U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No.	50-219/90-23
Docket No.	50-219
License No.	DPR-16
Licensee:	GPU Nuclear Corporation 1 Upper Pond Road Parsippany, New Jersey 07054
Facility Name:	Oyster Creek Nuclear Generating Station
Inspection Period:	December 2, 1990 - December 31, 1990
Inspectors:	M. Banerjee, Resident Inspector E. Collins, Senior Resident Inspector J. Nakoski, Resident Inspector

Approved By: W. H. Ruland 1/28/91
W. H. Ruland, Chief Date
Reactor Projects Section 4B

Inspection Summary: This inspection report documents routine and reactive inspections conducted during day shift and backshift hours of station activities including: plant operations; radiation protection; maintenance and surveillance; engineering and technical support; emergency preparedness; security; and safety assessment/quality verification.

Results: Overall, GPUN operated the facility in a safe manner. On December 20, 1990, both licensed SROs were out of the control room for 4 minutes. This licensee identified violation is being cited due to its repetitive nature. This report also contains 7 unresolved items: 1) GPUN's corrective action regarding measurement and test equipment in the field without a current calibration; 2) GPUN's analysis to confirm the cause of the core spray system I indicated flow reduction; 3) GPUN's analysis to determine the cause of the Standby Gas Treatment System (SGTS) duct failure and corrective action to prevent recurrence; 4) GPUN's analysis of the cause for the delay in addressing potentially unqualified splices; 5) Remaining weaknesses and observations made in the IPAT (50-219/87-24); 6) Revision to licensee procedure 665.5.006 regarding restoration of the systems following testing; 7) Verification that inspections are done as described in the GPUN material control program.

TABLE OF CONTENTS

*The NRC inspection manual inspection procedure (IP) or temporary instruction (TI) that was used as inspection guidance is listed for each applicable report section.

Executive Summary
Oyster Creek Nuclear Generating Station
Report No. 90-23

Plant Operations

On December 20, 1990, GPUN identified that no licensed senior reactor operator (SRO) was in the control room for four minutes. This event was caused by improper turnover from one senior operator to the other. This licensee identified violation is being cited because it is a repeat of a previous occurrence.

On December 20, 1990, both trains of the standby gas treatment system (SGTS) were declared inoperable after a failed weld was detected in a portion of duct work common to both SGTS systems. GPUN response, including declaration of an Unusual Event, was prompt and appropriate. Reactor building vacuum was maintained throughout the event; therefore, no ground level releases were involved. GPUN failure analysis was not completed by the end of the inspection.

Radiological Controls

No notable observations were made.

Maintenance/Surveillance

On December 6, NRC inspectors observed maintenance activities associated with the replacement of batteries on No. 1 Emergency Diesel Generator. NRC inspectors identified that measuring and test equipment required for post maintenance testing was past its calibration due date. GPUN subsequently verified the calibration accuracy and no adjustments were required. No deficiencies were introduced by the use of the equipment; however, the event shows weakness in control of measuring and test equipment.

Engineering and Technical Support

On December 13, 1990, the licensee determined that the motor termination splices for system I containment spray pump motors and system I core spray booster pump motors were not environmentally qualified (EQ). The splices were determined operable. The licensee plans to replace these splices with qualified Raychem heat shrink during the upcoming refueling outage. The environmental qualification of these splices was questioned during February 1990; however, no followup corrective actions were taken until December 1990. GPUN is currently investigating the matter to determine the cause of this delay. The inspector concluded that GPUN had a reasonable basis for considering the splices operable.

Emergency Preparedness

On December 11, 1990, the inspector observed the licensee's performance of the quarterly emergency preparedness drill. The licensee identified certain weaknesses and is pursuing the necessary corrective actions. Overall, the licensee demonstrated the capability to take necessary actions to protect the health and safety of the public.

Physical Security

Two empty alcohol bottles were found by a radiological controls technician under a tank in the new radwaste building. The licensee determined these bottles were old. As a precautionary measure, the licensee reemphasized to the security guards the need to continue to be observant about fitness for duty issues. The licensee's response to the event was adequate.

Safety Assessment and Quality Verification

The licensee completed a critique and an engineering evaluation of the refueling bridge main hoist cables found damaged on October 25, 1990. No operator error was identified, and the licensee determined the cause was not human performance related. The licensee determined the hoist cable came out of the drum groove and was damaged by overlapping on itself. Changes were made to the slack cable setpoint, the logic controller program, and the refueling procedure before the refueling bridge was declared operational. GPUN's review and corrective actions were adequate in addressing the potential causes for this event.

DETAILS

1.0 OPERATIONS (71707,93702)

1.1 Review of Operational Events

This inspection period began and ended with the reactor at full power. Inspectors reviewed the key operational events that occurred during the report period as discussed in the following paragraphs.

On December 3, 1990, the licensee entered a 30-hour technical specification limiting condition of operation action statement and began a required plant shutdown. The shutdown was required because the core spray system I was declared inoperable. The licensee corrected the problem and terminated the shutdown at 77% reactor power. Section 4.1 contains NRC inspector's review of the event and the licensee's corrective actions.

On December 13, 1990, the licensee identified unqualified splices in the system I containment spray pumps (A and B) and system I core spray booster pumps (A and C). A description of licensee's finding and NRC review is contained in section 4.3.

On December 15, 1990, reactor power was decreased after the "B" high pressure feedwater heater tripped following a hi/lo level alarm for the "B" intermediate pressure feedwater heater. The licensee entered the plant abnormal operating procedure and stabilized reactor power at 80%. A description of the event and the licensee's followup actions are described in section 1.3.

On December 20, 1990, both trains of the standby gas treatment system were declared inoperable after a leak was detected in a portion of duct work common to both trains. As required by the plant technical specification, a shutdown was started to reach cold shutdown in 24 hours. An unusual event was also declared as required by the licensee's emergency plan after the licensee found another crack and determined that the necessary repairs could not be completed and the systems could not be declared operational within eight hours. The plant shutdown was terminated at 50% reactor power after the necessary repairs were made. NRC inspector review of the event and the licensee's corrective actions are reported in section 4.2.

1.2 No Senior Licensed Reactor Operator in the Control Room

At 3:49 a.m. on December 20, 1990 for about four minutes there was no licensed senior reactor operator (SRO) in the control room. The control room operators recognized and corrected the situation.

Oyster Creek's technical specification in section 6.2.2.2.C and licensee's procedure 106, Rev. 59, "Conduct of Operation," in Section 6.2, require that one SRO shall be in the control room at all times when there is fuel in the vessel and the reactor is not in shutdown or refuel. In addition to recording the event in the control room operator's log, the licensee

wrote a deviation report. The involved SRO was counselled. The licensee determined the incident happened due to a misunderstanding of the SRO involved. He left the control room thinking the other SRO had returned after a brief departure.

This is the second incident during the current operating cycle. The previous incident happened on September 27, 1989, when, due to poor communication, both SROs were out of the control room for six minutes. A memorandum issued following that event required face to face communication between the SROs before one SRO leaves the control room.

The failure to have a licensed SRO in the control room at all times except when the reactor is in cold shutdown or refueling is a violation of the plant technical specification. The licensee promptly identified it, took immediate corrective action by bringing back one SRO within four minutes and counselling the involved SRO. GPUN plans to report the event in a Licensee Event Report. The safety significance of this event is minor because of the short duration of the noncompliance. However, due to the repeat nature of the event, a notice of violation is being issued (Violation 50-219/90-23-01).

1.3 1B3 High Pressure Feedwater Heater Trip

On December 15, 1990 at about 5:12 a.m., the hi/lo level alarm was received for the "B" train intermediate pressure feedwater heater (1B2). Shortly after, a high pressure feedwater heater (1B3) reverse flow alarm occurred. Extraction steam was automatically isolated from the 1B3 feedwater heater due to high level in the heater. GPU Nuclear entered procedure 2000-ABN-3200.16, Rev. 2 "Loss of Feedwater Heaters." Recirculation flow was reduced and rod group 10-1 control rods were fully inserted. Reactor power was stabilized at about 80% power. After exiting 2000-ABN-3200.16, reactor power was increased to about 90% power as allowed by procedure 317.1, Rev. 14 "Feedwater Heaters." The limit ensures the main turbine shaft remains in balance with different steam flow rates to the low pressure turbines.

Control room operators recovered heater level after trouble shooting the level controller. GPUN did not identify any hardware failures in the controller. When the operators began to raise power to 100%, the level in the 1B3 feedwater heater increased beyond the normal operating level. The cause of the level increase was a problem with the main drain valve V-4-17. Insufficient flow was being passed through the valve to maintain level below the high level trip. Reactor power was established at about 93%. Level in the feedwater heater was maintained below the high level trip using V-4-17 and the alternate drain valve V-4-14. GPUN continues to investigate the cause for the failure of V-4-17 to pass sufficient flow.

The NRC inspector discussed the event with licensee staff and reviewed procedures 2000-ABN-3200.16 and 317.1. The inspector concluded the licensee followed site procedures and was taking appropriate actions. No additional inspector questions remain.

1.4 Failure of Common Duct to Standby Gas Treatment Systems

Both trains of the Standby Gas Treatment System (SGTS) were declared inoperable at 2:15 p.m. on December 20, 1990. The cause was failed welds in the duct from the normal reactor building ventilation to the common supply duct for both SGTS subsystems. This duct also provides part of secondary containment. As a result of declaring both trains inoperable, and loss of a secondary containment boundary, GPUN entered technical specification 3.5.B.4 limiting condition of operation which requires the plant to be in cold shutdown within 24 hours. The control room operators began the shutdown at 50 MWe per hour.

The failed weld was identified by GPUN at 12:30 p.m. during an entry into the auxiliary boiler condensate return tunnel. The employee making the entry questioned a loud banging noise he heard. When this noise was investigated, it was determined to be from a section of panel 30 to 36 inches long in the common duct to the SGTS where the corner welds had failed.

Emergency plan implementing procedure 9473-IMP-1300.1, Rev. 8, "Classification of Emergency Conditions," requires GPUN then to make a notification of an Unusual Event if all the following occur, 1) loss of SGTS, 2) the initiation of a technical specification required shutdown, and 3) if it was determined SGTS could not be returned to an operable status within 8 hours after initiation of the shutdown. GPUN began action to repair the identified duct failure, walkdown the remaining portion of the SGTS ducting, and perform a secondary containment leak rate test (procedure 665.5.002) to verify the ability of the SGTS to maintain secondary containment integrity. At about 9:00 p.m., repairs to the failed weld were completed. Shortly after, due to the duct walkdown, GPUN identified a second weld failure. At 9:15 p.m. the Group Shift Supervisor (GSS) determined that repair of the SGTS would not be accomplished within the 8 hour time frame and made the required Notification of an Unusual Event.

Repairs to the duct were completed by about 12:30 a.m. on December 21. Procedure 665.5.002 was completed at 2:10 a.m. This verified the SGTS was capable of maintaining the secondary containment vacuum greater than 1/4" of water. At 2:40 a.m. GPUN declared both trains of SGTS operable, exited the Unusual Event and terminated the reactor shutdown. Reactor power was approximately 44.4% when the event was terminated.

Before the event, SGTS was operated was last operated during performance of surveillance procedure 651.4.001, "Standby Gas Treatment System Test." This surveillance was completed at 7:40 p.m. on December 16, 1990, satisfactorily. Prior to and throughout the event the normal reactor building ventilation maintained the reactor building vacuum. This also resulted in air flow from the condensate return tunnel into the duct. The reactor building normal ventilation exhausts to the main stack. No indications were received by the stack monitors to indicate an abnormal release of radioactive

material. Also, during the investigation of the duct failure, air samples were taken by health physics technicians. There was no indications of airborne activity in the area surrounding the failure.

During the event the inspectors monitored GPUN response. GPUN followed the plant procedures. The GSS decision to make the Notification of an Unusual Event was as directed by the emergency plan implementing procedures. Observations of control room activities raised no questions. Based on continuous operation of the normal reactor building ventilation, the location of the failed duct, and results of airborne samples the inspector determined there was no potential for a ground level release from this event. The inspector determined the actions taken by the licensee in this event were adequate and timely. At the close of the inspection, no analysis was available which described the cause of the duct failures. This question remains unresolved pending review of GPUN's failure analysis and followup actions (UNR 50-219/90-23-04).

1.5 Control Room Tours

The inspectors conducted routine tours of the control room. The inspectors reviewed:

-- Control Room Operator's and Group Shift Supervisor's Logs;

-- Technical Specification Log;

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

-- Reactor Building and Turbine Building Tour Sheets;

-- Equipment Control Logs;

-- Standing Orders; and,

-- Operational Memos and Directives.

No significant observations were made.

1.6 Facility Tours

The inspectors conducted routine plant tours to assess equipment conditions, personnel safety hazards, procedural adherence and compliance with regulatory requirements. The following areas were inspected:

-- Turbine Building

-- Vital Switchgear Rooms

-- Cable Spreading Room

-- Diesel Generator Building

-- Reactor Building

-- New Radwaste Building

-- Old Radwaste Building

The following additional items were observed or verified:

a. Fire Protection:

-- Randomly selected fire extinguishers were accessible and inspected on schedule.

-- Fire doors were unobstructed and in their proper position.

-- Ignition sources and combustible materials were controlled by the licensee's approved procedures.

-- Appropriate fire watches or fire patrols were stationed when fire protection/detection equipment was out of service.

b. Equipment Control:

-- Jumper and equipment mark-ups agreed with technical specification requirements.

-- Conditions requiring the use of jumpers received the prompt attention of the licensee.

c. Vital Instrumentation:

-- Selected instruments appeared functional and demonstrated parameters within Technical Specification Limiting Conditions for Operation.

d. Housekeeping:

-- Plant housekeeping and cleanliness were as directed by licensee programs.

Minor housekeeping deficiencies which were identified were promptly corrected by the licensee. No other unacceptable conditions were identified.

2.0 RADIOLOGICAL CONTROLS (71707)

During entry to and exit from the RCA, the inspectors verified that proper warning signs were posted, personnel entering were wearing proper dosimetry, personnel and materials leaving were properly monitored for radioactive contamination, and monitoring instruments were functional and in calibration. Posted extended Radiation Work permits (RWPs) and survey status boards were reviewed to verify that they were current and accurate. The inspector observed activities in the RCA and verified that personnel were complying with the requirements of applicable RWPs and that workers were aware of the radiological conditions in the area.

3.0 MAINTENANCE/SURVEILLANCE (62703,61726)

3.1 Diesel Generator Maintenance Observation

On December 6, NRC inspectors observed maintenance activities associated with the replacement of batteries on #1 Emergency Diesel Generator (EDG). Work was performed under job order 26126. NRC inspectors verified proper authorization to start work, equipment status against the job order and controls used to implement a temporary modification. NRC inspectors also verified that the work package was present; however, later that morning, just after shift turnover, the package was not present.

NRC inspectors identified that equipment used to display and record individual battery cell voltage (Dranetz BCT-1000) was past its calibration due date of October 18, 1990. At the time of identification, the equipment was connected, but had not yet been used. The inspector informed the job supervisor. GPUN halted work and performed an in field calibration of the applicable functions of the BCT-1000, then completed the testing. No calibration deficiencies were identified.

The job order, in step 6.1, specified that the BCT-1000 be connected for post maintenance testing. This equipment, because of its size, was not stored with other measuring and test equipment (M&TE). Consequently, the electricians moved the equipment into the field without designating M&TE usage in the equipment folder. Also, use of the BCT-1000 was not recorded in the job order.

The GPUN Operational Quality Assurance (OQA) plan , section 6.6, requires that M&TE that has exceeded the approved calibration date shall not be used for measurements or tests until it's calibration is re-established. In this event, intervention by NRC inspectors prevented actual use of the equipment until the calibration was established. NRC inspectors determined that the same equipment was used during the #2 EDG battery replacement on November 17, 1990. The presence of the equipment in the field after expiration of its calibration and the use of the equipment on November 17, 1990, show a weakness in the control and use of M&TE. This item is unresolved pending review of GPUN actions to correct this weakness (UNR 50-219/90-23-02).

3.2 Electrical Splices Maintenance Observation

On December 14, 1990, the inspector observed installation of environmentally qualified Raychem heat shrink tubing on the core spray booster pump P-20-2C motor lead splice connection. The licensee prepared work request 752491 (Job order 28041) after a determination was made that the existing splicing was not environmentally qualified.

The inspector verified that proper authorization to start the work was obtained, that the equipment power supply was tagged out with the supply breaker racked out, that the appropriate procedure for splice installation was being followed, and that the quality control examiner verified adequate splice installation. The inspector verified a few Raychem heat shrink applications and did not have any questions.

3.3 Surveillance Observation

The inspector observed the performance of portions of surveillance 609.3.002, Rev. 28, "Isolation Condenser Isolation Test and Calibration" done on December 21, 1990. During the surveillance the inspector observed the test and calibration of the "B" steam flow instrumentation IB05B1 and IB05B2. I&C technicians properly followed the procedure. The correct revision of the procedure was being used. Procedural control was exercised through the use of repeat backs by the technician performing the operations in the contaminated area. Radiological practices were acceptable. The inspector reviewed the data recorded and found the as left conditions of the equipment satisfactory. Performance of 609.3.002 involving the test and calibration of the "B" steam flow instrumentation IB05B1 and IB05B2 was acceptable.

4.0 ENGINEERING AND TECHNICAL SUPPORT (71707,40500)

4.1 Core Spray System I Inoperable

Surveillance procedure 610.4.002, Rev. 22, "Core Spray Pump Operability Test" was performed on December 14, 1990 for Core Spray system I. During this surveillance, the system did not meet the required flow of 3400 gpm at 240 psig. The flow was 3350 gpm at 250 psig using pumps NZ01A and NZ03A. Based on this data, the licensee declared Core Spray system I inoperable and commenced a 30 hour Technical Specification required shutdown.

The system test passes flow through a test valve (V-20-27) back to the torus. This valve has a limit switch which allows the valve to open automatically to a predetermined position during testing to establish a flow of approximately 3400 gpm. To determine if the pumps could deliver the required flow, the licensee retested the system with the test

valve opened 3 turns beyond the position obtained using the limit switch. During this retest the pump flow was determined to be 3550 gpm at 240 psig. This retest met the requirements for determining system operability. The licensee declared the system operable and stopped the shutdown at about 77% power.

The inspector reviewed the completed surveillance for both the test that failed and the retest. Based on this review the inspector determined Core Spray system I would provide the required flow at the required pressure. Discussions with the licensee regarding opening the test valve further revealed that the limit switch was an operating convenience, setup to facilitate performance of the test. No concerns were identified as a result of opening the test return valve further.

Review of the flow transmitter calibration data revealed no significant impact to indicated flow could be attributed to changes in the flow transmitter. The licensee has postulated that a small leak (about 1 gpm) at the transmitter sensing line connection to the high pressure side of the flow element could result in the loss of indicated flow. Backflow through the bypass check valve could also result in the loss of flow. At the close of the inspection period the licensee had yet to confirm the cause of the loss of indicated flow. This item will remain unresolved pending review of the licensee's analysis (UNR 90-23-03).

4.2 EQ Splices

On December 13, 1990, a licensee deviation report identified a potential deficiency in the environmental qualification (EQ) of the motor termination splices for containment spray pumps P-21-1A and 1B and core spray booster pumps P-20-2A and 2C. The licensee also completed a determination of operability on December 13, 1990. The basis for operability was the splice configuration consisting of 3M Scotch 88 tape (PVC) over Scotch 23 (EPR) tape. GPUN's EQ file indicated these splices consisted of GE varnished glass cloth/tape with a varnish coating. A review of the EQ file and a GPUN inspection of the containment spray splices during February 1990 questioned the qualified configuration in the EQ file. The licensee indicated that a deviation report was written in February 1990 to address this; however, no deviation reports could be located, and the licensee did not address it again before December 13, 1990.

Following the deviation report a material nonconformance report (MNCR No. 90-192) was written on December 19, 1990, which questioned the environmental qualification of these splices. To confirm the splice material, the existing splice on core spray booster pump P-20-2C was removed and replaced with qualified Raychem splices. This splice material was sent to the lab for analysis and was confirmed to be a tape splice of PVC over EPR material.

After reviewing the P-21-1A splice pictures taken during the February 1990 inspection, the licensee decided to add two more layers of Scotch 88 and then cover it up with two more layers of Scotch 23 or 130C tape. This outer configuration is similar to splices tested by Commonwealth Edison in test report 17859-02B, dated March 11, 1987.

The inspector reviewed the licensee's operability determination. It uses manufacturer 3M issued data for Scotch 23 splicing and Scotch 88 and 33+ electrical tapes regarding their physical and electrical properties at various radiological exposures and manufacturer recommended operating temperature. Test report 17859-02B tested certain splice configurations using EPR and PVC tape to a LOCA environment.

The post-accident environment in the containment spray pump room consists only of increased radiation level, with a total radiation dose of 2.67E6 rads. In the core spray booster pump area, post-accident environment consists of a high temperature of 152.6 degrees F, 100% humidity and 2.69E6 rads total radiation.

Based on the manufacturer's data on material, test report 17859-02B and the plant specific harsh environment, the licensee determined the splices to be operable. Based on this operability determination, the MNCR was given a conditional release. The core spray booster pump P-20-2A and containment spray pumps P-21-1A and 1B splices will be replaced with qualified Raychem heat shrink during the upcoming 13R outage. GPUN indicated that other core spray and containment spray pump motors would not have a similar problem since these splices were verified to have qualified configurations by previous plant walkdown inspections. At the end of the inspection, NRC review of GPUN documentation for these splices was in progress.

GPUN's operability analysis was qualitative. The environments in question are relatively mild when compared with a LOCA environment. The splice material should not degrade in this environment and affect splice operability. Therefore, it was reasonable to consider the affected splices operable until the 13R refueling outage when they will be replaced with qualified splices.

GPUN initiated an investigation to determine the cause of the delay since February 1990 in implementing corrective actions. The absence of qualifying documentation remains unresolved pending GPUN's determination as to the cause of the delay in implementing corrective actions. (Unresolved Item 50-219/90-23-05)

5.0 EMERGENCY PREPAREDNESS (71707)

5.1 Quarterly Drill

On December 11, 1990, GPUN conducted a drill to test emergency response team capability. The drill scenario consisted of a loss of coolant accident leading to an unmonitored release due to radioactive monitoring systems being out of service.

NRC inspectors observed the drill from the technical support center, attended the critique and discussed critique findings and corrective actions with GPUN. Overall, NRC inspectors concluded that GPUN demonstrated the ability to implement actions to protect the health and safety of the public. Emergency classifications and notifications were properly implemented.

GPUN identified a weakness in the timeliness of deploying the onsite field monitoring team van. At the time of the drill, the permanent van was being repaired. This led to delays caused by technicians taking inventory of emergency equipment. GPUN returned the permanent van to service on December 13, 1990. NRC inspectors observed the van inventory and discussed van readiness with GPUN. During these discussions, GPUN identified that the van was routinely used off site. GPUN implemented direction to restrict use of the van to onsite. NRC inspectors concluded GPUN's identification of the weaknesses in the readiness and use of the onsite van demonstrated a good self assessment capability. Corrective actions were appropriate.

6.0 OBSERVATION OF PHYSICAL SECURITY (71707)

6.1 Liquor Bottles Found inside the Plant

On December 6, 1990, a radiological controls technician found two liquor bottles under the air receiver tank in the new radwaste heat exchanger room while performing a survey. The bottles were empty, covered with dust and contaminated. The age of the bottles could not be established. GPUN concluded the bottles were old. Additional search did not locate any other bottles.

The inspector reviewed the incident with GPUN and reviewed pictures of the bottles as found and inspected the bottles after decontaminated. The licensee's followup was adequate. The inspector did not have any other questions.

7.0 SAFETY ASSESSMENT/QUALITY VERIFICATION (71707,40500)

7.1 Containment Spray Pump Breaker Problem

On December 7, 1990, during a surveillance, containment spray pump 51C failed to start. The licensee declared containment spray system II inoperable and entered a seven-day technical specification action statement. The pump motor breaker Microversa trip flux shift plunger was found to be too close to the breaker trip paddle. This clearance was adjusted, and the system was successfully tested and declared operable. The inspector discussed the event with maintenance personnel and inspected a similar spare breaker.

As a result of a similar event involving the "A" control rod drive hydraulic pump motor during 1988, procedural requirements were added to the breaker maintenance procedure to verify this clearance.

The licensee is currently performing a maintenance assessment review to determine the root cause of the failure and if any additional corrective actions are required. NRC inspector's review of the licensee's evaluation was ongoing at the end of the inspection period.

7.2 Refueling Bridge Cable Failure

On October 25, 1990, both of the refueling bridge main hoist cables were found to be frayed and cut. A quality controls inspector, while inspecting new fuel on the fuel inspection stand identified the damaged cable on the refueling bridge standing across the fuel pool. The damage was verified and identifying the bridge was moved away from the fuel pool. The licensee terminated further use of the bridge.

The refueling bridge was transferred to the licensee only a short while ago after testing by GE. The licensee performed a critique of their operation of the refueling bridge and an engineering evaluation to determine the root cause and corrective actions. The critique indicated the operators performed a satisfactory check of the bridge at the beginning of the shift and no damage to the cable was noticed at that time. The operators had to use the hoist override switch to approach certain fuel pool locations. The operators moved the hoist in jog speed while approaching the fuel assembly. On some occasions the hoist position indication read 2 inches instead of 0 inches when in the full up position.

The licensee determined the cable jumped off the drum grooves due to too much slack and subsequent overlapping on the drum caused the damage. However, the critique could not determine a specific root cause for this to happen. The operators were found to have properly operated the refueling bridge, following the procedure and their training.

The engineering evaluation determined a few contributing factors could have potentially helped the cable come out of the drum grooves. Incorrect setting of the drum rollers was a potential cause. The distance between the rollers and the top of the cable was found to be approximately 5/16 inch instead of the required 1/16 inch. Operators' use of the override switch in some fuel pool locations was another such potential cause. Use of the override switch defeats speed control features of the programmable logic controller. Operating the main hoist at higher speeds while approaching the fuel assembly increases the cable slack and hence the chance of the cable jumping the drum grooves. Drift of the cable drum after a slack cable light is lit could also contribute to additional slack.

The licensee removed the damaged cables, cleaned the cable drum and reset the drum rollers to the required 1/16 in position on the cable. The top of the fuel in the spent fuel pool was inspected for any debris. The programmable logic controller was reprogrammed to allow the main hoist to move only at jog speed while approaching fuel pool components and when in the override mode.

The licensee's procedure for refueling was revised to include the requirement of moving the main hoist in jog speed when approaching a fuel assembly. The slack cable setpoint was raised and the following procedures were revised to include the new setpoint of 100 ± 10 lb:

205.0, Rev. 34	Reactor Refueling;
205.62, Rev. 11	Refueling Bridge Checkoff; and,
656.4.001, Rev. 11	Refueling Interlock Circuit Surveillance.

A requirement to contact Plant Engineering if the normal up position is not reached at the required position indication will be included in the surveillance procedure.

Changes were made to the procedure for refueling bridge operation to reflect the corrective actions before the bridge was declared operable. The critique report was made required reading for the operators to make them aware of the findings and the corrective actions that resulted from this critique. However, there was no evidence indicating this required reading was completed before the bridge was operated on December 19, 1990. Not implementing an immediate corrective action before resuming bridge operation indicates a weakness in GPUN's corrective action process. The safety significance of this delay is minimal as changes to the refueling bridge logic controller program, slack cable setpoint and the procedure changes implemented are expected to prevent recurrence of this problem.

8.0 REVIEW OF PREVIOUSLY OPENED ITEMS (92701,92702)

(Closed) Unresolved Item 50-219/86-37-01. This item addressed a potential seismic interference between motor control center (MCC) 1B21 and unit substation (USS) 1B2. The MCC was installed next to USS 1B2 with a gap less than 1/4 inches. Inspection report 50-219/89-29 documented GPUN's conclusion that the structures were rigid in the side to side direction, thus no potential for seismic interference existed. The item was left open pending licensee review of any impact of the expected side to side motion.

Subsequent GPUN review concluded the expected side to side motion is not of sufficient magnitude to cause seismic interference. Based on the GPUN review, this item is closed.

(Closed) Unresolved Item 50-219/88-06-03. During a security/emergency preparedness interface inspection, the inspectors identified the following concerns.

- Radiological protection equipment was not available at the main gate. Security forces sent to assist in evacuation of on-site personnel also would not have radiological equipment.

- No rapid way for security guards to put on protective clothing should their search pattern require them to enter into radiation/contaminated area.

-- Main and north gates are not protected against radiation. In the event of an evacuation, an alternate access point is not provided.

The inspector discussed the above concerns with the licensee's emergency preparedness and security personnel. Regarding the first concern, the licensee's procedure 9473-ADM-1319.02, Rev. 4, "Emergency Response Facilities and Equipment Maintenance," provides a list of emergency radiological control equipment to be maintained at the main and north gate processing centers. The inspector verified by sampling that this inventory is maintained as required. In case of a radiological emergency, the radiological assessment coordinator (RAC)/ radiological controls coordinator (RCC) directs the onsite radiological survey team and assesses radiological conditions at the site. Procedure 9473-IMP-1300.13, Rev. 5, "Site Evacuation and Personnel Mustering at the Remote Assembly Area," requires radiological controls technicians to be dispatched to the main and north gates to determine habitability. In addition, the radiological controls technicians, as directed by the RCC, will be transported to the assembly area with the security officer(s).

In response to the second concern, the licensee stated that protective clothing (PC) is generally available should it be needed. The licensee maintains a supply of PCs at the following locations:

-- Reactor building elevations 95' and 75', and at the monitor and change area near the reactor building 51' airlock;

-- Turbine building south basement;

-- AOG building at the bottom of the staircase;

-- Old radwaste building computer area; and,

-- New radwaste building 48' elevation.

The availability of PCs at the multiple and widely distributed locations provided assurance that security guards would be able to put on PCs within a relatively short time should it become necessary.

The third concern, an alternate access point, is addressed in the Oyster Creek Security Plan. The licensee's security plan and implementing procedures address evacuation of these facilities and measures to be taken during and after evacuation, including access control. A letter dated December 15, 1986, to P. B. Fiedler, provided the NRC's review of the main gate facility regarding the radiation shielding requirements in NUREG 0737, item II.B.2. Evacuating the main gate and the licensee's contingencies to assure the facility's security were found acceptable.

The inspector did not have any other questions. This item is closed.

(Closed) Violation 50-219/88-13-01. This violation cited an event where a worker did not follow radiological work permit (RWP) requirements.

GPUN responded by restricting radiologically controlled area (RCA) access of the individual until counseled, reposting the area to clarify actual contamination boundaries, and reviewing the event at the plan of the day (POD) meeting on May 5, 1988.

NRC inspectors observed the reposting of the area at the time of occurrence and the briefing at the POD. Inspectors discussed the event with the individual and verified completion of counseling. Since the scope of this violation was limited, the circumstances involving new fuel inspection somewhat unique, and the radiological safety significance low, GPUN actions were adequate and complete. This violation is closed.

(Closed) Open Item 50-219/88-13-02. This item tracked GPUN's response to three weaknesses and ten observations that remained open after an Integrated Performance Assessment Team Inspection (50-219/87-24) and NRC review in Inspection Report 50-219/88-13.

(Closed) Plant labeling (weakness). GPUN issued a labeling standard on May 16, 1988. Since then, an active effort has been implemented to label equipment. About 25% of the labeling has been completed. Most major plant components have been labeled. The effort is continuing.

(Closed) Housekeeping (weakness). NRC inspectors concluded that, overall, housekeeping has improved. Specific improvement in the reactor building (CRD rebuild room, NW and NE corner rooms, RWCU pump area), emergency diesel generator building and turbine building basement are noted.

The remaining weakness and ten observations will be tracked as unresolved item 50-219/90-23-06 and were not reviewed during this report period.

(Closed) Unresolved Item 50-219/88-14-01. This item addressed GPUN review of the dropping of a core spray ground fault relay indicating target flag without a motor trip. Subsequent motor operation showed no abnormal indications.

GPUN reviewed the possibility of zero sequence current actuating the ground fault operating relay. This review addressed stray flux, cable shield terminations, and phase current imbalance.

GPUN eliminated stray flux as a potential concern by visually confirming the conductors are symmetrically located within the transformer opening. GPUN inspection confirmed proper cable shield terminations.

GPUN verified the correct ground fault relay setpoint by testing the relay. GPUN also established, by test, that relay pick-up required the actuating current to be applied for 1.49 seconds. GPUN measured motor phase and ground relay loop currents during a core spray motor start. The ground relay loop current as a result of unbalanced phase currents is small and does not cause inadvertent operation of the ground fault relay. GPUN concluded no concern exists for the loss of a core spray pump due to a spurious operation of the ground fault relay due to phase current imbalances.

GPUN confirmed with the relay manufacturer that it is possible for the target mechanism to actuate during starting. This does not inhibit pump operation or ground fault detection. GPUN concluded that no corrective actions are required for this possibility.

NRC inspectors reviewed GPUN's analysis of the occurrence and concluded it appropriately addressed the questions. This item is closed.

(Closed) Violation 50-219/88-23-03. This violation resulted from an Isolation Condenser vent valve (V-14-6) being left in the closed position following completion of procedure 665.5.003 "Main Steam Isolation Valve Leak Rate Test." The procedure did not provide adequate instructions on returning the system valves to their pretest condition. To prevent recurrence of similar events GPUN performed procedure reviews, valve line ups, and provide event specific training.

The inspector reviewed procedure 108 Rev. 48 "Equipment Control" and found sufficient controls in place to provide proper guidance for the performance of equipment alignment verification. The inspector reviewed the following procedures which required revision:

620.4.005, Rev 16	Intermediate Range Monitor Test and Calibration
625.4.002, Rev 12	Main Turbine Surveillance
656.4.001, Rev 9	Refueling Interlock Circuit Surveillance
665.5.001, Rev 10	Torus to Drywell Vacuum Relief Valve Leak Rate Test
665.5.002, Rev 13	Secondary Containment Leak Rate Test
665.5.003, Rev 18	Main Steam Isolation Valve Leak Rate Test
665.5.004, Rev 11	Feedwater Isolation Valve Leak Rate Test
665.5.005, Rev 14	Drywell Airlock Leak Rate Test
665.5.006, Rev 21	Local Leak Rate Tests

In response to the violation, the licensee indicated one procedure (665.5.006) would be revised before it's next use. Inspector review of past performances of this procedure indicate it's use on three separate occasions for post maintenance testing during this operating cycle. In each case the procedure had temporary changes to incorporate a system restoration valve lineup when required. Currently a complete revision to 665.5.006 is under review by the licensee. Except for 665.5.006 the inspector determined the procedures as revised were adequate to verify restoration of the systems to

their pretest condition. The review of the revision to 665.5.006 remains unresolved (UNR 50-219/90-23-07) pending issuance of the revision.

Performance of the valve lineups before restart after the 12R refueling outage was followed up during the Augmented Startup Inspection. This inspection was conducted between February 26, 1989 and April 1, 1989 (50-219/89-07). No valve mispositions were identified.

The inspector reviewed GPUN documentation certifying the required training has been performed. Upon completion of this review the inspector determined the licensee actions in response to this notice of violation has been adequate. This item is closed.

(Closed) Violation 50-219/88-33-03. This violation of 10CFR50 Appendix B Criterion XIII and Section 6.7 of the GPUN's Operation Quality Assurance Plan identified a lack of control in handling and storage of items important to safety housed in maintenance shop locations outside the warehouse facility.

GPUN's February 21, 1989 response to the notice of violation indicated the following:

-- No improperly controlled item was found to be installed in the plant.

-- As an interim corrective action a memorandum was issued to maintenance personnel on January 19, 1989, which specified administrative guidelines that were to be used to identify and evaluate uncontrolled items. The disposition of these items was to return them to the warehouse, identifying them as not acceptable for QA applications, or discarding.

-- As a permanent corrective action, a material control program specifying the criteria for control of items after issuance from the warehouse was to be issued before December 31, 1989. The program was also to have periodic inspection requirements to ensure continued compliance.

-- That full compliance was achieved with issuance of the interim directive on January 19, 1989.

GPUN wrote QDR No 88-042, dated December 16, 1988, documenting this deficiency. The NRC inspector reviewed the QDR closeout documentation and had discussions with various plant personnel to determine the status of the corrective actions. The NRC inspector found that compliance to the administrative guidelines on handling the existing spare parts in various maintenance shops was not achieved by October 1989. As a result, the Quality Control personnel visited each of the storage areas during October and November, 1989. They removed the QA acceptance tags from all of the stored QA material. This resulted in down grading this material and thus preventing their use for QA applications in the plant.

The NRC inspector visited both the I&C and electrical maintenance shop storage areas. Other than a few capacitors stored in the electrical shop, all spare parts with procurement QA acceptance numbers (PQA number) had their PQA number either removed or crossed out. The electrical supervisor noted that the capacitors were probably an oversight and arranged for the PQA numbers to be removed.

GPUN indicated that the parts stored in the shops are held over spare parts from the past and are not being restocked. These parts are only being used for non QA applications and repair work outside the plant or in verification testing inside the shop. I&C also maintains a drawer under padlock which contains lubricants and O-rings for QA applications. The I&C supervisors maintain the key to this drawer. A sign on the other I&C spare parts drawers points out that any use of these parts in QA applications requires engineering approval per procedure 125.2.

The inspector reviewed the following procedures:

105, Rev 32	Control of Maintenance
125.2, Rev 7	Conduct of Spare Parts Engineering
A000-WMS-1220.08, Rev 5	MCF Job Orders
A000-WMS-6430.01, Rev 2	Control of Material

The first and third procedure designate controls to maintain traceability of equipment/components removed from the plant and retained for possible future use. The second procedure provides for engineering evaluation for the quality upgrading of material. The fourth procedure directs the storage, issuance, and handling of material while in the custody of the end user's department.

The inspector determined that the equipment stored in the plant maintenance shops were not being used for QA applications. GPUN's interim corrective action as stated in the response to the notice of violation was not completed within the stated time frame. Subsequent action taken by GPUN's quality assurance organization was adequate in preventing the use of uncontrolled spare parts in safety related applications. GPUN has developed procedures to promulgate requirements for control of spare parts after issuance from the warehouse. The inspector could not establish GPUN has implemented periodic inspections to verify compliance as stated in their response to the notice of violation. The requirement of periodic inspection and its implementation will be verified in a future inspection (UNR 50-219/90-23-08).

(Closed) Unresolved Item 50-219-88-38-03. The licensee's deletion of the system flushing requirement for the scram discharge volume (SDV) modification and programmatic implementation of the cleaning requirements of ANSI N45.2.1-1973 were questioned.

During 1988, the licensee installed cleaning connections near the end of each of six SDV headers located above the control rod drive hydraulic control units. The installation specification specified Class C cleanliness as defined by ANSI N45.2.1, but no flush was performed on the new cleaning connections after they were welded to the SDV. The inspector concluded that Class C cleanliness was not demonstrated by examination of flushing filters as required by the subject ANSI standard.

To resolve the question of final flushing requirement, the licensee wrote a letter to the American Society of Mechanical Engineers (ASME) requesting an interpretation. The letter asked if a final flush or rinse is always required during maintenance/modification activities when cleanliness controls have been implemented and established under ANSI/ASME N45.2.1-1973. The ASME response stated a final flush is not always required if provisions for adequate cleanliness control have been implemented and maintained.

The licensee indicated that the welding method (latrolet welding utilizing root pass gas tungsten arc technique) selected for welding the piping assembly to the SDV header did not deposit slag or foreign material. Also, Class C cleanliness was maintained and documented until this final welding. During drilling of the hole in the SDV header cuttings were removed by a magnet. The piping assembly was welded to the header using full penetration butt welds. Gas tungsten arc technique was utilized for the root and second pass. Use of gas backing was designated as optional and probably not used. The inspector reviewed the work package which included welding procedure specification. Weld inspections were performed by Quality Control to ensure acceptability of the weld. General welding standard 6150 STD 7220.07 was specified. Revision 1 of this procedure addresses weld joint fitting and root gap requirements.

The welds were accepted based on visual inspection and weld inspection during system leak test. The inspector concluded that the controls implemented during welding and the technique used provided reasonable assurance that slag or foreign material were not deposited during welding.

The licensee's procedure A100-SMM-3900.06 and A100-SMM-3900.07 were superseded by procedure A100-SMM-3900.51, "Cleaning Procedure for Class B, C and D Cleanliness." The inspector reviewed revision 3 of the procedure which references ANSI N45.2.1-1973. As explained in the licensee's Quality Assurance Plan, Appendix C, Part 2, the procedure utilizes ANSI N45.2-1980 provisions for flushing nonwater systems. The inspector did not have any other questions. This unresolved item is closed.

(Closed) Unresolved Item 50-219-88-38-05. The inspector questioned whether the technical manual for the source range monitor (SRM) provides sufficient guidance to technicians to repair nuclear instrumentation circuitry. During the last refueling outage, the licensee replaced several SRM log integrator cards with spare cards of two different group numbers (194X370G1 and 194X370G2). The log integrator card 194X370G1 was later found to be inappropriate for the application and resulted in spiking of SRM 22, 23 and 24.

The licensee performed a critique of the above incident and determined the root cause for selecting the incorrect log integrator cards was the technical manual. The GE technical manual was found difficult to read for proper spare parts selection.

To avoid confusion, the technical manual was later clarified by crossing out the inapplicable group numbers for the log integrator card. The licensee is procuring a vendor manual update service from GE. As part of this service, the licensee will have GE highlight the Oyster Creek equipment in the manual. The nuclear monitoring instrumentation manuals are included in this service agreement and will be updated within the next three months.

The instrumentation and control technicians received GE technical manual orientation training in October 1989. Use and proper interpretation of the manual for selecting appropriate spare parts was addressed in this training. The licensee currently plans to add similar training material to the basic print reading course given to the technicians.

The inspector did not have any other questions. This item is closed.

9.0 INSPECTION HOURS SUMMARY

Inspection consisted of 211 direct inspection hours; 57 of these direct inspection hours were performed during backshift periods, and 21 of these hours were deep backshift hours.

10.0 EXIT MEETING AND UNRESOLVED ITEMS (40500,71707)

10.1 Preliminary Inspection Findings

A verbal summary of preliminary findings was provided to the senior licensee management at the conclusion of this inspection. During the inspection, licensee management was periodically notified verbally of the preliminary findings by the resident inspectors. No written inspection material was provided to the licensee during the inspection. No proprietary information is included in this report.

10.2 Attendance at Management Meetings Conducted by Other NRC Inspectors

During this inspection period, the resident inspectors attended the preliminary exit meeting for the Diagnostic Evaluation Team on December 7, 1990. At this exit meeting, the lead inspector discussed team evaluation and findings with senior licensing management.

10.3 Unresolved Items

Unresolved items are matters for which more information is required to ascertain whether they are acceptable, violations or deviations. Unresolved items are discussed in paragraphs 1.5, 3.1, 4.1, 4.2, and 8.0 of this report.