

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Report No. 83-17
Docket No. 50-219
License No. DPR-16 Priority -- Category C
License: GPU Nuclear Corporation
100 Interpace Parkway
Parsippany, New Jersey 07054

Facility Name: Oyster Creek Nuclear Generating Station

Inspection at: Forked River, New Jersey

Inspection Conducted: June 9 - July 13, 1983

Inspectors: *C. Cowgill III* 7/15/83
C. Cowgill, Senior Resident Inspector date signed

J. Thomas 7/15/83
J. Thomas, Resident Inspector date signed

Approved by: *E. L. Conner* 7/20/83
E. L. Conner, Chief, Reactor Projects Section 2D date signed

Inspection Summary: Inspection on June 9 - July 13, 1983 (Report No. 50-219/83-17)

Routine inspection by the resident inspectors (140 hours) which included followup of previous inspection findings, review of plant operations, log and record review, plant tours, physical security, radiation protection, surveillance observation, review of TMI Task Action Plan items, followup of NRC circulars and review of periodic and special reports.

Results: No violations.

DETAILS

1. Persons Contacted

R. Barrett, Operator and Technician Training Manager
M. Budaj, Manager, Plans and Programs
D. Custodio, Engineer
P. Fiedler, Vice President and Director, Oyster Creek
V. Foglia, Manager, Operational Corrective Maintenance/Preventive Maintenance
D. Gaines, Manager, Plant Training
R. Harkleroad, Engineer
R. Joffe, ISI Engineer
D. Jones, Supervisor, Electrical Engineering
M. Laggart, Manager, Oyster Creek Licensing
J. Maloney, Manager, Plant Materiel
R. Mc Keon, Manager, Plant Operations
R. Murdock, Engineer
D. Pino, Preventive Maintenance Engineer
W. Smith, Plant Engineering Director
J. Sullivan, Plant Operations Director
D. Turner, Manager, Radiological Controls

2. Review of Previous Inspection Findings

(Closed) Unresolved Item (77-09-09) Spring hanger positions. All seismic class 1 and 2 spring hangers are inspected in the In Service Inspection (ISI) program every 10 years. The hangers are visually inspected and the spring position indication recorded. The position indication is compared to the manufacturers loading chart and the load carried by the hanger is compared to that specified on the as-built system drawings. When hangers are found to be loaded outside of the specified range, maintenance work orders are issued to reset and reinspect the hanger. The inspector reviewed a sampling of hanger inspection reports and verified that appropriate acceptance criteria were met. The following reports were reviewed:

--	Inspection 3-B-I-83	January	completed	January 20, 1983	on hanger	NZ-2-H2
--	Inspection 3-B-I-83	January	completed	January 4, 1983	on hanger	NZ-2-H4
--	Inspection 3-B-I-83	January	completed	January 21, 1983	on hanger	NZ-2-H30
--	Inspection 3-B-I-83	April	completed	April 6, 1983	on hanger	NQ-2-H16
--	Inspection 3-B-I-83	January	completed	January 10, 1983	on hanger	NQ-2-H40
--	Inspection 3-B-I-83	May	completed	May 5, 1983	on hanger	NQ-2-H84

The inspector had no further questions on this item.

(Closed) Inspector Follow Item (77-25-02) Adequacy of control room multipoint recorders. This item was the result of inspector concern for the retrievability of data from the control room process recorders. The multipoint recorders were operating such that determining which point was being indicated was difficult and recorded data was sometimes obliterated by overprints. The licensee will replace these recorders during the current refueling outage. The inspector

reviewed System Design Description (SDD) 611B, revision 1, dated November 4, 1982, "Main Control Room Recorder Replacement" which is intended to replace twelve multipoint recorders with more reliable recorders with digital displays. Completion of this modification will adequately address this concern.

The inspector had no further questions on this item.

(Closed) Violation (78-30-06) Failure to maintain personnel search equipment in operable condition. Frequent observations by the resident inspectors of personnel access control at both plant entrances and inspections by region based safeguards inspectors have found the personnel search requirements of the physical security plan to be adequately implemented.

The inspector had no further questions on this item.

(Closed) Inspector Follow Item (79-14-03) Replacement of circuit breaker control fuses and factoring fuse failure analysis results into circuit breaker preventive maintenance program. The licensee replaced the defective fuse (reported in LER 50-219/79-11) in the Core Spray Pump control circuit. The failed fuse was examined by Gould Shawmut Inc., and found to have failed due to normal surface crystallization of the zinc element. The manufacturer stated that fuses of this type have only a five year lifetime. The licensee replaced all similar fuses in safety related systems during the 1980 refueling outage. The inspector reviewed Job Order 1972E, QASL 3618, completed June 16, 1980, to verify that the fuse replacement had been completed. The preventive maintenance program now requires these fuses to be replaced every five years, and is included as item 1250 on the preventive maintenance "Task and Frequency Index".

The inspector had no further questions on this item.

3. Plant Operations Review

3.1 Shift Logs and Operating Records

Shift Logs and Operating Records were reviewed to verify that they were properly completed and signed and had received proper supervisory reviews. The inspectors verified that entries involving abnormal conditions provided sufficient details to communicate equipment status and followup actions. Logs were compared to equipment control records to verify that equipment removed from or returned to service was properly noted in operating logs when required. Operating memos and orders were reviewed to insure that they did not conflict with Technical Specification requirements. The logs and records were compared to the requirements of Procedure 106, "Conduct of Operations", and Procedure 108, "Equipment Control". The following were reviewed:

- Control Room and Group Shift Supervisor's Logs;
- Control Room, and Shift Supervisor's Turnover Check List;

- Control Room Shutdown Log;
- Reactor Building and Turbine Building Tour Sheets;
- Standing Orders;
- Operational Memos and Directives.

No unacceptable conditions were noted.

3.2 Facility Tours

The inspectors frequently toured the following areas:

- Control Room (daily)
- Reactor Building
- Turbine Building
- Augmented Off-Gas Building
- New Rad-Waste Building
- Cooling Water Intake and Dilution Plant Structure
- Monitor and Change Area
- 4160 Volt Switchgear, 460 Volt Switchgear, and Cable Spreading Room
- Diesel Generator Building
- Battery Rooms
- Maintenance Work Areas
- Yard Areas (including Protected Area Perimeter)

The following were observed:

- 3.2.1 During daily control room tours, the inspectors verified that the control room manning requirements of 10 CFR 50.54(k), Technical Specifications and the licensee's conduct of operations procedure were met. Shift turnovers were observed for adequacy. Selected control room instrumentation needed to support the cold shutdown, defueled, vessel drained conditions was verified to be operable and indicated parameters within normal expected limits. Recorders were examined for evidence of abnormal or unexplained transients. Plant stack radiation recorder traces were examined for evidence of abnormal or unplanned releases of radioactive gases. The inspectors verified compliance with Technical Specification

Limiting Conditions for Operation (LCO's) applicable to the cold shutdown condition and refueling activities, including those relating to primary and secondary containment integrity, and fire protection systems. The inspectors closely monitored outage activities and verified that operators and supervisors were aware of work in progress and complied with applicable Technical Specification requirements.

No unacceptable conditions were identified.

- 3.2.2 The inspectors discussed selected alarmed annunciators with control room operators and supervisors to verify that the alarmed condition was understood and corrective actions, if necessary, had been initiated. The normal annunciator panels have been removed from service for modification and a temporary system installed. The inspectors reviewed the alarm functions transferred to the temporary panels, the safety evaluation to support the modification, and the procedural changes necessary to implement the modification. The inspectors also observed one operating shift's training lecture on the modification. The training session adequately covered the operation and the procedures supporting the temporary system.

No unacceptable conditions were identified.

- 3.2.3 The inspectors verified the operability of selected systems considered important to safety by direct observation of valve, breaker, and switch position. Components were examined for leakage, proper lubrication, operating air supply, and general conditions. Selected pipe hangers and seismic restraints were examined for indications of mechanical interference and fluid leaks. Systems inspected included Control Rod Drive Hydraulic, Standby Gas Treatment, and portions of the 4160 and 460 volt electrical distribution systems.

No unacceptable conditions were identified.

- 3.2.4 Equipment Control procedures were examined for proper implementation by verifying that tags were properly filled out, posted, and removed as required, that jumpers were properly installed and removed, and that equipment control logs and records were complete. Selected active tagouts were independently verified by the inspectors. Selected cleared tagouts were reviewed to determine that system alignments had been properly restored and safety systems returned to service had been properly tested. Selected locked valves were examined for proper position and installation of locking devices. The inspectors monitored outage related activities including erection of scaffold and work platforms, installation of temporary hoses and cables, and the set up of radiological control barriers, to ensure that these activities did not block or otherwise impair the operability

of components important to safety, and were controlled in accordance with the equipment control procedures when required.

The inspector independently verified the following electrical jumpers:

- Variation 83-46, installed jumper 49 on June 21, 1983, in panel 1F/2F between terminals KG-9 and TB2-37 to maintain acknowledge switch capability during annunciator modification.
- Variation 83-44, installed jumper 69 on June 21, 1983, in panel 1F/2F between terminals TB1-12(+) and TB1-12(-) to eliminate a spurious alarm during replacement of thermocouple element TE-109D.
- Variation 82-102, installed jumper 8 on December 28, 1982, in panel 13R, recorder 4D46A between terminals 69(+) and 69(-) to jumper a failed control rod drive thermocouple.
- Variation 82-101, installed jumper 7 on December 28, 1982, in panel 13R, recorder 4D46A between terminals 68(+) and 68(-) to jumper a failed control rod drive thermocouple.
- Variation 82-100, installed jumper 6 on December 28, 1982, in panel 13R, recorder 4D46B between terminals 35(+) and 35(-) to jumper a failed control rod drive thermocouple.
- Variation 82-82, installed jumper 2 on October 22, 1982, in panel 1R between terminals TB3-74 and TB3-108, to defeat the alarms from the old radwaste discharge monitor that had been removed from service.
- Variation 82-81, installed jumper 1 on October 22, 1982, in panel 1R between terminals TB3-75 and TB3-67, to defeat the alarms from the old radwaste discharge monitor that had been removed from service.

No unacceptable conditions were identified.

- 3.2.5 The inspectors examined plant housekeeping conditions including general cleanliness, control of material to prevent fire hazards, maintenance of fire barriers, storage and maintenance of fire fighting equipment, and radiological housekeeping.

During a tour of the condenser bay on June 28, the inspector noted an excessive amount of debris and litter on the floor. The primary work in progress in the area was main condenser anode replacement and the litter did not appear to be entirely related to that work. The inspector discussed the conditions with licensee personnel and found that cleanup of the area was scheduled for later that same day. The inspectors will continue to monitor the licensee's housekeeping efforts.

4. Radiation Protection

During entry to and exit from radiation controlled areas (RCA), the inspectors verified that proper warning signs were posted, personnel entering were wearing proper dosimetry, that personnel and materials leaving were properly monitored for radioactive contamination and that monitoring instruments were functional and in calibration. Posted Radiation Work Permits (RWP's) and survey status boards were reviewed to verify that they were current and accurate. The inspector observed activities in the RCA to verify that personnel complied with the requirements of applicable RWP's and that workers were aware of the radiological conditions in the area. Particular attention was given to activities around the control points on the refueling floor, the drywell entry, the torus access point, and the turbine operating floor. In general, health physics technicians manning the control points and monitoring activities within the RWP areas were very knowledgeable of the radiological working conditions and were well abreast of outage activities in progress and planned for their assigned areas. They assured that people entering the areas were apprised of the radiological conditions and that proper protective measures were taken.

The inspectors reviewed the following RWP's and observed activities performed under them:

- RWP 076983 dated June 10, 1983, and the associated Radiological Engineering Review (RER) 278-83 dated June 10, 1983, for decontamination of channel measuring equipment.
- RWP 077183 dated June 14, 1983, and the associated RER 245-83 dated May 25, 1983, for plant support of unwrapping of channel measuring equipment.
- RWP 075883 dated June 10, 1983, and the associated RER 277-83 dated June 8, 1983, for inspection and repair of the auxiliary cleanup pump.
- RWP 077083, dated June 13, 1983, for relocation of equipment in the spent fuel pool and clearing of the fuel preparation machine.
- RWP 077583, dated June 16, 1983, for general work in the torus shell area.
- RWP 075283, dated June 9, 1983, and the associated RER 249-83 dated May 26, 1983, for replacement of main condenser anodes.

No unacceptable conditions were identified.

5. Physical Security

During daily entry and egress from the protected area, the inspectors verified that access controls were in accordance with the security plan and that security posts were properly manned. During facility tours, the inspectors verified that protected area gates were locked or guarded and that isolation zones were free of obstructions. The inspectors examined vital area access points to verify that they were properly locked or guarded and that access control was in accordance with the security plan. Vehicles onsite were periodically observed to verify proper controls. Visitors onsite were observed to verify that security plan escort requirements were met.

No unacceptable conditions were identified.

6. Maintenance and Surveillance Testing

The inspectors observed maintenance and surveillance activities to verify that activities were properly approved, operations personnel were cognizant of activities in progress, proper procedural controls were in effect, redundant systems and components were available when required, test instrumentation was calibrated, activities were performed in an acceptable manner by appropriately qualified personnel, and appropriate radiological precautions were taken. Portions of the following activities were observed:

- Control rod drive hydraulic control unit maintenance
- Installation of torus hoop straps
- Control room alarm panel modification
- Electromatic relief valve pressure sensor replacement
- Turbine disassembly, inspection, and reassembly
- Cable installation for additional containment instrumentation
- Main condenser anode replacement
- Fire protection system surveillance
- Spent fuel pool activities

No unacceptable conditions were identified.

7. Review of TMI Task Action Plan (NUREG 0737) Item 1.A.1.1, Shift Technical Advisor

NUREG 0737 required that licensees provide an on-shift technical advisor to the Shift Superintendent. The individual was required to have a bachelor's degree or equivalent in a scientific or engineering discipline and have received specific training in plant design and accident response and analysis.

By letter dated February 10, 1981, the licensee described his long term STA training program that includes instruction in reactor heat transfer, core neutronics and power distribution, fuel damage mechanisms, reactor plant materials and chemistry control, system thermodynamics and fluid flow characteristics, instrumentation system and components, mechanical systems and components, electrical distribution, and radiation transport and control.

The inspector reviewed Technical Functions Division Procedure TAP-005, "Shift Technical Advisor Selection and Training", revision 1, dated August 30, 1982 and confirmed that the programs requirements were as described.

The inspector reviewed selected training course notebooks, interviewed STA candidates and discussed the program requirements with Technical Functions and Training Department personnel. The inspector also confirmed that selected candidates met the educational requirements of the position. To date, 5 individuals have satisfactorily completed all requirements and 4 candidates are expected to complete training prior to startup from the current refueling.

The inspector identified no unacceptable conditions.

8. Review of NRC Circulars

The following NRC circulars were reviewed to determine that they had been received and reviewed for applicability by the licensee and that appropriate corrective actions were taken:

- Circular 77-09, Improper Fuse Coordination in BWR Standby Liquid Control System Circuits. The licensee modified the Standby Liquid Control System (SLCS) control circuit to ensure the firing of the explosive squib valves without blowing the pump motor control fuses. The modification was designed to ensure the survival of the pump control power system when the short to ground that randomly accompanies firing of explosive squib actuated valves occurs. The modification provides the squibs with at least 2 amperes firing current per squib for a time significantly exceeding the 10 millisecond firing time, and properly coordinated fusing to prevent blowing the control fuses when subjected to firing current and motor contactor coil inrush current. The 150 volt amp control power transformers were replaced with 500

volt amp transformers, and the fuses were changed from Bussman FNM-15/100 to Bussman BAF-1.

The following documents were reviewed:

- Modification Proposal 592.00-81-1, revision 2, June 3, 1981, "Oyster Creek Liquid Poison Control System Electrical Protection".
- Installation Specification 592.00-81-2, June 3, 1981, "Oyster Creek Liquid Poison Control System Electrical Protection".
- Job Order 4095E, QASL 5772 completed January 10, 1982, "Install new transformer and fuses for liquid poison system".
- Job Order 4104E, QASL 5782 completed January 13, 1982, "Perform functional test of liquid poison system".
- Procedure SP-81-42, revision 1, January 6, 1982, "Liquid Poison Fuse Replacement Procedure".
- Procedure SP-81-43, revision 1, January 6, 1982, "Functional Test of Liquid Poison Squib Valves".

The licensee has satisfactorily completed all actions necessary to correct the problem identified by this Circular.

- Circular 77-13, Reactor Safety Signals Negated During Testing. The Inspector discussed this item with the licensee's engineering staff and found that the reviews recommended by this circular have not been completed. The licensee has initiated action to review the applicable instrumentation surveillances to verify that testing does not disable safety signals or safety related parameter indications. This review is scheduled to be completed during the current refueling outage.

This circular will remain open pending further review by the licensee and the NRC.

9. Review of Periodic and Special Reports

Upon receipt, periodic and special reports submitted by the licensee pursuant to Technical Specification 6.9.1 were reviewed by the inspector. This review included the following considerations: the report includes the information required to be reported to the NRC; planned corrective actions are adequate for resolution of identified problems; and that the reported information is valid. The following periodic reports were reviewed by the inspector.

- May 1983 Monthly Operating Report.

No unacceptable conditions were identified.

10. Exit Interview

At periodic intervals during the course of this inspection, meetings were held with senior facility management to discuss inspection scope and findings. A summary of findings was presented at the conclusion of the inspection.