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

REGION I

Combined
Report No. 50-219/80-19 and 80-21

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, Unit 1

Inspection At: Forked River, New Jersey

Inspection Conducted: May 6-9, May 13-14, May 20-23, May 27-30, 1980

Inspectors:

J. Smith for — 8/1/80
L. Briggs, Senior Resident Inspector — date

J. Smith for — 8/1/80
J. Thomas, Resident Inspector — date

S. K. Chaudhary for — 8/4/80
S. K. Chaudhary, Reactor Inspector, RC&ES — date

R K Christopher — 8/1/80
R. K. Christopher, Investigation Specialist — date

R. H. Smith — 8/1/80
R. H. Smith, Investigation Specialist — date

Approved by:

R Keimig — 8-7-80
R. R. Keimig, Chief, Reactor Projects Section No. 1, RO&NS Branch — date

Inspection Summary:
Inspection on May 6-9, 13-14, 20-23, 27-30, 1980 (Combined Inspection Report No. 50-219/80-19 and 80-21)
Areas Inspected: Routine inspections by the resident inspectors (129 hours) and one regional based construction branch inspector (3 hours) of; licensee action on previous inspection findings; followup on commitments made in response to Performance Appraisal Branch (PAB) inspection; review of onsite events that occurred during the inspection; refueling activities; review of licensee action to place administrative controls on override of safety actuation signals during containment purging; followup on regional requests; review of Woodward Governor operating procedures; fire protection system installation review; and, investigation, by two investigators on May 22-23, 1980 (32 hours), into the circumstances surrounding a licensee reported event concerning bypassed interlocks in the control rod drive system (Paragraph 3.b).

Results: Two items of noncompliance were identified (Infraction - failure to follow plant procedures (Paragraph 3.a.); and Infraction - inadequate procedure concerning bypassed refueling interlocks (Paragraph 3.b.)).

DETAILS

1. Persons Contacted

J. Carroll, Station Manager
K. Fickeissen, Support Superintendent
*V. Foglia, Project Engineer
D. Gaines, Manager, Operations Quality Assurance
W. Garvey, Director, Station Administration
E. Growney, Engineering Supervisor, Acting
T. Johnson, Supervisor, Station I&E Maintenance
J. Maloney, Operations Supervisor
*J. Mancinelli, Project Engineer
*R. Pinelli, Project Engineer
J. Riggar, Security Supervisor
J. Sullivan, Plant Superintendent

The inspector also interviewed other licensee personnel during the course of the inspection including management, clerical, maintenance, and operations personnel.

*Attended fire protection system installation review exit meeting on May 23, 1980.

2. Licensee Action on Previous Inspection Findings

(Closed) Infraction (219/79-18-01): Procedure 108 did not provide for independent verification of lifted leads and jumpers. The inspectors verified that procedure 108, "Equipment Control", Revision 18, dated April 24, 1980, requires independent verification of tags placed on or removed from valves, switches and breakers, and lifted leads and jumpers.

Implementation of this procedure will be reviewed on a continuing basis.

(Open) Infraction (219/79-18-05): Fire doors open and combustible material on 119 foot elevation of the reactor building. Procedure 120, "Fire Hazards", Revision 7, dated April 30, 1980, allows fire doors to be open if an individual is stationed at the door to close it in event of a fire emergency or prior to leaving the area. Also included in the licensee's response to this item, was a commitment to obtain letters of agreement with fuel suppliers for fire retardant fuel packing and crating materials and to revise fuel receipt inspection procedures to include inspection for fire retardant packing and crating materials. The fuel suppliers have denied the licensee's request, thus far. This item will remain open pending the licensee's decision regarding alternative measures to prevent the accumulation of hazardous quantities of flammable materials in the fuel handling areas of the reactor building and other vital areas.

(Open) Infraction (219/79-18-07): Inadequate instructions for anchor bolt installation and grouting and incomplete work orders. Contractor employees

are now being instructed during their site orientation program that there are certain site rules and procedures that must be followed and contractor management is now provided an orientation package of selected plant rules and procedures that must be read prior to the contractor performing work onsite.

Also, the Site QA Inspection Supervisor has verified that the inspection check lists include a requirement to check for completion of work orders for all jobs under surveillance. The QA engineering group has added an item to its audits to assure those inspection activities are completed.

These actions adequately address the specific circumstances that led to the item of noncompliance. However, on page 4 of Attachment "A" to the licensee's response to items of noncompliance stemming from inspection 50-219/79-18, the licensee committed to review and strengthen the mechanism for auditing instructions given to contractor employees on applicable plant rules and procedures. This matter has not been resolved and will remain open pending completion of licensee action.

(Closed) Deficiency (219/79-18-26): Returned weld rod not identified and tagged for storage in accordance with procedure 3005. Procedure 3005 is a quality assurance procedure that establishes methods for the receipt of material and the attachment of identifying tags on material. A new set of procedures (9000 series) has been issued for material management. This series of procedures provides direction to warehouse personnel for the handling, issuing, and storage of QA material, including weld rod. These procedures specify that returned material will be tagged as "accepted" indicating that it must be reinspected and tagged "released for use" prior to issue. A tour of the weld rod storage area in the warehouse found no unacceptable conditions.

Additionally, an audit check list has been prepared to cover all aspects of weld rod control and audit number 80-53 has been added to the 1980 schedule to perform an audit of weld rod control.

The effectiveness of the new 9000 series procedures will continue to be monitored by NRC resident inspectors.

(Open) Infraction (219/79-18-14): Duplicate file system not complete. The inspection verified that modification package 297, Piping Modification for Installation of 4 Containment Spray Heat Exchangers, has been reconstructed and filed in the site document control center; however, this item will remain open pending a complete audit of all engineering modification packages by the licensee. This audit is scheduled to be completed by January 1, 1981.

(Open) Infraction (219/79-18-31): Analysis of samples from standby gas treatment system charcoal adsorbers not performed. The required analysis has been added to the master surveillance schedule and the licensee has

conducted a detailed review of Technical Specification changes to insure that all surveillance requirements are included in the master surveillance schedule. However, in view of the event of May 16, 1980, which is discussed in detail in LER No. 50-219/80-17/IT, this review appears to have been inadequate. This item will remain open pending further review for adequate procedural coverage and institution of an acceptable means of tracking required surveillance performance dates.

(Closed) Deficiency (219/79-18-34): Regional office not notified of change to site security plan. The inspector verified that Procedure 101, Paragraph 3.16, does direct the Site Security Supervisor to prepare all reports and notifications to the NRC. The matter was discussed with station management and the Site Security Supervisor. The inspector had no further questions on this item.

The following commitments, made in the licensee's letter of March 17, 1980, in response to the Performance Appraisal Branch (PAB) inspection (50-219/79-18) and not discussed elsewhere in this report, were reviewed:

-- Review Fire Protection Administrative Control procedures to assure control of functions disabling the fire protection system. and storage of combustibles. Procedure 333, "Plant Fire Protection System", Revision 7, dated April 23, 1980, prescribes the steps to be taken to provide adequate backup fire protection when it is necessary to disable portions of the fire suppression system. Procedures 119, "Housekeeping", 119.1, "Fire Protection Inspection", 120, "Fire Hazards", and 120.1, "Welding, Burning, and Grinding Administrative Procedure" were reviewed by the inspectors. These procedures adequately control storage of combustible material, job related trash and debris, and flame producing devices. The inspector had no further questions on this matter.

-- Complete Fire Protection System Modifications. Modifications are still in progress and will be turned over to the site by the contractor prior to the end of the current refueling outage.

-- Appoint Manager of Training. A Manager of Training has been appointed at the corporate level and reports to the Vice President of Generation.

-- Establish an enforceable housekeeping policy. This has not yet been completed due to the workload imposed by the current refueling outage. The Station Manager will draft a letter to NRC:RI explaining the reasons for not meeting this commitment.

Of the list of 82 commitments made by the licensee in response to PAB inspection (50-219/79-18), 16 that reached their due date were inspected. Of these, 10 are closed and 6 remain open pending further action by the licensee.

(Open) Unresolved (219/80-09-01): Steam path through open conduit on Limitorque valve operators. At various times during this inspection, discussions were held with the licensee concerning the problem of possible steam intrusion, under LOCA conditions, into the Limitorque valve operators located in the drywell possibly leading to accumulation of condensate in the operator housings. The licensee provided an Environmental Test Report conducted on Limitorque actuators by Westinghouse Nuclear Energy Systems (WNES) in 1969. In addition, the licensee (Generation Engineering) had performed an evaluation of the subject valve operators.

The WNES test consisted of heat aging, seismic testing, cycle life testing, radiation effects testing and a nine hour test with live steam piped directly into the limit switch compartment of the operator. One transient failure was noted at the time of resistance measurements during full stroke cycle testing at 275F. However, this problem did not reappear in subsequent testing and a precise cause for the failure was not determined. All other tests caused no failures or noticable difference in measured values or appearance.

The licensee's evaluation (GP-80-675, dated May 22, 1980) indicated that 7 valves in the drywell could experience the stated problem due to open conduit:

-- Closed Cooling Water System inlet to (V-15-148) and outlet from (V-5-166) the drywell and the cleanup system outlet (V-16-1) from the drywell. These valves isolate immediately on a LOCA and the conduit enters from the bottom of the actuator thus providing a drain point for any condensate.

-- Isolation Condenser System I and II return (V-14-36 and V-14-37). These valves are normally open and will close only on a rupture of the isolation condenser piping. The licensee will seal the open conduit to these valves.

-- Shutdown Cooling System inlet to (V-17-54) and outlet from (V-17-19) the drywell. These valves are normally closed when reactor pressure is above 150 psi and would not be required to operate during a LOCA unless reactor pressure was below 150 psi with the Shutdown Cooling System in operation. The core spray systems (two) can also serve as a backup to the shutdown cooling system.

This matter was discussed with Region I and NRC Systematic Evaluation Program (SEP) Branch personnel during the inspection period and on June 13, 1980. The licensee's evaluation and proposed actions are considered acceptable based upon the information reviewed to date. Additionally, an independent testing contractor (Franklin Institute) is performing an in-depth analysis of the environmental qualification of Oyster Creek electrical components under an NRC/SEP contract.

This item will remain open pending NRC review of the Franklin Institute findings.

3. Follow-up of Events Occurring During the Refueling

a. Fuel Pool Overflow

On May 8, 1980, at approximately 1200 hours, the fuel pool high level alarm annunciated on Control Room panel "3FG". The high level alarm was investigated by plant personnel at that time and the water level appeared to be normal. No attempt was made to lower the water level to clear the alarm and no follow-up observations were made to determine if the water level was continuing to rise. The annunciator remained in an alarmed condition. At about 1800 hours, water was observed dripping from the reactor building ventilation ducts. It was discovered that the fuel pool level had risen to the point that it overflowed into the pool ventilation skimmers and resulted in approximately 1000 gallons of slightly contaminated water being spilled through the reactor building ventilation system. Subsequently, it was found that a shut-off valve was open in a demineralized water hose which was being used intermittently to add makeup water to the fuel pool while the condensate transfer system (normal makeup water supply) was out of service. The water level was lowered by draining the pool to the rad waste system. Cleanup of the spilled water and decontamination was completed by 0300 on May 9, 1980. Procedure 501, "Annunciators and Alarms", Section 3F.G, requires that the water level in the fuel pool be lowered at the time of a high level alarm. Failure of plant personnel to adhere to the requirements of this procedure constitutes an apparent item of noncompliance at the infraction level (219/80-19-01).

b. Bypassed Control Rod Drive System Interlocks

On May 16, 1980, at approximately 0130 hours during the performance of control rod interference checks, the operator observed abnormal position indication while withdrawing rod 10-23. The "Green-Green" back light on the position indicator remained illuminated indicating full insertion of the rod. An investigation by the licensee revealed that the "one rod interlock bypass jumper" for control rod 10-23 had not been removed after the replacement of the control rod blade and prior to insertion of the rod for subsequent fuel loading. The same condition was found to exist on control rod 14-15. The licensee submitted LER 80-17/IT concerning this matter. Failure to remove the bypass jumpers could have allowed the withdrawal of the control rods while in the refueling mode with the resultant potential for an inadvertent criticality event. Review of fuel move sheets indicated that the jumpers had been installed on February 18, 1980 and had remained improperly inplace since that date.

The NRC resident inspector conducted interviews with control room operators, instrumentation and control technicians and supervisory staff, and performed a detailed examination of logs and records to determine the circumstances which led to the two bypass jumpers not being removed. On May 22-23, 1980, two investigations specialists were dispatched to the site (IE Inspection No. 219/80-21) to assist in the investigation of this matter and to determine if any falsification of procedural sign-offs or intentional maleficence were involved. The investigation concluded that the cause of the event was inadequate procedures and controls and a lack of strict adherence to procedural requirements. No falsification of records or intentional maleficence were found. Additionally, other administrative controls would have prevented the withdrawal of more than one control rod. Procedure 205.7, "Control Cell Unloading/Loading", the procedure being implemented for the installation and removal of the "one rod interlock bypass jumper", also requires verification of rod at "00" position from the control room and visual verification of rod insertion from the refueling bridge prior to fuel loading. Procedure 617.4.005, "Control Rod Interference Check", Paragraph 6.2 requires the verification that all rods are at position "00" before rod withdrawal. The procedural inadequacies and controls coupled with a lack of strict adherence to the procedural requirements which allowed the interlock jumper to remain in place could have contributed to but could not have by itself caused an inadvertent criticality.

Technical Specification 3.9.F.1 states, in part: "...all refueling interlocks are operable...refueling interlocks associated with the control rods being withdrawn may be bypassed as required after the fuel assemblies have been removed...,". Technical Specification 6.8.1 states, in part: "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...,".

American National Standard N18.7-1972, Section 5.3 states, in part: "Nuclear power plants shall be operated in accordance with written procedures....Each procedure shall be sufficiently detailed for a qualified individual to perform the required function without direct supervision...,".

Inadequacies in Procedure 205.7, "Fuel Cell Unloading/Loading", permitted the interlocks which prevent withdrawal of more than one control rod while the reactor was in the "refuel" mode, to be improperly bypassed on control rods 10-23 and 14-15, with fuel loaded in the associated control cell from February 18, 1980 to May 16, 1980. This constitutes an apparent item of noncompliance at the infraction level (219/80-19-02).

4. Observation of Refueling Activities

Final fuel moves (6) following completion of core spray sparger clamp installation were observed by the resident inspector during the 12 to 8 a.m. shift on May 14, 1980. All moves were conducted in accordance with approved procedures. Procedure review was conducted and documented during inspection 50-219/80-01.

5. Followup on Regional Requests

a. Operator Awareness of NRC Policy Concerning Licensed Operator Citations

The inspector interviewed various licensed operators on different shifts to discuss NRC enforcement policy regarding licensed individuals. The operators interviewed were familiar with the policy discussed in IE Information Notice 79-20, "NRC Enforcement Policy - NRC Licensed Individuals".

b. Review of Licensee Tagging Procedures

Licensee's equipment tagout instructions were reviewed to determine whether unusual valve line-ups that are to be maintained over a shift change require tagging. The applicable procedures, 106, "Conduct of Operations", and 108, "Equipment Control" do not specify when tags are required for switches, breakers, and valves. However, interviews with various operators and supervisors indicated that the general station policy was that any unusual valve or switch lineup requires a tagout unless the line-up is governed by an approved procedure which includes steps to restore the lineup. However, the licensee will revise procedure 108, "Equipment Control", to incorporate this existing but undocumented policy. This will be done by August 1, 1980.

This item is considered unresolved pending licensee action to revise the procedure (219/80-19-03).

6. Implementation of Terry Corporation Procedures for Operation of PG-PL Woodward Governors (TI2515/22, dated April 1, 1980)

The inspector verified that there are no Terry Turbines in use at the Oyster Creek facility; therefore, the procedures to assure turbine restart within 30 minutes without erroneous overspeed trips are not applicable to Oyster Creek.

7. Plant Tours

The inspector conducted tours of plant areas which included the control room, reactor building, drywell, augmented off-gas building, turbine building, cable spreading room, yard areas, and the warehouse.

The following areas were observed:

-- Radiation controls;

-- Housekeeping, including attention to the elimination of fire hazards;

-- Fluid leaks;

-- Condition of hangers and seismic restraints; and

-- Control room manning

The following significant finding was discussed with plant management:

-- During a drywell tour, valve V-24-29 (reactor water sample isolation valve) was found to have its electrical conduit pulled from its packing gland. The licensee was informed and repairs were completed and verified by the inspector.

No items of noncompliance were identified.

8. Verification of Administrative Controls on Defeat of Safety Actuation Signals During Containment Purging (IEC 78-19)

The licensee has completed the installation of mechanical stops on all ten containment purge supply and exhaust isolation valves. The stops serve to limit the valves to 30 percent of full open (27 degrees) so that they will be capable of closing under LOCA conditions. In addition, the only automatic isolation signals affecting these valves are high drywell pressure or reactor double low water level, neither of which can be bypassed in the "Run" mode.

The inspector had no further questions on this item.

9. Fire Protection System Anchor Bolt Installation (219/79-18-07)

a. Direct Inspection of Anchor Bolt Installation

The inspector conducted a visual inspection of Plant Fire protection system piping at elevations 51', 75', and 95' inside the reactor building, and observed that no hangers were attached to walls by concrete expansion anchors in close proximity to abandoned anchor holes. Abandoned holes have been filled and repaired. The hangers and other pipe supports originally installed in close proximity to abandoned holes have been relocated at least ten anchor diameters from abandoned holes.

b. Review of Documentation

The inspector reviewed the following documents pertaining to the installation of concrete expansion anchors:

-- Field Revision Authorization, FRA-32, dated November 13, 1979

-- Nonconformance and Corrective Action Reports

79-208, dated November 20, 1979
79-209, dated November 20, 1979
79-210, dated November 20, 1979
79-211, dated November 23, 1979
79-212, dated November 23, 1979

-- Drawing No. A-800-2C4-001, Rev. 3

Based on the review of above documents and discussion with the licensee's project manager for expansion anchors, and other engineers, the inspector determined the following:

The licensee has issued a procedure specifying acceptance criteria for relocating hanger/pipe support attachments to walls in case of any abandoned holes (at least ten bolt diameters away from an abandoned hole).

The licensee has initiated nonconformance and corrective action reports to document the installation of hangers/pipe supports not complying to the above acceptance criteria.

The licensee has completed the corrective action on the unacceptable installation by relocating the affected hangers/pipe supports and repairing abandoned holes.

The inspector had no further questions concerning fire protection system anchor bolt installation. This item (219/79-18-07) is considered resolved.

10. Unresolved Items

Unresolved items are items about which more information is needed to determine if the item is acceptable, an item of noncompliance or a deviation. The unresolved item identified during this inspection is discussed in Paragraph 5.b.

11. Exit Interviews

At periodic intervals during the course of this inspection, meetings were held with senior facility management to discuss inspection scope and findings.