requirement, the amount of radioactivity in the outside radwaste storage tanks was 13.0 and 27.7 curies when inventoried on August 18, 1972, and September 20, 1972, respectively. (Report Details, Paragraph 14)

4. A JCP&L letter to the Directorate of Licensing dated August 28, 1972, reporting a previous violation of Paragraph 3.6(c) of the Technical Specifications stated that in order to prevent recurrence the alarm setting for the concentrated waste tank would be set no higher than 95% to minimize the possibility of overfilling the tank.

   Contrary to the above commitment, the concentrated waste tank alarm was set greater than 100% on November 17, 1972. (Report Details, Paragraph 5.d)

5. Technical Specification 3.8 specifies that, "The two isolation condenser loops shall be operable during power operation and whenever the reactor coolant temperature is greater than 212°F except as specified in C below." Paragraph C permits continued operation with one inoperable isolation condenser for a period of not to exceed seven days provided the operable isolation condenser is demonstrated to be operable daily.

   Contrary to the requirements of Paragraph 3.8 of the Technical Specifications, both isolation condensers failed to operate on August 9, 1972, immediately following a planned shutdown. (Report Details, Paragraph 18)

6. Technical Specification 3.2.C specifies that, "The standby liquid control system shall be operable at all times when the reactor is not shutdown by control rods . . ."

   Contrary to the requirements of Paragraph 3.2.C of the Technical Specifications, the standby liquid control system was rendered inoperable for a period of approximately eighteen hours on September 25 and 26, 1972 when the power breaker for the "A" liquid poison pump was racked out. The design of the interlock between the two liquid poison pumps prevented the other pump from starting when either pump was racked out. (Report Details, Paragraph 11)

Licensee Action on Previously Identified Enforcement Items

As a follow-up to the July 5 - 7, 10, 12 - 14, 1972 inspection, two items of noncompliance with regulatory requirements were identified in

a letter dated October 12, 1972 from J. P. O'Reilly, Director, Region I, to JCP&L. No reply was requested since corrective action was initiated and the violations were reported in letters from JCP&L dated April 20, 1972 and July 11, 1972. The isolation circuit modifications for the reactor building ventilation supply dampers, discussed in the JCP&L letter dated April 20, 1972, have been completed. The corrective action discussed in the JCP&L letter dated July 11, 1972, has been implemented; however, other operating problems as discussed in JCP&L letters to the Directorate of Licensing dated August 28, 1972, and September 28, 1972, were responsible for the violations in Paragraph 3, Enforcement Action.

Design Changes

A logic circuitry change was completed to the liquid poison system and the Standby Gas Treatment System. (Report Details, Paragraphs 11 and 17D)

Unusual Occurrences

1. The C containment spray pump would not start while trying to sample torus water on August 1. (JCP&L letter to Directorate of Licensing dated August 11, 1972, and Report Details, Paragraph 16)

2. One of two steam line high flow differential switches on the A isolation condenser was found inoperable during a surveillance test on August 4, 1972. (JCP&L letter to Directorate of Licensing dated August 11, 1972)

3. A design evaluation indicated that the relief valve discharge piping in the torus area might be overstressed during operation of the relief valves. (JCP&L letter to Directorate of Licensing dated August 22, 1972)

4. The selector switch for control rod drive 14-11 failed in such a manner that the failure prevented selecting any other control rod drive for operation. (Report Details, Paragraph 20)

5. A loose wire on the back-up scram solenoid valve caused a loss of air pressure to the scram valve pilot header which resulted in individual control rod scramming. (JCP&L letter to Directorate of Licensing dated September 28, 1972)

6. During a plant cooldown on November 11, 1972, the B isolation condenser isolated when manually actuated due to an excess flow spike.

Investigation showed that signal leads for the A isolation condenser were reversed, and the time delay was set too short. (JCP&L letter to Directorate of Licensing dated November 22, 1972 and Report Details, Paragraph 19)

7. The No. 2 emergency diesel generator failed to start on November 28, 1972, during a surveillance check due to a failure of one of the starter motor pinions to engage. (JCP&L letter to Directorate of Licensing dated December 7, 1972 and Report Details, Paragraph 13)

8. The floor drain sample tank recirculation line failed, due to corrosion or erosion, while recirculation was in progress on December 6, 1972. (JCP&L letter to Directorate of Licensing dated December 19, 1972 and Report Details, Paragraph 5.g)

9. One of the main steam isolation valves failed to close during a surveillance test on December 3, 1972. (JCP&L letter to Directorate of Licensing dated January 17, 1972 and Report Details, Paragraph 4)

Other Significant Findings

A. Current Findings

1. Plant power is restricted to approximately 1900 MWt due to restrictions inherent to the turbine control valves. At this power level, the stack release rate was 45,000 microcuries per second on December 6, 1972. (Report Details, Paragraph 3)

2. Housekeeping at the plant is poor, particularly in the radwaste building. (Report Details, Paragraph 5.a)

3. During 1972 (through December 8), the period between regenerating the condensate demineralizers ranged from 72 to 125 days (Scheduled every 35 days); however, as of December 8, only two demineralizers had been serviced more than 35 days. (Report Details, Paragraph 5.b)

4. The conductivity from the clean-up demineralizer began increasing following a shutdown on August 9, 1972. The resin could not be replaced because of the amount of resin in the spent resin storage tank. (Report Details, Paragraph 5.c)

5. An inspection of an irradiated fuel channel in the spent fuel pool showed that three out of ten fuel channels examined, contained patches of flaking. (Report Details, Paragraph 9)

6. A review of the Drywell and Torus Isolation Valves Specifications indicated that some of the valves may contain seat or liner materials with a temperature rating below the anticipated transient temperature following a recirculation line break. (Report Details, Paragraph 12)

7. Mr. I. R. Finfrock was promoted to Vice President, Generation, Jersey Central Power and Light Company. Mr. D. A. Ross was promoted to Manager of Nuclear Generation, Jersey Central Power and Light Company. Mr. J. L. Sullivan was promoted to Technical Supervisor, replacing Mr. Ross. (Report Details, Paragraph 2)

B. Status of Previously Reported Unresolved Items

1. Oyster Creek plans to check relief valves on the liquid poison system during the annual functional test. (Management Interview, Paragraph F1)

2. The licensee has concluded that a siphon cannot be established from the spent fuel pool via the fill line. (Management Interview, Paragraph F2)

3. The licensee plans to inspect the paddle type flow switches in the liquid poison system and the clean-up system during the 1973 refueling outage. (Management Interview, Paragraph F3)

4. JCP&L has not completed their evaluation of the controls for the dampers that supply air to the cooling radiators on the emergency diesel generators. This area was not inspected.

5. Jersey Central has implemented controls that should prevent any employee from receiving any exposure in excess of three rem per quarter. (Report Details, Paragraph 6.b)

6. Reactor Vessel Level Instrumentation - The A GE/MAC level indicator does not agree with the B GE/MAC or the Yarway level indicators. This area was not inspected.

7. The isolation circuit associated with reactor building ventilation supply dampers was modified to prevent defeating the isolation circuit when the supply fan motor is racked out. This matter is considered resolved. (Report Details, Paragraph 17d)

Exit Interview - December 8, 1972

The following subjects were discussed at the exit interview with Messrs. McCluskey, Reeves, Sullivan, and Riggle. Additional information was obtained in telephone discussions with Mr. McCluskey on December 13, 19 and 20, 1972.

A. The inspector stated that it appears that Jersey Central is taking all reasonable measures to insure that releases from the plant to the environment are kept to a minimum consistent with the equipment that is available; however, the inspector stated concern about the following items:

1. Cleanup Demineralizer

The cleanup demineralizer has been operated since August, 1972 with an effluent in excess of 0.2 umho/cc. During the discussion that followed, it was stated that Jersey Central expected to complete shipping spent resin that is now stored in the spent resin tank, within the next week or 10 days. Immediately following shipping the spent resin, several days will be used for scheduled maintenance on the resin storage tank and transfer equipment. Then the new resin will be installed in the cleanup demineralizer. It was anticipated that this would be completed by December 25, 1972 at the latest. (The inspector was informed on January 2, 1973, that new resin had been installed in the cleanup demineralizer). (Report Details, Paragraph 5.c)

2. Regenerating Condensate Demineralizers

The present schedule calls for one demineralizer to be generated every five days or each demineralizer every 35 days. The experience this year has been poor in meeting the 35-day cycle for each demineralizer. The current schedule appears to be effective in reducing releases to the environment, but it may be leaving the plant vulnerable to chloride attacks from a condenser leak. A licensee representative indicated that there had been some concern on the part of others about the 35-day cycle, and this was currently being evaluated by Jersey Central. (Report Details, Paragraph 5.b)

3. Housekeeping in the Radwaste Building

This is a potentially hazardous radiation area and the housekeeping in the area is extremely poor. The inspector noted that in several places where an attempt had been made to clean-up trash or dirt on the floor, the sweepings were swept in the

corner and left to accumulate. A licensee representative stated that the inspector's comments were noted and would be considered. (Report Details, Paragraph 5.a)

4. Concentrated Waste Tank Alarm Set Greater than 100% on November 17, 1972

In a letter to Licensing dated August 28, 1972, you stated that the alarm would not be set higher than 95% in order to minimize possibility of over filling the concentrated waste tank. A licensee representative stated that additional discussions and talks would be held with operating personnel and additional controls would be adopted as needed to assure compliance with this commitment.

During a subsequent telephone call to clarify the applicability of this commitment to other tanks in the radwaste, a licensee representative agreed that he would investigate the applicability of a similar maximum alarm setting for other tanks in radwaste, and establish appropriate requirements. (Report Details, Paragraph 5.d)

5. Drum Handling Truck

The shield glass was removed from the fork truck that is used to handle waste drums in the waste storage building on October 24, 1972, without an evaluation of the resulting dose to the operator's eyes while using the drum truck.

A representative stated that a dosimeter had been mounted on the fork truck at eye level for one day and showed an exposure of 70 mR for the day; however, another dosimeter had not been mounted in the position that the dosimeter is normally worn by the operator. Another representative stated that a determination would be made as to whether the glass was leaded glass, or ordinary glass and an evaluation would be made of the relative hazard to the operator. (Report Details, Paragraph 5.f)

6. Liquid Waste Problems

The inspector stated it appears that the problems that Oyster Creek has with radwaste storage tank inventories is connected with the plant's ability to process liquid waste.

The inspector further stated that he was surprised at a Jersey Central statement made in a recent meeting in Bethesda that Jersey Central had not committed to buying additional equipment, i.e., concentrator, waste demineralizer, etc., particularly in light of previous statements, that

money has been budgeted for the concentrator. A representative stated that a new coil had been ordered for the present concentrator; however, in light of the problems that have occurred with the present design, no decision has been reached as to the type of concentrator that would be bought. Currently, Jersey Central has three different groups involved in studies of the Oyster Creek radwaste system to determine what improvements are needed in the operation and/or equipment. These groups are an "in-house" committee at Oyster Creek, and MPR Associates and Burns & Roe, as consultants.

One recommendation is to install a line that would permit returning the floor drains collector tank to the waste neutralizer tank without going through the floor drain sample tank (located outside of the building). A representative stated that he is currently waiting for a report from the in-house committee and from MPR Associates on the Radwaste Study. (Report Details, Paragraph 5)

B. A survey, conducted by the inspector and the Health Physics Supervisor on November 20, 1972, showed an exposure rate of 1.2 mR per hour at the fence opposite the waste storage building. As a result of the inspector's questions, film badges were placed at this location along the fence for one week; however, the results of the film badge exposure had not been received by Oyster Creek. The inspector stated that it appeared that the fence may be too close to the waste storage building and that film badges should be maintained at the fence in this area (and similar areas) to monitor exposures as required to assure compliance with 10 CFR 20.105. A licensee's representative stated that Oyster Creek would monitor the fence area with film badges sufficiently to assure compliance with the regulations and would take corrective action as is required, including consideration of moving the fence further from the waste storage building. (Report Details, Paragraph 6.a)

C. The inspector stated that he had reviewed the circumstance relating to the condenser tube leak on November 9, 1972 and he had the following comments:

1. Jersey Central's policy of calling in a technician to analyze water samples during periods such as this, appears to be sound.

2. The inspector stated that the procedure for condenser tube leak (No. 523, Revision 0) specified that power will be reduced to reduce the load on the demineralizers. Plant records did not

indicate that power was reduced until the south side of the condenser was isolated.

There were some discussions as to whether reducing power would reduce load on the demineralizers. A representative stated that the procedures would be reviewed for operational adequacy and revised as required. (Report Details, Paragraph 7)

D. The inspector stated that Jersey Central's internal report of their investigation of the twelve overexposures during the second quarter of 1972, appeared to be a good report; however, the report submitted to the Commission did not meet all of the requirements of 10 CFR 20.405 and that Jersey Central would receive a letter from the Director of Regulatory Operations outlining the deficiencies in their report. (Report Details, Paragraph 6.b)

E. The inspector stated that a previous memorandum of understanding, concerning the interpretation of the requirements of the original Technical Specifications was not applicable to the current Technical Specifications. It was suggested that if any of the provisions of the Technical Specifications created an unreasonable burden on the licensee, an application should be submitted to the Directorate of Licensing for a change in Technical Specifications with justification for the changes.

F. Unresolved Items from Previous Inspections

1. Schedule for Checking Relief Valves on the Liquid Poison System

A representative stated that he plans to check the relief valves on the liquid poison system during the annual functional test of the system. Mr. Reeves was directed to add this check to the procedure for the annual functional test.

2. Siphoning Breakers in the Spent Fuel Pool Line

A representative stated that this problem had been reviewed by the PORC and the recommendation was that no action was necessary for the following reasons:

(a) A loss of power could not cause siphoning at Oyster Creek.

(b) A loss of level in spent fuel pool trips the pump, gives an alarm, and isolates the system.

(c) The spent fuel pool fill lines have check valves to prevent reverse flow.

3. Use of Paddle Type Flow Switches in the Primary System

A representative stated that paddle type flow switches in the cleanup system and in the liquid poison system are scheduled to be inspected during the next refueling outage (scheduled April 1973) and that the use of these switches will be evaluated after the results of the inspection are reviewed.

G. The inspector advised the group that the surveillance requirement specified in the Technical Specifications are still applicable, while the reactor is shutdown unless specifically exempted. A licensee representative stated that the current policy on surveillance testing is to continue at stated frequency during outages. (Report Details, Paragraph 15)

H. The inspector questioned the use of plastic overlays on the control room control rod drive panel during reactor startups. A representative stated that the overlays are used when the rod worth minimizer is inoperable, but does not replace the second operator required by the Technical Specifications. He stated that each overlay only permitted control rods in the specific group to be withdrawn while the overlay is in place. (Report Details, Paragraph 10)

I. The inspector asked when modifications would be completed to the liquid poison system that will prevent defeating the starting logic for either liquid poison pump when the other pump is racked out. A licensee representative stated that the equipment to modify the circuit is on order, and that he anticipated that it would be installed by January 31, 1973. He agreed to notify Region I if the work was not completed as scheduled. The inspector was subsequently informed that the modifications were complete and checked out. (Report Details, Paragraph 11)

J. The failure of the floor drains sample tank recirculation line on December 6, 1972 was discussed. The inspector stated that the report, which is required by the Technical Specifications, should discuss concentration and total activity released, the cause of the failure, and the corrective action planned. A licensee representative stated that the cause of the pipe failure appeared to be corrosion or erosion from the inside and that he had ordered stainless steel piping to replace the failed pipe and the comparable piping for the B floor

drains sample tank. In addition, a survey is being made to determine the extent of the problem. A representative agreed that a report would be submitted within 10 days. (Report Submitted December 19, 1972). (Report Details, Paragraph 5.g)

K. With respect to flaking observed on some of the fuel channels, the inspector asked if any change in activity had been noted in radwaste between last cycle and the current cycle. A representative stated that no difference was noted; however, it was pointed out that a change might be masked by failed fuel. The inspector stated that he would like to review a copy of the procedure for transferring the fuel channel samples to the shipping cask prior to implementing the procedure. A representative stated that General Electric had proposed a procedure for the transfer; however, this procedure had not been reviewed by the PORC. He stated he would make a copy of the procedure available for the inspector's review prior to implementing the procedure. In a subsequent telephone call, on December 12, 1972, a representative was asked to provide an information report about the flaking observed on the fuel channel, including the significance of the flaking, and the investigative program planned by Jersey Central. (Report Details, Paragraph 9)

REPORT DETAILS

1. Persons Contacted

Mr. T. J. McCluskey, Station Superintendent
Mr. D. A. Ross, Manager, Nuclear Generating Stations
Mr. J. T. Carroll, Operations Supervisor
Mr. E. I. Riggle, Maintenance Supervisor
Mr. J. L. Sullivan, Technical Supervisor
Mr. D. L. Reeves, Technical Engineer
Mr. D. E. Kaulback, Radiation Protection Supervisor
Mr. D. Pelrine, Chemical Supervisor
Mr. R. M. McKeon, Shift Foreman
Mr. J. P. Maloney, Shift Foreman
Mr. D. J. Cooper, Shift Foreman
Mr. F. Walshe, Radwaste Foreman
Mr. R. L. Staudnour, Engineer
Mr. E. Growney, Technical Engineer

2. Organization Changes

The following personnel changes have been made within the Jersey Central organization since the previous inspection:

Dr. Sheppard Bartnoff was promoted to President, (JCPL).

Mr. I. R. Finfrock was promoted to Vice President, Generating Stations, (JCPL).

Mr. D. A. Ross was promoted to Manager, Nuclear Generating Stations, (JCPL).

Mr. John L. Sullivan was promoted to Technical Supervisor.

Mr. D. L. Reeves was promoted to Technical Engineer.

Mr. J. R. Thorpe was promoted to Manager of Environmental Relations, (JCPL).

Mr. T. M. Crimmons was promoted to the position of Manager, Safety Licensing, (JCPL).

Mr. N. Trikouros was assigned the position GORB Secretary.

Mr. J. Molmar was promoted to Staff Assistant, Training.

Mr. Marion Danials, Shift Foreman, resigned.

The present operating organization consists of four shift foremen with Senior Reactor Operator's License, five control room operators with the reactor operator's license, and four control room operator B's with reactor operator's license.

In response to a question concerning the fuel handling, a licensee representative stated all fuel handling is performed by Jersey Central Power and Light Company employees - outside contractors are not used for refueling operations.

3. Operations

A review of plant records and discussions with the operating personnel indicated that the plant had operated at a maximum power of 1900 MWt (License limit 1930 MWt) since the previous inspection. Power is limited to this level by restrictions inherent to the turbine control valves. The stack release rate increased gradually to a steady state release rate of 45,000 microcuries per second on December 6, 1972.

The following shutdowns occurred during the period since the previous inspection:

August 9, 1972

While conducting a surveillance test on the radiation monitors, the main steam isolation valves closed, initiating a turbine trip which in turn initiated a reactor scram. During a plant cooldown following the scram, both isolation condensers failed to operate (JCP&L letter to Directorate of Licensing, dated August 22, 1972). A startup was begun August 13, 1972; however, a manual shutdown was initiated due to leakage in the second stage reheaters. The reactor was subsequently restarted August 14, 1972.

August 25, 1972

The reactor scrammed due to a partial loss of air to the backup scram solenoid valves which allowed the control rods to start driving into the reactor (JCP&L letter to the Directorate of Licensing, dated September 28, 1972). The reactor was restarted the same day.

November 11, 1972

The reactor scrammed from high pressure while performing the quarterly surveillance test on the main steam isolation valves (MSIV). Following the scram, the "B" isolation condenser failed (JCP&L letter to Directorate of Licensing, dated November 22, 1972). The reactor was restarted November 14, 1972.

December 3, 1972

The reactor scrammed as a result of losing a reactor recirculation pump. The resulting load drop and sluggish operation of drain valves caused a high level in the moisture separater reheaters which initiated a turbine trip and a reactor trip. The reactor was restarted December 3, 1972.

4. Main Steam Isolation Valve Test - December 3, 1972

During a quarterly surveillance test of the main steam isolation valves (while the reactor was shutdown) on December 3, 1972, MSIV NSO-4B failed to close due to a defective manual control switch. The fail switch was repaired and the test conducted successfully. A review of the main steam isolation valve isolation circuit (GE Drawing 237E566) showed that a failure of the manual switch would not have prevented the main steam isolation valves from closing on an isolation signal. The valve failed to close because contacts in the manual switch did not open and de-energize the pilot solenoid according to a licensee representative. (A subsequent evaluation by the licensee indicated that this failure was probably due to a sticking piston in the pilot operated power valve associated with this valve. -- JCP&L letter to Directorate of Licensing, dated January 17, 1973).

5. Radwaste System

An inspection was made in the radwaste building, the waste storage building, the waste sample tank area, and the outside drum storage area. The following records were reviewed:

The radwaste log for the period November 10 - 17, 1972

The radwaste operating foreman's log for the period October 3 - November 17, 1972

Radiation survey records for the period November 1 - 17, 1972

Typical release records

a. Housekeeping

Housekeeping in the waste storage area and the radwaste building was poor. Sand and trash on the floor and sweepings left on the floor, showed a minimum of effort toward maintaining a reasonable clean work area. In response to questions about the condition of the area, a representative stated that because of the high radiation rates in the area, manpower spent on housekeeping is kept to a minimum.

b. Regeneration of Condensate Demineralizers

The schedule for regenerating condensate demineralizers is one every five days, which will result in each demineralizer (total 7) being regenerated every 35 days. The table below shows the date each demineralizer was regenerated in 1972 (through December 8, 1972). The time between regenerations range from 72 to 125 days; however, as of December 8, 1972, only two demineralizers have been in service for more than 35 days.

Demineralizer Regeneration Dates - 1972

1-1	1-2	1-3	1-4	1-5	1-6	1-7	Waste	Fuel Pool
2-12	3/2	3/4	2/11	4/3	2/14	3/26	4/10	9/11
5/24	6/9	5/30	6/1	8/12	8/21	6/26	4/15	
9/5	10/15	9/2	9/8	11/5	11/28	10/25	6/30	
11/25		11/14	12/7				8/1	
							8/28	
							10/19	
							11/17	

In discussing the cause for the excessive periods between regeneration (as compared to the schedule 35 days), a management representative stated that no regenerations are performed during periods when the waste concentrator is out of service because of insufficient storage space for the water used to regenerate the demineralizers.

c. Cleanup Demineralizer

The conductivity of the effluent water from the cleanup demineralizer began increasing following a shutdown on August 9, 1972. Currently the effluent conductivity is 0.9 umho/cc. Technical Specifications Paragraph 3.3 limits the conductivity of reactor water to 10.0 umho/cc when the reactor is steaming at rates in excess of 100,000 lb/hr. When the effluent conductivity begins increasing above 0.2 umho/cc, the resin becomes less efficient in removing impurities from the water passing through the resin. Due to the high activity of the resins in the cleanup demineralizer, these resins are not regenerated upon depletion, but are transferred to the waste resin tank where they are permitted to decay before shipping.

According to a Jersey Central representative, the resins in the cleanup demineralizer have not been replaced because the waste resin tank is full, and Jersey Central is in the process of shipping spent resins. Shipping has been delayed because of previous commitments by the contractor. A management representative stated that based on the current shipping schedule, he expected to have the waste resin shipments completed and new resin installed in the cleanup demineralizer by December 25, 1972.

d. Tank Level Alarm in Radwaste

During a tour of the radwaste building on November 17, 1972, the inspector noted that the tank level alarm for the concentrated waste tank was set greater than 100%. The tank level indicator showed that the tank was 96% full. In a letter from Jersey Central Power and Light Company, dated August 28, 1972, reporting a Technical Specification Violation, in which the outside tank activities exceeded 10 curies as a result of the concentrated waste tank overflowing, the letter stated that to prevent recurrence the high level alarm would "be set no higher than 95% to insure the tank high level alarm will be operable." When the alarm setting was pointed out to a management representative, the alarm was reset to 95%, and he

stated that all personnel had been instructed not to raise the alarm level above 95%. He stated these instructions would be re-emphasized with operating personnel.

e. Waste Drum Storage Area

A tour of the area and a review of records indicated that the drums are stored in bays in the waste drum storage area. A survey showed that the exposure rate in the aisle between the bays was 575 mR/hr. As a result of this finding, a survey was made at the fence opposite the waste drum storage building. (Paragraph 6.a)

f. Drum Handling Truck

A note in the radwaste operating foreman's log on October 24, 1972 stated that the glass in the waste drum handling truck had been removed because the glass was discolored. The drum truck has shielding on the front and two sides to reduce exposure to the operator. The operators normally wear their dosimeter and film badge in the chest area. A management representative indicated that there was no requirement to wear dosimeters or film badges in the vicinity of the eyes while operating the fork truck nor had there been an evaluation to determine the relative exposure received by the eyes as compared to the whole body exposure as measured by a film badge or dosimeter while operating the fork truck. 10 CFR 20.101(b) limits whole body exposure to 3 rem per quarter and defines dose to the whole body to include any dose to the whole body -- lens of the eye.

g. Floor Drain Sample Tank Recirculation Line Failure

When the operator started the recirculation pump for the "A" floor drain sample tank at about 8:00 a.m. December 6, 1972, he noted a slight decrease in tank level. He immediately went to the sample tank area (which is outside the radwaste building) and observed water spraying against the building and running down into the curbed area around the tank and spraying on the sidewalk outside of the curbing. He went back inside and stopped the pump. The tank inventory showed that 50 gallons of the water were lost from the tank. An inspection in the area showed that the drain line inside the curbing was valved directly to the discharge canal rather than to the radwaste building sump. Some of the water that landed on the sidewalk outside the curb was soaked up with a blotter; however, before

the area was surveyed for contamination, it started raining. The sidewalk was surveyed for contamination the following day and found clear. The area inside the curbing was still contaminated to a maximum of 5000 per minute. The sand next to the sidewalk was also contaminated. The upper layer of sand which contained contamination was drummed.

A sample of water from the A floor drain sample tank was analyzed with the following results:

Isotopes	Activities (mCi/cc)	Ratio (Activity/MPC)
Cobalt-60	5.89×10^{-3}	117.8
Cesium-144	4.08×10^{-3}	453.3
Cesium-137	5.99×10^{-3}	299.5
Manganese-54	3.55×10^{-3}	35.5
Gross Activity	2.05×10^{-2}	-

6. Radiation Protection

a. Survey at Fence

As a result of a Jersey Central survey that showed radiation level just inside the waste drum storage area was 575 mrem per hour, a field survey was made with the Radiation Protection Supervisor on November 20, 1972.

The maximum exposure observed was 1.2 mR per hour at the fence east of the waste storage building. At the time of the survey, waste drums were being loaded for shipment; however, the shipping van was parked north of the radwaste building. A management representative stated that surveys are normally made once per month and that the film badges or TLD's had not been used on the fence to determine the accumulated exposure over an extended

period of time. Subsequently, film badges were mounted on the fence to determine the accumulated exposure. The results were not available at the completion of the inspection. 10 CFR 20.105(b) limits radiation levels in unrestricted areas to 100 mrem in any seven consecutive days, which is equivalent to a steady 0.6 mrem/hr for seven days.

b. Personnel Exposures in Excessive 3 rem per quarter

In letters to the Director of the Directorate of Regulatory Operations, dated August 10 and September 14, 1972, Jersey Central Power and Light Company reported exposures to twelve persons in excess of 3 rem per quarter during the April - June 1972 quarter. A special committee was appointed by Jersey Central to investigate the overexposures. The committee consisted of a representative of the General Office Review Board, a representative from the General Public Utility Service Corporation, Safety and Licensing Group (HP), and the Radiation Protection Supervisor from Three Mile Island 1. After their investigation, the committee reported three probable causes for the overexposure:

(1) Inadequate planning for the high radiation rate experienced during the May - June refueling outage

(2) There was no clearly defined administrative cut-off point to prevent exposures from exceeding 3 rem

(3) Radiation protection was not given sufficient attention - experienced personnel were used in high radiation areas even though they had already accumulated higher than normal exposure

Recommendations to prevent recurrence included:

(a) No one should be permitted to incur radiation exposure above 2500 mrem without the written authorization of the Manager, Nuclear Generation. Any exposure in excess of 2500 mrem would then be subject to additional special controls to prevent exceeding 3000 mrem per quarter.

(b) The Radiation Protection Supervisor should issue daily reports to all groups with the names of persons

and their exposure when the individual exposure reaches 1250 mrem during the quarter.

(c) Additional training should be conducted for those specific assignments in high radiation areas as a means of reducing exposures while completing the task.

(d) Management should consider additional means of reducing radiation levels and exposures, i.e., decontamination, additional shielding, improved tools for handling, and improved components.

(e) Obtain fresh air equipment with better vision to improve communication and reduce working time.

The inspector reviewed the Oyster Creek program which was started September 1, 1972 to keep an up-to-date record of individual exposures. The estimated exposure is supplied to the HP Supervisor by each man's foreman each day. When the accumulated exposures reach 1250 mrem, the HP Supervisor shows the accumulated exposures on a daily report to all Supervision.

7. Condenser Tube Leak

Following backwashing of the condenser on the 12:00 to 8:00 shift on November 9, 1972, a high conductivity alarm was received on the output of the condenser hot well. An operator was sent to investigate and determined that the alarm was caused by the B condenser. The conductivity reached 4.75 umho/cc. The operator added nine bags of "Wizard compound" (tradename) to the B condenser. The conductivity dropped to 0.1 umho/cc; however, it shortly started increasing again, and reached 5 umho/cc (recorder ranged 0 to 5 umho). Additional "Wizard compound" was added to the condenser without any effect on the conductivity of the hot well. Reactor power was lowered, and the condenser was isolated at 3:35 a.m.; however, the conductivity in the hot well did not decrease until the water level in the condenser was lowered below the leaking tubes. The leaking tube was plugged and the condenser was returned to service.

Following the initial alarm, a technician was called in to analyze primary system water samples. The following results were obtained:

Chlorides in Reactor Water

Date - Time	Reactor Water Chloride	Reactor Water Conductivity*	Feedwater Chloride	Condensate Chloride	B Condenser Chloride
11/8; 8:35 a.m.	90 PPB	.83 umho	-	-	-
11/9; 2:20 a.m.	130 PPB	.95	46 PPB	810 PPB	1260 PPB
11/9; 4:00 a.m.	124 PPB	1.25	less than 20 PPB	650 PPB	1175 PPB
11/9; 6:00 a.m.	124 PPB	1.35	-	230 PPB	850 PPB
11/9; 8:00 a.m.	94 PPB	1.25	less than 20 PPB	94 PPB	94 PPB
11/9; 1:00 p.m.	108 PPB	.99	30 PPB	20 PPB	40 PPB
11/9; 3:30 p.m.	54 PPB	.99	-	-	-

*Maximum conductivity on control room recorder was 1.65 micromohs at 6:30 a.m.

In response to a question, the following information was provided about the Oyster Creek full flow demineralizers:

Oyster Creek Full Flow Demineralizer

Flow - 2560 gpm/demineralizer

Number - 6 + 1 standby

Size - 150 ft^3 (36" deep)

Resin -

Cation - 100 ft^3 HCR - W

Anion - 50 ft^3 DOWEX SBR-P

Velocity - 51 gpm/ft^2

Regeneration:

Frequency - One bed every five days

Medium - NaOH (50%) 10 $pounds/ft^3$ (anion)
H_2SOH (66^oB) 10 $pounds/ft^3$ (cation)

Design Basis - at startup - 100 PPB chloride
- steady state - 10 PPB chloride

Designer - Cochrane Division
Crane Company

The Oyster Creek procedure titled, "Condenser Tube Leakage" (No. 523) was reviewed with operating personnel. From discussions with operating personnel, it appeared that the procedure as modified by a temporary procedure change was followed. The temporary procedure change was dated September 19, 1972 and was approved as required by Technical Specifications.

8. Reactivity Control

Discussions with the Technical Supervisor indicated that the current fuel exposure is 22,000 MWD/STU (November 10, 1972). Detailed plans were made using procedure 1001.2 to change the control rod sequence from the A4 sequence to the B3 sequence. This change was scheduled for November 11, 1972. The procedure requires the power level to be reduced to less that 75% normal; however, in order to perform surveillance testing on the main steam isolation valves, power level was reduced to 50%. While testing the main steam isolation valves, the reactor scrammed. The subsequent startup was made using B3 rod sequence, eliminating the need for a sequence change while operating.

During a control rod exchange at power, the responsible technical engineer is required to be at the plant to follow the exchange and to evaluate the results. According to the Technical Supervisor, the engineer works directly for the shift foreman during the rod swap and the shift foreman is still responsible for the overall operation.

9. Flaking on Fuel Channels

The Technical Supervisor informed the inspector of an unusual condition observed on three of ten fuel channels that were inspected. The condition is believed to be flaking. Using binoculars, the inspector examined the reported worst channel (Core location 19-20 in cycle 1A and 1B - average exposure 10,559 MWD/STU). A normal fuel channel appears to be dark brown and shiny. The area of the so-called flaking is much lighter in color and appears rough. The light areas were observed on both the corners of the channel and the flat sides of the channel. One area appeared to be about three inches square and another area about one inch wide and about three feet long with a round area at one end. The inspector was told that the inspection was initiated because a "hot spec" (about 70R) was found on one of the control rod drive filters during the refueling outage. Analysis of the "spec" by GE, indicated that the material was principally zirconium. In response to a request from GE, ten channels were examined by GE using a borescope. The light areas were observed on three channels. Current plans are to cut two two-foot long samples from the worst channel and two samples from one control channel. These samples will be shipped to the General Electric laboratories at San Jose, California for further examination. Since the spent fuel pool has not been modified to receive a fuel shipping cask, the proposal has been made that the samples be transferred from the spent fuel pool to the shipping cask via a dry transfer. In response to questions,

a Jersey Central representative stated that the procedure had not been approved by the Plant Operations Review Committee (PORC). A Jersey Central representative estimated that the sample would read 1,000R at one foot. In response to questions by the inspector, the station superintendent agreed to inform the inspector when the completed procedure was approved, and to make a copy available for the inspector's review prior to implementation of the dry transfer.

10. Control Rod Panel Overlays

Oyster Creek has plastic control rod panels that can be used during startup to prevent the operator from withdrawing control rods out of the selected group. According to a management representative, these overlays are only used when the rod worth minimizer is inoperable and are not used in place of the second operator that is required by the Technical Specification, but are used in addition to the second operator. When the overlay is used, it only permits control rods in the specific sub-group associated with the overlay to be selected for operation. Currently, the sequence of withdrawal is displayed on a schedule in front of the reactor operator. The schedule has a plastic cover and the reactor operator checks off each rod as he withdraws that rod. When the rod worth minimizer is inoperable, the second operator stands beside the reactor operator and verifies that the sequence of withdrawal is according to the schedule in front of the operator. He does not fill out a separate check sheet. The station superintendent has agreed to implement additional procedural controls to demonstrate compliance with the Technical Specification requirement for a second operator when the rod worth minimizer is inoperable. This will include making and retaining a separate record of the sequence of withdrawal.

11. Both Liquid Poison Pumps Inoperable
(JCP&L letter to the Directorate of Licensing, dated October 6, 1972)

On September 25, 1972, the A standby liquid poison pump was removed from service for replacement of the pump packing. The A pump breaker was racked out in accordance with plant safety procedures. Work was not completed by the end of the day shift and the A pump was left racked out. In order to comply with Technical Specification requirements for daily surveillance testing of the operable pump, a surveillance test was started on the B pump on September 26, at 4:20 a.m.; however, the pump would not start. As soon as it was determined that

both pumps were inoperable, a normal reactor shutdown was initiated. Simultaneously, steps were taken to restore the A pump to an operable status. As soon as a successful operability check was completed on the B pump, the power reduction was stopped, and the plant was returned to full power. In the reference letter, Jersey Central stated "in order to prevent a recurrence of this event, operating procedures have been changed so that operability tests of redundant engineered safeguard system components will be made immediately following any action that requires one of the systems to be inoperable for maintenance purposes." The inspector verified that a memo addressed to Operating Personnel, dated September 26, 1972, instructed all persons that if any safeguard equipment is removed from service, the redundant piece of equipment must be tested immediately as required by Technical Specifications to insure its operability.

As discussed in the reference letter, the two liquid poison pumps are interlocked to prevent simultaneous operation. If the breaker of either pump is racked out, the interlock prevents operation of the other pump. The Maintenance Supervisor described changes that he planned to make in the control circuit to prevent the defeating of the starting circuit of the opposite pump when a breaker is racked out. The present circuit and the proposed circuit are shown in Attachment No. 1. The Maintenance Supervisor stated that he had ordered the relays and other equipment needed to make these changes, and it was anticipated that the modifications would be completed by January 15, 1973. (The inspector was subsequently informed that the modifications were complete and checked out).

12. Drywell - Torus Isolation Valves

A licensee representative provided the following specifications for drywell - torus isolation valves:

a. Torus Vacuum Breaker - 20 inch Butterfly

Rockwell Model MJS

Liner-Buna N (hycar)

Temperature rating 220°F.

b. Torus - Reactor Building - 20 inch Check Valve

Atwood Morrill, 150 pound check valve

Seat Material - "Ethylene - Propylene Terpolymer requested"

Temperature rating - "high temperatures service (300° requested)."

c. Torus Drywell Vacuum Breaker - 18 inch Check Valve

Atwood Morrill - 150 pound check valve

Disc seat - Ethylene - Propylene Terpolymer

Temperature rating - "300° requested."

d. Drywell Purge Valve - 18 inch Butterfly

Rockwell Model No. 211866 (150 pund carbon steer)

Liner-Buna N (hycar)

Temperature rating 80 - 150°F.

The facility Description and Safety Analysis Report XIII-2-12, shows that a temperature of about 270° would be reached in the Drywell following a recirculation line break. The Station Superintendent stated by telephone, December 20, that he would review the specifications for the containment isolation valves and would initiate action as would be appropriate.

13. Emergency Diesel Generator Failure
(JCP&L letter to Directorate of Licensing, dated December 7, 1972)

Circumstances relating to the failure to the No. 2 emergency diesel generator to start during a surveillance test on November 28, 1972 were reviewed. No deficiencies were identified in the report.

14. Outside Radwaste Tank Farm Activity
(JCP&L letters to Directorate of Licensing, dated August 28 and September 28, 1972)

The activity in the outside radwaste storage tanks was determined to be thirteen curies during a routine inventory on August 18, 1972. The high activity in the radwaste storage tank resulted from overflowing the concentrated waste tank as the result of a valve failing to close. At the time the tank overflowed, the concentrated waste

tank level was set above 100%. In order to prevent a recurrence of this event, the flush valve which malfunctioned causing the concentrated waste tank to overflow was repaired. Instructions were issued that the concentrated waste tank level alarm was to be kept within 15% of the existing tank level, but in no case higher than 95% to assure that the tank high level alarm will be operable. In addition, a special committee was established to review radwaste operations and make recommendations to more effectively utilize existing equipment. Additionally, two outside consultants have been retained to investigate radwaste operating problems and to make recommendations for immediate corrections to procedures and equipment as well as recommendations for long range permanent modifications. During a tour of the radwaste building on November 17, 1972, the inspector visually observed that the tank level alarm for the concentrated waste tank was set greater than 100%. The tank level indicator showed that the tank was 96% full. When the alarm setting was pointed out to the management representative, the alarm was immediately reset to 95%. He stated that the instructions on tank level alarm settings would be re-emphasized with operating personnel.

During a routine radwaste drumming operation on September 16, 1972, a drum of filter sludge fell from the drum transfer car as it was being released for storage. In falling, the drum struck and damaged the electrical bus which supplies power to move the drum into the storage aisle. The floor area required decontamination in order to reduce radiation levels in the area such that the necessary maintenance work on the transfer car and the electrical bus could be performed. As a result of the decontamination, the activity in the B floor drain sample tank was 25.1 curies when inventoried on September 20, 1972. The total activity in the outside radwaste tanks was 27.7 curies. The water in the outside tanks was recycled to tanks within the radwaste facility as space became available; however, the activity in the outside tanks was not reduced to less than 5 curies until September 22, 1972. The corrective action included the studies described above by an in-house committee and outside consultants.

15. Surveillance Testing Requirements

The licensee's representatives were informed that surveillance requirements specified in the Technical Specifications are required to be performed during extended outages unless specifically exempted by the Technical Specifications. A licensee's representative stated that it was Oyster Creek's policy to continue the established schedule for performing surveillance tests during extended outages. The reason this policy was adopted was because of the difficulties in reestablishing the schedule once it had been interrupted.

16. Containment Spray Pump Failure
(JCP&L letter to Directorate of Licensing, dated August 11, 1972)

The subject report was reviewed in detail with the aid of the Maintenance Supervisor. GE Drawing 237E901, Elementary Diagram Containment Spray, and Drawing 01168328, Containment Spray Pump 1-1, Power and Control circuit, were also examined for circuit details that might offer a clue to the failure of the circuit breaker.

No plausible explanation was given for the failure of the circuit breaker to operate when called into service by the control room. The information offered by the licensee on the change in resistance of the breaker position switch contact (originally .09 ohms reduced to 0.0019 ohms by cleaning and burnishing) is trivial in a circuit where the resistance of the close coil is 3,500 ohms. It was suggested verbally that a wayward and adhesive grain of sand might have found its way between the breaker position switch contacts, preventing proper closure, in spite of the fact that these contacts "wipe" when they close, and are completely enclosed.

A chronology of events elicited during the inspection and from JCP&L letter is as follows:

a. The monthly surveillance test on the containment spray system was conducted satisfactorily on July 27, 1972.

b. The containment spray pump (51c) would not start on August 1, 1972.

c. The breaker was checked as being racked in properly; however, a loss of continuity was discovered across the breaker position switch when racked in.

d. The breaker was racked out, the switch was cleaned and the breaker was racked back into normal position. Continuity checks indicated the switch to be closed.

e. The starting signal was applied; however, the breaker failed to close.

f. Start - Stop switch and key-lock switch operated and checked with circuit deenergized - all operations normal.

g. Control voltage reapplied, breaker closed, and pump started.

h. Start - Stop switch and key-lock switch reinspected and found in good condition.

i. Resistance check made across breaker position switch contact and was measured at 0.09 ohms. The breaker was racked out, the contacts were cleaned and burnished. Resistance was re-measured as .0019 ohms. The wiring was checked and no loose leads were found.

The inspector stated that several events from the above chronology of events defy explanation. For instance, why did the unit fail to function just four days after a successful test? Why did the unit fail to function in Step e and f after the work was performed in Step d and then operated successfully in Step g? What is the significance of the resistance checks conducted in Step i when considering a circuit where the resistance of the load, the close coil, is 3,500 ohms? These circuits are generally designed to work with only 80% rated of voltage. This means that 700 ohms could be connected in series with the coil, and with rated voltage, it would still be energized.

The only plausible explanation that was discussed for the behavior of this circuit breaker was that the fuses were left out of the close circuit. There would be no way for the control room operator to know that the fuses had been left out. The "breaker open" and "breaker close" lights are supplied via another set of fuses and thus they would work properly, as long as their fuses were intact. If the fuses were blown, whatever light was lit would go out. The operator could surmise that either the bulb was burned out or else the fuses were blown. He has no clue offered him on the condition of the "close" circuit except when he tries to energize, and even then, might have to select a number of possible causes from just this one clue. At present the cause of the breaker malfunction is considered unexplained.

17. Malfunction Experienced with Remote Operated Valves in Safeguard System

Malfunction associated with remote operated valves and safeguard systems were reviewed with Maintenance Supervisor. The following items were discussed:

a. Absorption Chamber Spray Header Valve
(JCP&L letter to Directorate of Licensing, dated July 21, 1972)

The supply breaker to this valve operator tripped when an attempt was made to actuate this valve during a surveillance test. It seems that the principal cause of the overload was that the packing was too tight. Maintenance procedures were revised to require a check of the motor run current after each time valve packing is tightened.

b. Torus O_2 Analyzer Sample Valve
(Summary Technical Report entitled, "Primary Containment Leak Test," dated October 1970)

This valve failed to seat properly after a containment leak rate test was conducted. A JCP&L evaluation concluded that the valve was not capable of doing the job required; therefore, the valve was replaced with a different design. During subsequent testing, the operation of the valve proved satisfactory.

c. Torus Vacuum Breaker Block Valve
(JCP&L letters to Directorate of Licensing, dated December 23, 1970 and February 8, 1971)

These are large butterfly type valves that are piston operated and would not open during surveillance testing. The reports stated that the valve discs were jammed hard against their seats, but it was subsequently determined that the linkage had been mis-adjusted such that when the valve was closed the linkage was located past dead-center and could not be moved back to open the valve. (Linkage jammed). The procedure for adjusting the linkage has been changed in order to assure proper adjustment.

d. Reactor Building Ventilation Supply Damper Isolation Circuitry
(JCP&L letter to Directorate of Licensing, dated April 20, 1972)

During a surveillance test of the standby gas treatment system with one reactor building supply fans racked out, it was discovered that the control circuit for the supply dampers was defeated when one of the fan motor breakers was racked out. This was a basic design flaw. A circuit change was made to prevent defeating control circuit when a supply fan motor is racked out.

e. Standby Gas Treatment System Train No. 2 Inlet Valve
(JCP&L letters to Directorate of Licensing, dated July 21, 1971 and September 9, 1971)

These are air operated butterfly valves that in both cases failed to operate because of mechanical failure in the solenoid operated pilot valve. One was due to a broken spring and the other was due to a jammed plunger. Subsequent surveillance has not shown any additional failures; however, if further failures prove to be more than random, an engineering evaluation is planned.

f. Isolation Condenser Condensate Return Valve
(JCP&L letter to Directorate of Licensing, dated December 14, 1971)

This appeared to be a basic design problem in the valve operator in that excessive amounts of oil leaked into the motor housing from the gear box and the motors were flooded with oil. Corrective action included lowering the grease level in the gear box and installing nipples on the motor housing to act as oil indicators.

18. Isolation Condenser Failure
(JCP&L letter to Directorate of Licensing, dated August 22, 1972)

During a plant cooldown on August 9, 1972 with reactor temperature at approximately 360°F, attempts were made to put both isolation condensers in service. The A isolation condenser re-isolated because of a faulty excess flow alarm signal, but the B isolation condenser couldn't be put into service because its condensate drain valve would not open. Unknown at the time was the presence of an error in the bypass relay setting that would have caused these condensers to isolate any time they were called into service (over five seconds for a flow transit, an allowance of only five seconds for the flow transit to pass when test results showed that some 25 to 30 seconds were needed), and an installation error which caused the flow sensor to receive a negative signal.

A design deficiency related to use of snubber somewhat distantly located from the sensor three valve manifold was examined. When a test of the excess flow check valve was conducted, requiring the removal of the snubber, it was not replaced (poor maintenance practice), and when the isolation condensers were called into service, the flow indicator not only pegged, but went beyond the peg and stuck. Thereupon, the condenser was isolated by the fixed excess flow signal. The snubbers were moved up to the three-way-valve manifold and instructions were issued to the technicians

requiring that equipment be returned to its normal condition following maintenance. The problem with the stuck motor operated valve appeared to be over tightened to stop a leaky valve. The valve was apparently tightened to the point that the torque setting on the operator prevented operation of the valve. Instructions had been issued forbidding personnel from manually tightening motor operated valves in safeguard systems.

19. Inoperable Isolation Condensers
(JCP&L letter to Directorate of Licensing, dated November 22, 1972)

During a plant cooldown following a reactor scram on November 11, 1972, the B isolation condenser was initiated and automatically isolated. The A isolation condenser was initiated and used intermittently to control reactor temperature and pressure. When the B isolation condenser was returned to normal after the isolation, all valves operated properly except the AC condensate return valve which did not open.

Physical tracing of all isolation condenser break sensing lines disclosed that the A condensate line break sensors and the B steam line break sensors were reversed. In the event of a line break, neither of these sensors would have been capable of performing its isolation function. After determining that the flow sensing lines were reversed, these lines were repiped to provide the correct signal to the sensor. The sensors were calibrated and a surveillance check was conducted on each sensor. Failure of the AC condensate valve to open on the B isolation condenser was determined to be an improper torque setting on the operator. The AC condensate valve torque switches were reset using instructions provided by the manufacturer. A check was made of other safeguard system valves that were required to open in order for the system to perform its safety function and were readjusted as necessary.

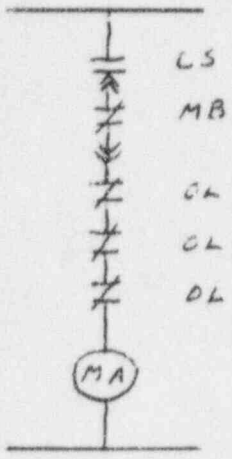
After all of the above corrections, a functional test was made on each isolation condenser with the reactor at rated pressure and water temperature. Recorder traces were made of the differential pressures sensed by each line break sensor during condenser actuation. Based on the recorded flow spike, the time delay relays were reset from five seconds to thirty and thirty-five seconds for the A and B condenser, respectively.

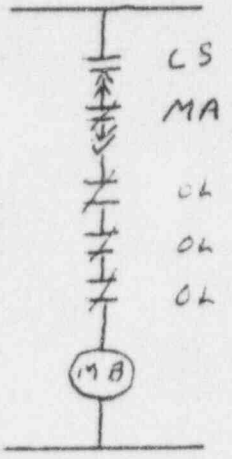
20. Control Rod Selector Switch Failure
(JCP&L letter to Directorate of Regulatory Operations, Region I, dated February 8, 1973)

During the reactor startup on August 15, 1972, the selector switch for control rod drive 14-11 failed in the open position. With the open circuit it was not possible to select any other control rods for insertion or removal; however, all control rods can still be scrammed. The selector switch was jumped and the control rods were inserted to shutdown the reactor while the selector switch was replaced. The Maintenance Supervisor stated that the selector switch could be replaced with the reactor operating without compromising reactor safety. A control circuit diagram was reviewed to verify that the control rods were still operable. The Maintenance Supervisor pointed out the location of the failed selector switch and the steps required to replace the selector switch. No safety problems were apparent from this review.

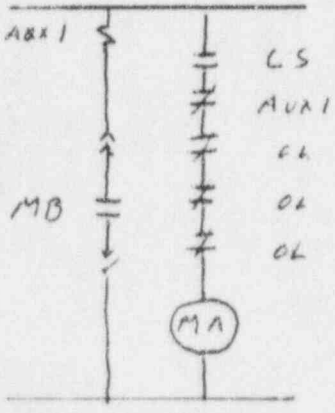
LIQUID POISON PUMP INTERLOCK

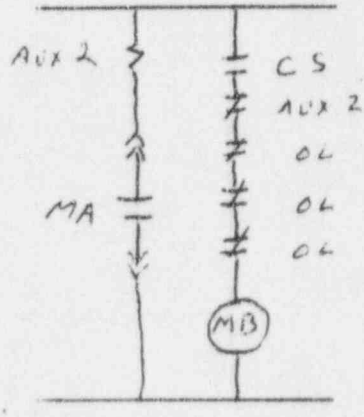
CURRENT





PROPOSED





ATTACHMENT No 1

MAR 8 1973

J. G. Keppler, Chief, Reactor Testing & Operations Branch
Directorate of Regulatory Operations, HQ

RO INQUIRY REPORT NO. 50-219/73-03Q
JERSEY CENTRAL POWER AND LIGHT COMPANY
OYSTER CREEK - BWR FISH KILL

The subject inquiry report is forwarded for your information. As reported in RO Inquiry Report Nos. 50-219/73-01Q and 50-219/73-02Q, a significant number of menhaden were killed by decreasing water temperatures when the Oyster Creek plant was shutdown on December 29, 1972. This latest fish kill may not have been directly related to decreasing cooling water temperatures as the plant was in operation at the time the fish started dying. There have been indications that the latest kill might have been the result of microbial infection. Further investigations are being conducted into this possibility However, one late breaking news item quoting Dr. Pearce, Director of Sandy Hook Marine Laboratories, seems to indicate that a seasonal cold front was the cause for the latest kill. Dr. Pearce said that the surviving menhaden were under "great stress" and that the first cold front killed them.

Inspectors from RO:I will be visiting the Oyster Creek site on February 28 through March 7, 1973 to conduct an inspection of the Oyster Creek Environmental Monitoring Program. During this inspection, the matter of recent fish kills will be reviewed.

J. P. Stohr, Senior
Environmental Protection and

cc: RO Chief, Environmental Inspection Br.
RO:HQ (5)
DR Central Files
PDR, rpt. only
NSIC, rpt. only
LPDR, rpt. only
DTIE, rpt. only
State of New Jersey, rpt. only
Directorate Of Licensing (13)
RO Directors (4)
RS (3)

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