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

Region I

Report No. 50-219/82-17

Docket No. 50-219

License No. DPR-16 Priority -- Category C

Licensee: 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 2 - July 5, 1982

Inspectors: J. Thomas, Resident Inspector — 7/19/82 date signed

date signed

date signed

Approved by: L. E. Tripp, Chief, Reactor Projects Section 2A — 7/20/82 date signed

Inspection Summary: Inspection on June 2 - July 5, 1982 (Report No. 50-219/82-17) Routine inspection by the resident inspector (115 hours) including review of plant operations, plant tours, log and record review, surveillance observation, followup of on-site events, review of Licensee Event Reports, and on-site followup of Licensee Event Reports.

Results: Violations: One in one area (Unmonitored release of radioactive liquid to the discharge canal, detail 5.3).

DETAILS

1. Persons Contacted

J. Carroll, Director, Plant Operations
B. Cooper, Outage Manager
P. Fiedler, Vice President and Director, Oyster Creek
K. Fickeissen, Plant Engineering Director
M. Laggart, Supervisor Oyster Creek Licensing
J. Maloney, Acting Manager, Rad-Waste Operations
R. Mc Keon, Manager, Plant Operations
J. Riggar, Security Supervisor
P. Scallon, Radiological Field Operations Manager
J. Sullivan, Plant Operations Director
D. Turner, Radiological Controls Manager

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

2. Review of Plant Operations

2.1 The inspector routinely toured the following plant areas:

-- Control Room

-- Turbine Building

-- Augmented Off-Gas Building

-- New Rad-Waste Building

-- Cooling Water Intake and Dilution Plant Structure

-- Monitoring Change Areas

-- 4160 Volt Switchgear, 460 Volt Switchgear, and Cable Spreading Rooms

-- Diesel Generator Building

-- Battery Rooms

-- Maintenance Work Areas

-- Yard Areas

2.2 The following were observed:

2.2.1 Daily inspection tours of the Control Room included examination of instrumentation, recorder traces, annunciator panels, switch positions, and logs and records to verify adherence to applicable Limiting Conditions for Operation (LCO). The inspector verified availability and proper alignment of emergency cooling systems and onsite and offsite electrical power sources. Recorder traces were examined for indications of unexplained or unplanned plant transients. Stack Gas Monitor recorders were examined for indications of abnormal releases. Panels were examined to verify operability and proper alignment of containment systems, proper containment inerting, and proper containment temperature and pressure. Control rod density and nuclear instrumentation limits were verified. Status of alarmed annunciators was discussed with operators to verify that corrective action was being taken if required. The inspector observed evolutions in progress to verify that approved procedures were in use. Shift turnovers were frequently observed for adequacy. The inspector verified proper Control Room manning and access control.

2.2.2 The inspector examined local plant instrumentation necessary to support safe plant operation. The instruments were verified to be in service with proper on-scale indication and channel correlations where applicable. Root valve alignment and cable connections were checked when possible. The inspector verified that activities in the area did not impair instrument operability.

2.2.3 During entry to and exit from radiation controlled areas (RCA), the inspector verified that proper warning signs were posted, personnel entering were wearing proper dosimetry, that personnel and materials leaving were properly monitored for radioactive contaminations and that monitoring instruments were functional and in calibration. Posted extended 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.

2.2.4 Systems and components were examined for evidence of abnormal vibration and fluid leaks. Selected pipe hangers and seismic restraints were visually examined for indications of mechanical interference or fluid leaks.

Valves and components in safety related systems were observed to verify proper system alignment. Accessible major flow path

valves in the Core Spray, Containment Spray, Control Rod Drive Hydraulic, and Isolation Condenser systems were examined for proper alignment by direct observation and by observation of remote position indicators. All breakers in the 4160 Volt and selected breakers in the 460 Volt and 125 Vdc electrical systems were examined for proper alignment.

2.2.5 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.

During the conduct of inspection tours, the interiors of cabinets and control panels were examined for the presence of uncontrolled jumpers, lifted leads, or tags. Tags found on systems and components were examined to verify that the component was in the condition specified on the tags and that tags were properly filled out and authorized.

Equipment control logs were examined to verify that jumpering or tagging of system components did not remove redundant safety systems from service or violate technical specification limiting conditions for operation.

2.2.6 The inspector 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.

2.2.7 During daily entry and egress from the protected area, the inspector verified that access controls were in accordance with the security plan and that security posts were properly manned. During facility tours, the inspector verified that protected area gates were locked or guarded and that isolation zones were free of obstructions. The inspector 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.

2.3 Acceptance criteria for the above areas included Technical Specifications, applicable Federal Regulations, Oyster Creek Physical Security Plan, current revisions of appropriate licensee administrative and operating procedures, and inspector judgment.

3. Shift Logs and Operating Records

3.1 The inspector reviewed the current revisions of the following plant procedures to determine the licensee established requirements in this area in preparation for review of selected logs and records:

-- Procedure 106, Conduct of Operations;

-- Procedure 118, Equipment Control; and,

-- Procedure 115, Standing Order Control.

The inspector had no questions in this area.

3.2 Shift logs and operating records were reviewed to verify that they were properly filled out and signed and had received proper supervisory reviews. The inspector 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.

3.3 The review included the following plant shift logs and operating records as indicated, and discussions with licensee personnel. Reviews were conducted on an intermittent selective basis:

-- Control Room and Group Shift Supervisor's Logs, all entries;

-- Technical Specification Log;

-- Control Room, and Shift Supervisor's Turnover Check Lists;

-- Reactor Building and Turbine Building Tour Sheets;

-- Equipment Control Logs;

-- Standing Orders;

-- Operational Memos and Directives.

4. Surveillance Testing

Selected completed surveillance tests were reviewed to verify that the tests were completed as scheduled, test results were reviewed by supervisory staff and forwarded for management review, and that appropriate corrective actions were initiated as required for identified deficiencies. Portions of selected ongoing surveillance activities were observed to verify that approved procedures were used, the work was performed by qualified personnel, that test instrumentation was calibrated, and that redundant systems for components were available for service if required. Activities reviewed included the following:

-- Procedure 610.3.006, revision 10, February 11, 1982, Core Spray Isolation Valve Actuation Test and Calibration, completed June 8, 1982.

-- Procedure 610.4.003, revision 6, May 13, 1981, Core Spray Motor Operated Valve Operability Test, completed June 9, 1982.

-- Procedure 607.3.002, revision 15, March 22, 1982, Containment Spray Systems Automatic Actuation Test, completed June 17, 1982.

-- Procedure 610.4.007, revision 5, October 27, 1981, Core Spray Firewater Test, completed June 29, 1982.

-- Procedure 651.4.005, revision 0, April 6, 1982, SGTS HEPA Filter DP Test, completed June 29, 1982.

-- Procedure 617.4.001, revision 5, June 9, 1982, CRD Pump Operability Test, completed June 29, 1982.

5. Follow-up of On-Site Events

5.1 On June 4, 1982, the reactor scrammed from about 65 percent power due to a turbine trip caused by a high reactor water level. The operator was attempting to place the Reactor Water Cleanup System in service after replacing the cleanup demineralizer resin. The system inlet valve, V-16-14, was "bumped" open in accordance with procedure 303, "Reactor Cleanup Demineralizer System". The valve opened too far causing a higher than expected outflow of water from the reactor coolant system. The feedwater control system responded by increasing reactor feed flow to maintain water level at about 160 inches. The high feed flow condition tripped the feed pump run-out protection logic locking all three feed regulating valves. The run-out trip points had been reduced because of the unavailability of one condensate pump. Before the run-out trips could be reset, water level increased to about 179 inches causing a turbine trip and a reactor scram. The run-out trips were reset and water level restored to normal by the operator. Licensee investigation of this event found no mechanical problems with the cleanup inlet valve. When opening the valve against a differential pressure of about 1000 psig as in this case, great care must be taken by the operator to prevent opening the valve too far.

This event was reviewed and critiqued by licensee management and discussed with operations department personnel. Plant restart was completed on June 5, 1982.

The inspector had no further questions on this item.

5.2 At about 6:00 a.m. on June 16, 1982, a one-half inch gauge nipple blew off of the discharge of the 'B' condensate transfer pump while performing a surveillance test. The leakage was discovered by an equipment operator who secured the pump, but an undetermined volume of potentially contaminated water leaked out of the condensate transfer pump building and wetted about 100 square feet of soil on the south side of the building. The water was absorbed by the soil and the area was barricaded and posted as a contamination controlled area. A direct frisk of the wetted soil with a thin window G-M probe showed contamination levels of less than 1000 disintegrations per minute, however, the barricade and warning signs were left in place until isotopic analysis of the soil was completed to confirm that the contamination levels were within releasable limits. At about 2:30 p.m., the inspector found that the barricades were still in place, that isotopic analysis had not yet been completed, and that no further protective measures had been taken to prevent further spread of possible contamination. The inspector discussed the event with operations supervisors and found that they were unaware of the status of the isotopic analysis; what, if any, cleanup action was planned; or who was coordinating the activities. The inspector discussed the event with NRC Region I health physics specialists and determined that the results of the direct frisk of the soil provided adequate indications that there was no potential radiological hazard from the spill. Even though there was no hazard from the spill, the inspector expressed concern to facility management that the lack of communication and coordination between the various plant departments to inform personnel of the status of the spill, and the lack of a central controlling individual or department to direct spill response activities was unacceptable. The licensee concurred in the inspector's concern and facility management tasked one member of the staff to take charge of recovery activities. Isotopic analysis of soil samples were subsequently completed and confirmed that the contamination levels were within releasable limits. In response to the inspector's concern, the licensee committed to develop a procedure for response to radioactive spills to clearly assign responsibility for control and coordination of activities.

5.3 At about 10:00 p.m. on June 11, 1982, the licensee was preparing to transfer spent demineralizer resin from resin tank 2A to a high integrity cask liner for shipment to a burial site. Procedure 325, "Processing Resins ... Into ... a High Integrity Container", requires that prior to resin transfer, the resin tank be agitated through an air mixing valve while the tank is vented. While agitating, the resin transfer line is backflushed into the tank with water from the condensate transfer system to insure the line is clear. When this step was performed, the tank vent apparently plugged with resin causing the tank to pressurize to condensate transfer system pressure. This is about 30 psi higher than service air system pressure, so a mixture of resin and water was forced into the air system through the air sparger piping and a failed air line check valve. This caused contamination of the new radwaste building service air system and higher than normal radiation levels in various areas of the building.

The most significant radiation levels were 1 Rem per hour on a moisture trap on the 38 elevation and 1.2 Rem per hour on the air compressor receiver tank. The radiation level dropped to 250 millirem per hour on the moisture trap when it was drained and it was subsequently shielded with lead sheets to eliminate the radiation hazard. The radiation level on the air receiver increased to 1.5 Rem per hour after draining, indicating that resin and sludge was trapped in the tank. The inspector verified that the licensee implemented appropriate measures to post and lock the high radiation areas and increased the frequency of radiation surveys to adequately monitor the areas around the contaminated air piping. At about 6:00 a.m. on June 12, the licensee discovered water dripping from couplings on a breathing air hose running from the new radwaste building to a sandblast station outside of the protected area. The hose was filled with contaminated water from the spent resin tank. About 250 milliliters of water with an activity of 6E-2 microcuries per milliliter of predominantly Cobalt-60 and Manganese-54 leaked onto the soil. About 10 milliliters was outside of the protected area. The licensee removed the hose and dug up about two cubic feet of contaminated soil to remove the contamination. The inspector reviewed the results of isotopic analysis on soil samples from the spill area after cleanup to verify that no contamination remained. The inspector also verified that the service air system has been restricted from uses that could cause spread of contamination and from use as a source of breathing air.

About 200 gallons of water was drained from the air compressor receiver tank on June 12 into a floor drain that was thought to discharge into 1-3 collection sump in the new radwaste building. Fifty gallons more were drained on June 13, and another 50 gallons were drained on June 14. On June 21, 1982, while developing a procedure to decontaminate the air receiver, an employee determined that the floor drain discharged to a storm sewer catch basin. He notified licensee management who confirmed this after a review of as-built drawings of the drain system. About 300 gallons of contaminated water had been released through an unmonitored storm sewer system into the discharge canal. This is a violation of Technical Specification 3.B.(2) which requires that radioactive discharges to the canal be continuously monitored (219/82-17-01).

The licensee notified the NRC of this violation of 1:47 p.m. on June 21, 1982, and began surveying storm sewer catch basins for residual contamination. Three catch basins were found with contamination levels of 1000 to 300,000 disintegrations per minute. They were sealed to prevent further spread of contamination and a program for cleanup was begun.

Further review of the unmonitored release determined that a total of about .07 curies of a mixture of Cobalt-60 and Manganese-54 had been released. The maximum release rate of water with an activity of 6E-2 microcuries per milliliter was about 15 gallons per minute. This is only about 3 percent of the release limits of technical specifications. Thus, no release rate or gross release limits were exceeded.

At the conclusion of this inspection, the contaminated catch basins had been decontaminated and the licensee was progressing toward decontamination of the piping between the catch basins. Work was in progress to design a new independent air system for use as breathing air and for applications in clean systems.

A remaining NRC concern is corrective action to insure that future environmental releases or system cross contaminations do not occur as a result of unknown or inadvertent system discharge points or cross connects. The licensee's long term corrective action will be the subject of future correspondence between the licensee and NRC:Region I. This will be reviewed in future inspections.

6. Review of Licensee Event Reports (LER's)

The inspector reviewed LER's received in the NRC:R1 and Resident Office to verify that details of the event were clearly reported including the accuracy of the description of cause and adequacy of corrective action. The inspector also determined whether further information was required from the licensee, whether generic implications were involved, and whether the event warranted further on-site followup. The following LER's were reviewed:

LER	EVENT
82-02	Error in Undervoltage Trip Modification Design on TIP System
82-06	One ADS Channel Inoperable During Maintenance
* 82-14	Local Leak Rate Test Failures
82-15	Excessive Delay Time for Air Ejection Isolation Valve
82-17	Failure of Bus 1C Auxiliary Power Relay
82-18	Main Steam Drain Valve V-1-106 Failed to Close
* 82-19	Local Leak Rate Test Failures
* 82-20	Local Leak Rate Test Failures of Main Steam Isolation Valves
82-22	Operation in a Degraded Mode When One Startup Transformer was Unavailable for Automatic Operation
82-23	Failure of Rotating Element of the A Control Rod Drive Hydraulic Pump
82-24	Three Electromatic Relief Valve High Pressure Switches Tripped at Value Higher Than Specified.
* 82-25	One Reactor Triple Low Water Level Switch Failed During Testing and the Required Simulated Trip Was Not Placed in the ADS Logic
82-26	Safety Valve NR28J Thermocouple Failed

82-27 One Standby Liquid Control Pump Was Removed From Service For Maintenance

82-28 One Core Spray Pump Was Inoperable Due to Excessive Vibration

82-29 Four Reactor High Pressure Scram Switches Tripped at Values Greater than Specified

* 82-30 Stack Release were not Continuously Monitored Due to a Trip of Sample System Pump

* 82-31 A Diesel Generator was Removed From Service When the CRD Pump Powered From the Other Diesel was Inoperable

7. On-Site Licensee Event Follow-up

For those LER's selected for on-site followup, the inspector verified that reporting requirements of Technical Specifications and Regulatory Guide 1.16 had been met, that appropriate corrective action had been taken, that the event was reviewed by the licensee as required by facility procedures, and that continued operation of the facility was conducted in accordance with Technical Specification limits. The LER's selected on on-site followup are denoted by an asterisk (*) in detail 6. above. The following specific observations were made and discussed with licensee management.

7.1 Licensee Event Reports 82-14, 82-19, and 82-20 reported primary containment degradation. These events were reviewed during an NRC inspection of the containment leak rate testing program conducted March 17 - April 6, 1982 and are documented in NRC report 50-219/82-06 dated May 20, 1982.

7.2 During performance of Reactor Triple Low Water Level Sensor Test and Calibration on May 6, 1982, instrument technicians were unable to reset the trip point of sensor RE 18D to the procedurally specified band. Troubleshooting found a corroded electrical connection in a cable splice, so the sensor was removed from service for about nine hours to replace the cable. During a licensee review of the event, it was determined that technical specification table 3.1.1, note 'h', requires that when one of the RE 18 sensors is inoperable, a simulated trip be inserted in the Auto Depressurization Logic Channel affected. This was not done during the cable replacement. When this oversight was identified, the licensee immediately notified the NRC of the violation of technical specifications and committed to review instrument surveillance procedures and assure that statements are included in the procedures to assure that appropriate actions are taken when sensors are found inoperable during testing. This was reported in LER 82-25. The safety significance of this event is minimal since the redundant sensors were operable. This violation is of minimal safety significance and was identified and promptly reported and corrected by the licensee. Therefore, in accordance with the NRC Enforcement Policy, no enforcement action is being taken.

The procedure changes will be reviewed in a subsequent inspection (219/82-17-02).

7.3 On June 14, 1982, the 'A' Control Rod Drive Hydraulic (CRDH) pump was out of service for maintenance. At about 7:00 a.m., the control room issued a tag-out to remove the number 2 Diesel Generator from service for monthly surveillance testing. This generator is the source of emergency power to the 'B' CRDH pump which was operating at the time. Technical Specification 3.7.C.2 requires that none of the engineered safety features powered by the operational diesel may be inoperable when the diesel is made operable. This violation was identified by licensee management and the tag-out was immediately cleared on the Diesel Generator. An operability test was performed at about 8:30 a.m. and the number 2 Diesel Generator was returned to service at about 9:30 a.m.. The diesel had not been turned over to the maintenance department and no work had been performed. The licensee committed to revise the Diesel Generator surveillance procedure to more clearly state the detailed prerequisites for removal from service. This violation of technical specifications is of minimal safety significance because of the minor role of the CRDH system in the accident analysis. It was identified by the licensee, reported to the NRC verbally and in LER 82-31, and promptly corrected. Thus no enforcement action is planned.

The procedure changes will be reviewed in a subsequent inspection (219/82-17-03).

7.4 Licensee Event Report 82-30 reported inadvertant tripping of the operating stack gas sample pump while attempting to open the supply breaker to the other pump for maintenance. The cause of this event, as stated in the written report, was personnel error. The operator who prepared the tag-out did not consult the tagging instructions of the maintenance procedure and ordered the wrong breaker opened. However, in filling out the LER data sheet, NRC Form 366, the licensee coded the cause as 'X' for'other', rather than 'A' for 'personnel error'. The inspector discussed this with licensee who acknowledged the error and stated that more care would be taken in review of LER documentation.

8. 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.