U. S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No.	91-33
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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:	October 6, 1991 - November 9, 1991
Inspectors:	M. Banerjee, Resident Inspector J. Nakoski, Resident Inspector D. Vito, Senior Resident Inspector

Approved By: W. H. Ruland 12/9/91
W. H. Ruland, Chief, Reactor Projects Section 4B   Date

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.

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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

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Plant Operations

The licensee's decision to initiate controlled plant shutdowns due to an inoperable reactor-building-to-torus vacuum breaker valve and an inoperable containment spray system were appropriate and safety conscious. Plant management made a conservative decision to reduce reactor power in response to increasing intake canal water level. Plant shutdown, start up and power maneuvering activities were well-controlled and performed in accordance with station approved procedures. Operations department management involvement in plant activities was evident.

While the licensee documents the movement of items in and out of the spent fuel pool through individual move sheets, related procedures do not contain frequency requirements for overall spent fuel pool inventory verification. The licensee has committed to further specify periodic inventory verification requirements.

Radiological Controls

The licensee's decision to reduce reactor power to perform condenser tube leak inspection and repair was consistent with the station goal of reducing radiological exposure, and was a good ALARA practice. Continued overall improvement in radiological controls of station activities was noted.

Maintenance

Maintenance activities observed on the reactor-building-to-torus vacuum breaker butterfly valve were appropriately performed and well-controlled.

Engineering and Technical Support

The licensee took proactive measures in correcting a potential problem in the no. 2 emergency diesel generator after an unusual noise was heard during a regular surveillance test. The hydraulic lifters and the rocker arm mechanism were replaced in one cylinder to eliminate the noise. The licensee plans to replace these parts in the other cylinders of both diesels during the next refueling outage.

Emergency Preparedness

The annual emergency preparedness exercise was conducted on October 22, 1991. NRC assessment of licensee performance during the exercise is included in Inspection Report No. 50-219/91-30. In addition to state and local emergency response personnel, NRC personnel from Region I and Headquarters responded to this full participation exercise.

Safety Assessment and Quality Verification

The licensee's initial observation team effort in response to DET findings was generally good; however, it was too early to determine overall effectiveness.

The inspectors assessed the licensee's implementation of the root cause standard in the troubleshooting and resolution of problems associated with the reactor-building-to-torus vacuum breaker valve. The inspector concluded that the licensee had been using a detailed process of elimination to determine a root cause. It was noted that the root cause standard did not provide specific means for re-evaluating the root cause analysis category for a developing problem.

DETAILS

1.0 OPERATIONS (71707,93702)

1.1 Operations Summary

The unit started the inspection period operating at full power. Full power operation continued until October 11, 1991, when a plant shutdown was commenced due to both containment spray systems being out-of-service. Power was reduced to about 70% before containment spray system 2 was returned to service later on October 11, and the shutdown was terminated. See section 1.2 of this report for a discussion of the containment spray and emergency service water (ESW) system inoperability. Full power was again achieved on October 13, 1991.

Later on October 13, the reactor-building-to-torus vacuum breaker air-operated butterfly valve V-26-18 did not open within the time specified by the surveillance procedure acceptance criterion and was declared inoperable. A 7-day technical specification shutdown action statement was entered. Valve V-26-18 was declared operable on October 19 after successful surveillance test results were achieved and the 7-day technical specification shutdown action statement was exited. See section 4.1 of this report for a discussion of problems experienced with the reactor-building-to-torus vacuum breaker valves. Reactor power remained at or near 100% until October 20, when reactor power was reduced due to an increase in a seawater leak in the "C north" main condenser. Throughout the inspection period, high conductivity had been measured in the "C north" main condenser due to leaking condenser tubes. Power was decreased to about 65% and the C north condenser was isolated for repairs. While at reduced power, the "C north" condenser tube leaks were repaired and a 100% tube inspection was done using an air pressure test.

While reactor power was at 65%, the main generator stator cooling system filter differential pressure (dp) increased to 30 psid. (Normal stator cooling dp is about 3 psid). On October 22, reactor power was further decreased to about 21% to take the generator off-line to allow replacement and cleaning of the stator cooling system filter. Reactor power was maintained at 21% using the turbine bypass valves for about 3 hours while work was completed on the stator cooling system filter. After the repairs were completed, reactor power was increased and the turbine generator placed back in service. The increase in power was halted at 3:20 p.m. on October 22, when the annual emergency preparedness exercise started with reactor power at 41%. GPUN management instructed the control room staff to maintain reactor power stable during the annual exercise. The annual exercise was completed and reactor power was increased to full power on October 23.

Full power operation continued until October 30, 1991, when plant management decided to reduce reactor power in anticipation of higher than normal tides. With an intake structure water level of 4 feet 6 inches above mean sea level, plant abnormal procedures require an orderly shutdown to commence. Power was reduced to about 63% during the unusually high tides. The highest tide noted at the intake structure was 4 feet 4 inches above mean sea level at 5:00 a.m. on October 31. See section 1.3 of this report for a discussion of the higher than normal tide condition.

At 6:03 p.m. on October 31, the reactor-building-to-torus vacuum breaker valve V-26-18 again failed to open within the required surveillance procedure acceptance criterion and was declared inoperable. GPUN management conservatively determined that the 7-day technical specification shutdown action statement did not again apply (because the problem with the valve had apparently not been solved) and began a 24-hour reactor shutdown per technical specification 3.5.A.4.C. The unit was manually scrammed from less than 1% power to expedite the cooldown at 7:10 a.m. on November 1. After the drywell had been purged and vented, it was opened to allow repair to V-26-18. Repairs were made to V-26-18 and the reactor startup was commenced at 9:43 p.m. on November 4. Full power was reached at 8:25 a.m. on November 7.

Reactor power remained at full power until November 9, 1991, (the end of the inspection period) at 10:20 p.m. when a plant shutdown at a rate of 20 MWe per hour was started. The shutdown was required when the reactor-building-to-torus vacuum breaker valve V-26-18 again failed to open within the surveillance procedure required time and was declared inoperable. At the end of the inspection period, the unit was about 93% power with a plant shutdown in progress.

Based on observations of control room activities during the inspection period, the inspectors concluded that the plant shutdown, plant startup, and numerous occasions of power maneuvering conducted by the operators were well-controlled and performed in accordance with procedures. Operations department management involvement in plant activities was evident.

1.2 Containment Spray and Emergency Service Water Systems

On October 11, 1991, at 2:10 p.m., GPUN commenced a plant shutdown as required by technical specification (TS) 3.0.A, when both containment spray systems were declared inoperable. While performing procedure 607.4.004, revision 10, "Containment Spray and Emergency Service Water System 1 Pump Operability and Inservice Test," the licensee declared both emergency service water (ESW) pumps (52A and 52B) inoperable when the pump differential pressure (dp) data fell within the inservice test (IST) action range. This rendered the containment spray and ESW system 1 inoperable. As required by TS 3.4.C.3, GPUN began testing the other train of the containment spray and ESW system, using procedure 607.4.005, revision 8, "Containment Spray and Emergency Service Water Pump System 2 Operability and Inservice Test." The primary containment spray pump for system 2 (51C) failed to start on the first attempt. The pump motor breaker closed and then immediately tripped. GPUN inspected the pump motor breaker and reset the trip. A second pump start signal was successful. The licensee completed procedure 607.4.005, the pump IST data was acceptable, and the redundant containment spray pump (51D) started without any difficulties. The licensee declared pump 51C inoperable pending completion of a review on why the pump breaker tripped on the first start attempt. Based on containment spray system 1 being inoperable along with one of the system 2 containment spray pumps inoperable, GPUN entered the action statement of TS 3.0.A and commenced a 30 hour TS required shutdown.

GPUN developed a plan to return both containment spray systems to an operable status. Based on past experience, the low dp of the system 1 ESW pumps was considered due to fouling the sensing ports of the Annubar flow sensor used in evaluating the pump dp. GPUN started draining ESW system 1 to allow an inspection and cleaning of the Annubar sensing ports. While ESW system 1 was being drained, the breaker and breaker cubicle for the containment spray pump 51C motor were inspected for damage. No damage was evident on the breaker or breaker cubicle. A review of the maintenance history for the pump 51C breaker determined that the breaker had experienced similar problems in the past and that maintenance had been done on the breaker during the 13R refueling outage by General Electric. GPUN decided to remove the faulty pump 51C motor breaker and replace it with the breaker from the containment spray system 1 pump 51B motor. The breaker removed from the pump 51C breaker cubicle was sent to General Electric for further evaluation. After the pump 51B breaker was installed and tested in the 51C breaker cubicle, pump 51C was retested. Pump 51C successfully started on the first attempt during the test and no problems were noted with pump operation during the surveillance. At 9:30 p.m. the group shift supervisor (GSS) declared pump 51C operable, terminated the shutdown, and exited the action statement of TS 3.0.A. Reactor power was at about 69% when the shutdown was terminated.

After exiting the action statement of TS 3.0.A, GPUN was still in the action statement of TS 3.4.C.3 which provides a 7-day allowable outage time to restore containment spray/ESW system to an operable status. By 10:30 p.m. on October 11, 1991, ESW system 1 had been drained and the Annubar sensing ports cleaned. A small clam was found partially covering one of the sensing ports. The blocking of the sensing port was an isolated occurrence. During the last refueling outage, inspector observations of ESW system piping and heat exchangers internals found little buildup of biological material.

After filling and venting ESW system 1, procedure 607.4.004 was again performed. The measured dp for both ESW pumps 52A and 52B were acceptable. With the exception of containment spray pump 51B, containment spray and ESW system 1 was returned to service at 6:10 a.m. on October 12, 1991. This allowed GPUN to exit the action statement of TS 3.4.C.3 for the 7-day shutdown and enter the 15-day shutdown action statement of TS 3.4.C.4.

The breaker for containment spray pump motor 51B was replaced with a spare breaker from the store room. After the breaker was replaced, procedure 607.4.004 was performed successfully for pump 51B. The GSS declared containment spray pump 51B operable at 7:00 a.m. on October 13, 1991, exiting the 15-day shutdown action statement of TS 3.4.C.4.

The inspectors observed the completion of procedure 607.4.005 for containment spray system 2 performed on October 11, when pump 51C failed to start on the first attempt. Further inspector activities included: a review of the licensee's plan of action to restore the containment spray/ESW systems; observation of post-maintenance testing for the pump 51C motor breaker replacement; review of IST data from procedure 607.4.005 taken before the breaker was replaced; review of the job order (number 34523) which replaced the pump 51C motor breaker; and observation of GPUN management response to the event.

Based on the inspector's observations, the licensee promptly responded to the initial failure of the system 1 ESW pumps to meet the IST acceptance criteria. When the containment spray pump for system 2 (51C) failed to start, the GSS appropriately entered the 30-hour shutdown TS action statement action statement of TS 3.0.A. Timely notifications were made to the NRC and offsite agencies when the shutdown was started. GPUN management was aware of the need to restore one of the systems within 8 hours of the start of the shutdown or declare an unusual event as required by the Oyster Creek emergency plan (category N.1). Operations management involvement in responding to the event was good. The plan to restore one of the two containment spray/ESW systems to service adequately addressed the necessary steps to resolve the problems in a timely manner. Once containment spray/ESW system 2 was returned to service, GPUN aggressively pursued restoring the remaining train to a fully operable condition. Evaluation of the faulty pump 51C breaker originally installed was still ongoing at the end of the inspection period. Overall, GPUN responded very well to the occurrence and restored both containment spray and ESW systems to service in an efficient and safety conscious manner.

1.3 High Tides

At 8:30 p.m. on October 30, 1991, the residents were informed of GPUN's decision to reduce reactor power to that which could be maintained using only 3 of the 4 circulating water pumps (about 65%). The reason for the power reduction was an extra-tropical storm off the New Jersey coastline that was causing abnormal high tides. Paragraph 4.7.11 of abnormal procedure 2000-ABN-3200.31, revision 8, "High Winds," requires the water level at the plant intake structure to be monitored continuously when intake level is higher than 3.0 feet above mean sea level. Further, with intake level higher than 4.5 feet above mean sea level an orderly shutdown was required. Emergency plan implementing procedure EPIP-OC-.01, Rev. 0, "Classification of Emergency Conditions," category O.3 calls for an unusual event (UE) classification at an intake level of 4.5 feet above mean sea level and an alert at an intake level at the intake structure lower deck (6.0 feet above mean sea level).

GPUN management made the conservative decision, based on possible abnormally high tides at the intake structure, to reduce reactor power in anticipation of an orderly plant shutdown. At 5:00 a.m. on October 31, the highest level at the intake was recorded as 4 feet 4 inches above mean sea level, just below the UE classification and plant shutdown level. Reactor power was reduced to about 63% before the highest intake level was reached at the intake structure. By 6:00 a.m. on October 31, the intake level had decreased to 4 feet 2 $^{1}/_{2}$ inches and was continuing to drop. The unit was held at 63% power while intake level remained above normal. Before reactor power could be increased significantly, the licensee started a plant shutdown because the reactor-building-to-torus vacuum breaker butterfly valve, V-26-18, was declared inoperable (see section 4.1).

The inspector discussed the decision to reduce reactor power due to the rising intake level with the licensee management and reviewed procedures 2000-ABN-3200.31 and EPIP-OC-.01. Based on the inspector's discussions and reviews, the inspector concluded that the licensee was responsive to the changing environmental conditions resulting from the extra-tropical storm that passed along the New Jersey coast on October 30 and 31. Entry into the High Winds abnormal procedure was appropriate and the licensee clearly understood when emergency classifications would have been required. Overall, the licensee response to the event was good.

1.4 Spent Fuel Storage Pool Inventory

The inspector reviewed the licensee's control of spent fuel storage pool (SFP) inventory. Procedure 1002.5, Rev. 2, "Fuel Pool Material and Inventory Control," provides guidelines for determining what items and materials may be placed in the fuel pool and for maintaining inventory control for all items stored in the fuel pool. The Manager, Core Engineering, has the overall responsibility for inventory control.

The procedure provides for move sheets and checklists for maintaining inventory. The procedure requires periodic inventory verification but does not indicate the frequency. An inventory update is also required upon completion of a clean-up effort. The licensee indicated that although move sheets accounted for all items moved in and out of the fuel pool, the inventory checklist had not been updated since October 1990. After that date, and specifically during the last refueling outage (13R), changes were made to the fuel pool inventory such that the October 1990 inventory checklist was out-of-date. The inspector concluded that not specifying a frequency for inventory verification represented a weakness in the program. The licensee plans to clarify the periodic update and verification requirement.

The licensee completed an inventory status verification on November 8, 1991, for non-fuel items. An annual fuel inventory was planned for November 14, 1991. This inventory is to be used as a basis for the 1992 fuel pool cleanup project. The non-fuel item inventory showed that the only items over 100 lbs currently suspended in the SFP consist of five control rod blades (approximately 250 lbs each) suspended on the wall by seismically designed hangers. One fuel support casting weighing approximately 100 lbs is shackled to the SFP rail by stainless steel cable. The licensee indicated that an engineering analysis was done for the control rod blade drop from the hanger which did not indicate any fuel damage. The inspector noted that there are no apparent provisions for periodic inspection of the condition of the ropes and hangers used to suspend items in the pool. The licensee indicated that the procedure would be reviewed for needed changes.

The inspector concluded that the licensee was maintaining adequate control of the fuel pool inventory. The licensee committed to clarify the periodic inventory update requirement and review the procedure for needed rope and hanger inspection. By the end of the inspection period, the licensee had not finalized the method to clarify the periodic inventory update requirements. Also, due to a reorganization of the operations support staff, the staff position specifically responsible for oversight of refuel floor activities was being eliminated. The inspectors will continue to follow the licensee's actions to address their commitment to improve spent fuel pool inventory control, including the assimilation of refuel floor activity oversight within the newly altered operations support organization.

1.5 Facility Tours

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

- control room
- cable spreading room
- diesel generator building
- new radwaste building
- old radwaste building
- transformer yard
- intake area
- reactor building
- turbine building
- vital switchgear rooms
- access control points

Control room activities were found to be well controlled and conducted in a professional manner. Inspectors verified operator knowledge of ongoing plant activities, equipment status, and existing fire watches through random discussions. Efforts were taken by the licensee to further improve the material condition of the emergency diesel generator building. The housekeeping condition of the reactor building corner rooms has also improved.

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. During this inspection period, the inspectors noted continuing overall improvement in radiological controls of station activities.

3.0 MAINTENANCE/SURVEILLANCE (62703,61726)

3.1 Maintenance Observation

On November 3, 1991, the inspector observed partial completion of the corrective maintenance performed on the butterfly valve seat of the reactor-building-to-torus vacuum breaker valve V-26-18. The inspector reviewed the job order (JO# 34928) used to replace the butterfly valve seat. Appropriate procedures were included in the package, the required authorization was obtained and Quality Control hold points were appropriately incorporated. The post-maintenance tests performed and radiological controls observed during the job were adequate. The inspector concluded the work was appropriately performed and well-controlled.

4.0 ENGINEERING AND TECHNICAL SUPPORT (71707,40500)

4.1 Reactor-Building-To-Torus Vacuum Breaker Valves

A summary of problems identified by the licensee regarding the reactor-building-to-torus vacuum breaker valve operation, related engineering evaluations and subsequent corrective actions is provided below.

<u>System Description</u>

Oyster Creek plant has two reactor-building-to-torus vacuum breaker lines, each consisting of a check valve and an air-operated butterfly valve in series which open at a differential pressure of 0.5 psid between the torus and the reactor building. The check valve is located between the reactor building and the air-operated butterfly valve. These valves operate together with the torus-to-drywell vacuum breaker valves to prevent challenges to the containment structure due to a potential vacuum condition resulting from containment spray system operation. Air is required both to open and close the butterfly valve. A solenoid valve directs air to the butterfly valve operator as required during opening and closing. Upon loss of electric power the butterfly valve automatically opens. An air accumulator is provided in conjunction with a trip valve which ensures that the valve automatically opens upon loss of station air.

Vacuum Breaker Line Check Valve Problems

On September 6, 1991, the surveillance test acceptance criterion for a manually-applied opening force on one of the two reactor-building-to-torus vacuum breaker check valves (V-26-17) was exceeded. Subsequent manual opening of the check valve did not require this excessive force. Followup tests performed by the licensee also showed that the associated vacuum breaker butterfly valve (V-26-18) showed some binding when cycled. The licensee secured the vacuum breaker line as required by technical specifications and entered a 7-day technical specification shutdown action statement. The technical specification requires that V-26-17 should open with a force equivalent to a pressure differential of 0.5 psid on the disk.

Successive tests performed by the licensee showed that opening of V-26-18 resulted in an increased pressure in the piping between the two valves (V-26-17 and 18) and that an increased force was subsequently required to open check valve V-26-17. This increased force was consistent with the increased pressure on the check valve disk. During the last refueling outage both valves were rebuilt with new seats. Local leak rate testing performed during the 13R outage indicated acceptable results. The licensee suspected a pressure buildup between the two valves due to possible leakage through V-26-18 seat and/or less leakage through V-26-17 (due to the rebuilt seat). A pressure gauge was installed between these two valves to periodically monitor the pressure and identify the cause of the pressure buildup.

A safety evaluation completed by the licensee on September 10, 1991, indicated that if the vacuum breaker was required to open, the opening of V-26-18 would release any pressure buildup between the valves to the torus. As such, any restriction to V-26-17 movement due to pressure buildup would be removed. The licensee increased the surveillance frequency for V-26-17 from quarterly to weekly to ensure consistent valve operation and provide for additional collection of trend data. On September 10, 1991, V-26-17 was declared operable, the securing mechanism (tie down rope) was removed, and the 7-day technical specification shutdown action statement was terminated.

Vacuum Breaker Line Butterfly Valve Problems

On October 13, 1991, during the performance of a surveillance involving valve stroke timing, one of the two reactor-building-to-torus vacuum breaker butterfly valves (V-26-18) did not meet the acceptance criterion of 4.5 seconds for opening time. The opening time acceptance criterion had been developed from the IST program requirements. Valve V-26-18 was declared inoperable and the associated check valve V-26-17 was secured in the closed position to maintain primary containment integrity as required by the plant technical specifications. The licensee also entered a technical specification shutdown action statement which required a plant shutdown if the condition could not be corrected within seven days.

During the 13R refueling outage, this 20 inch, Fisher Controls, 1910 series butterfly valve was overhauled with a new seat and the operator was adjusted. The first two of three monthly surveillances performed since the 13R outage showed an opening time of less than 4.5 seconds; however, during the third test on October 13, 1991, the stroke time exceeded the acceptance criterion. The licensee replaced the solenoid and blew down the air lines to remove any potential dirt or debris. No debris was found. The licensee performed additional tests to determine if all the components in the air system associated with the vacuum breaker were working as required. No problem was identified. The licensee's evaluation suggested that the valve disk was possibly travelling further into the seat over time, such that more force was needed to move the disk off the seat, resulting in an increased opening time. The licensee theorized that a combination of the new seat and cooler temperatures in the torus and reactor building due to seasonal changes was contributing to the disk fitting tighter into the seat. The licensee performed an engineering evaluation to justify an increase in the stroke time acceptance criterion from 4.5 seconds to 5.5 seconds. This evaluation also indicated that an opening time of up to 10 seconds would maintain the drywell and the torus pressure within the design negative pressure. After successful testing, the valve was declared operable on October 19, 1991, and an increased surveillance frequency was adopted. According to this accelerated surveillance frequency, the valve was to be stroked open three times at progressively increasing time intervals (48 hours, 96 hours, one week, and one month).

The 48 hour tests yielded acceptable opening times, between 2.5 and 3 seconds; however, the first 96 hour test done on October 27, 1991, showed an increased opening time although still within the new 5.5 second acceptance criterion. When the next 96 hour test result (October 31, 1991) exceeded the acceptance criterion (6.2 seconds), the licensee again declared V-26-18 inoperable and initiated a controlled plant shutdown per technical specification 3.5.A.4.C. Appropriately, the licensee did not reenter the 7-day technical specification shutdown action statement as noted above as they concluded that they had not solved the problem which had resulted in the initial determination of valve inoperability on October 13, 1991.

The licensee replaced the trip valve mechanism in the air operator system. However, no problems were found with the replaced trip valve. Valve V-26-18 and its operator were removed from the piping and inspected. Marks observed on the valve seat were indicative of disk overtravel. Testing done on the valve operator indicated that at the end of the closing stroke there was additional room for operator movement and in the opening stroke the operator piston did not start to move until a period of time after application of the air pressure. The licensee concluded that the existing air pressure underneath the operator piston had moved the disk beyond its fully closed position (as evidenced by the rubbing mark on the seat). This condition provided additional resistance to disk travel and required application of air pressure for a certain time before the valve would begin to open.

The licensee replaced the valve seat, replaced and adjusted the operator, and performed a local leak rate test and stroke time test before declaring vacuum breaker V-26-18 operable on November 4, 1991. An accelerated surveillance frequency similar to that established on October 19, 1991, was established.

On November 9, 1991, a surveillance test performed at a 96 hour interval again resulted in a stroke time greater than the 5.5 second acceptance criterion (6.3 seconds). The vacuum breaker butterfly valve was again declared inoperable and a controlled shutdown initiated. After subsequent evaluation, the licensee stated that the increased opening time was not unusual for the current valve configuration. The licensee concluded that increased binding was being caused as the valve moved further into the seat at some time after the end of its closing stroke. The licensee believed this condition was acceptable, since the increased stroke times measured were still within the established 10 second design limit. The stroke time (opening) acceptance criterion was increased to 8 seconds as an interim value. The shutdown was terminated on November 10, 1991. The augmented surveillance program was continued with successively increasing test intervals to reestablish the baseline for the valve opening stroke time. Additional requirements were added to the surveillance procedure to record the air pressure at the operator while opening and closing the valve and a dial indicator was added to ensure full travel of the operator during stroking.

The inspector reviewed the licensee's engineering analysis which established the design stroke time of 10 seconds and inspected the V-26-18 valve, photographs taken of the replaced internals, and a video recording of valve stroking before seat replacement on November 3, 1991. The inspector concluded that the licensee's November 9, 1991, decision to initiate a plant shutdown was again appropriate. The inspector concluded that the licensee's engineering evaluation to allow the extended opening time was adequate. At the end of the inspection period the licensee was reviewing the augmented surveillance test results to finalize the root cause assessment. The inspector's review was continuing.

4.2 Emergency Diesel Generator Troubleshooting

On October 7, 1991, during regular surveillance (load test) of emergency diesel generator (EDG) No. 2, the plant engineer responsible for EDGs heard a small change in the sound the EDG made when it was started. As a result of the plant engineer's sensitivity to the operating characteristics of the EDG, the licensee began troubleshooting to determine the cause of the unusual noise. The licensee's troubleshooting determined that the noise was coming from the No. 5 cylinder head and that the hydraulic lifter mechanism which controls the engine valves was not working adequately, which resulted in the noise and probably a less efficient cylinder performance. The diesel engine met its surveillance criteria for loading and was not inoperable. The licensee replaced the cylinder No. 5 hydraulic lifter and rocker arm shaft mechanism. No obvious defect was found on the removed parts. The licensee plans to send the parts to the diesel maintenance vendor for further inspection. Since these parts have not been replaced previously, the licensee was planning to replace them in the other cylinders (of both diesels) during the next outage. The diesel engines were overhauled with new power packs and fuel injectors during cycle 12 and the 13R outage.

The inspector concluded that the licensee's corrective measures were proactive in correcting a potentially developing problem. Their actions in this case reflected a good safety perspective and a desire to maintain a reliable emergency power system.

5.0 EMERGENCY PREPAREDNESS (71707)

5.1 Annual Exercise

On October 22, 1991, at 3:20 p.m., GPUN conducted their annual emergency preparedness (EP) exercise. NRC both observed and participated in the exercise. See NRC inspection report No. 50-219/91-30 for a discussion of observations of the exercise. The exercise was terminated at 11:15 p.m. on October 22, 1991.

6.0 OBSERVATION OF PHYSICAL SECURITY (71707)

During routine tours, inspectors verified that access controls were in accordance with the Security Plan, security posts were properly manned, protected area gates were locked or guarded and that isolation zones were free of obstructions. Inspectors examined vital area access points and verified that they were properly locked or guarded and that access control was in accordance with the Security Plan.

7.0 SAFETY ASSESSMENT/QUALITY ASSURANCE (71707,40500)

7.1 Observation Teams

The inspectors reviewed the licensee's implementation of management observation teams in response to the Diagnostic Evaluation Team (DET) findings. The DET review conducted in November and December 1990 noted a potential general weakness in supervisory oversight after observing several instances of poor work practices and worker radiological control practices. The DET found a number of inconsistencies in observed work practices resulting from inattention to detail and an apparent lack of questioning attitude on the part of workers and their first-line supervisors. In addition to other actions, the licensee is addressing this issue through the implementation of management observation teams. The first field observations under this program began at the end of September 1991.

The intent of the observation teams is to provide for direct management observation of randomly selected plant activities so that both the work being performed and the interaction between the workers and first-line supervision can be evaluated. In some cases, an extended observation of one activity is performed. In other cases, the observation team tours the facility and observes smaller portions of several activities. In addition to the discovery of problems at the worker/first-line supervisor level through observation, the observation team concept is also intended to help promote a desired change in the quality of work practices through the increased presence of management in the field. GPUN also feels that this change will be promoted by observer coaching. Rather than simply noting observed deficiencies, the observation team charter also includes constructive coaching of the worker and/or the first-line supervisor, as necessary, to remedy a noted deficiency on the spot. The effectiveness of the observation team effort relies on the ability of the observers to provide this constructive criticism in the proper manner so as to gain the acceptance and confidence of those being observed.

Twelve senior level managers at Oyster Creek have been assigned to the observation tour management team. All of these managers have taken formal training in how to effectively observe work and provide constructive feedback. One of these individuals has been designated as the observation team coordinator. This individual assigns team members, develops observation schedules, and files observation team reports. At least two members are assigned to each observation team and at least one of these individuals is to have a radiological controls background.

On October 30, 1991, the inspectors accompanied an observation team into the field. Work was observed on the augmented offgas (AOG) service water heat exchanger and on instrument air dryers in the turbine building. Several minor deficiencies in work practices were noted. One involved the use, by a worker, of paper anti-contamination overalls to wipe up a nonradioactive waste spill on the AOG cooler. The worker was counseled as to the need to minimize the generation of waste, and the first-line supervisor was informed of the need to anticipate a spill of this type and to provide for appropriate means to clean it up should one occur. Generally, the inspectors found that the observation team members were providing effective coaching to the workers and first-line supervisors for the deficiencies observed.

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9.1 Preliminary Inspection Findings

A verbal summary of preliminary findings was provided to the senior licensee management on November 19, 1991. 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.

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spray pump (51D) started without any difficulties. The licensee declared pump 51C inoperable pending completion of a review on why the pump breaker tripped on the first start attempt. Based on containment spray system 1 being inoperable along with one of the system 2 containment spray pumps inoperable, GPUN entered the action statement of TS 3.0.A and commenced a 30 hour TS required shutdown.

GPUN developed a plan to return both containment spray systems to an operable status. Based on past experience, the low dp of the system 1 ESW pumps was considered due to fouling the sensing ports of the Annubar flow sensor used in evaluating the pump dp. GPUN started draining ESW system 1 to allow an inspection and cleaning of the Annubar sensing ports. While ESW system 1 was being drained, the breaker and breaker cubicle for the containment spray pump 51C motor were inspected for damage. No damage was evident on the breaker or breaker cubicle. A review of the maintenance history for the pump 51C breaker determined that the breaker had experienced similar problems in the past and that maintenance had been done on the breaker during the 13R refueling outage by General Electric. GPUN decided to remove the faulty pump 51C motor breaker and replace it with the breaker from the containment spray system 1 pump 51B motor. The breaker removed from the pump 51C breaker cubicle was sent to General Electric for further evaluation. After the pump 51B breaker was installed and tested in the 51C breaker cubicle, pump 51C was retested. Pump 51C successfully started on the first attempt during the test and no problems were noted with pump operation during the surveillance. At 9:30 p.m. the group shift supervisor (GSS) declared pump 51C operable, terminated the shutdown, and exited the action statement of TS 3.0.A. Reactor power was at about 69% when the shutdown was terminated.

After exiting the action statement of TS 3.0.A, GPUN was still in the action statement of TS 3.4.C.3 which provides a 7-day allowable outage time to restore containment spray/ESW system to an operable status. By 10:30 p.m. on October 11, 1991, ESW system 1 had been drained and the Annubar sensing ports cleaned. A small clam was found partially covering one of the sensing ports. The blocking of the sensing port was an isolated occurrence. During the last refueling outage, inspector observations of ESW system piping and heat exchangers internals found little buildup of biological material.

After filling and venting ESW system 1, procedure 607.4.004 was again performed. The measured dp for both ESW pumps 52A and 52B were acceptable. With the exception of containment spray pump 51B, containment spray and ESW system 1 was returned to service at 6:10 a.m. on October 12, 1991. This allowed GPUN to exit the action statement of TS 3.4.C.3 for the 7-day shutdown and enter the 15-day shutdown action statement of TS 3.4.C.4.

The breaker for containment spray pump motor 51B was replaced with a spare breaker from the store room. After the breaker was replaced, procedure 607.4.004 was performed successfully for pump 51B. The GSS declared containment spray pump 51B operable at 7:00 a.m. on October 13, 1991, exiting the 15-day shutdown action statement of TS 3.4.C.4.

The inspectors observed the completion of procedure 607.4.005 for containment spray system 2 performed on October 11, when pump 51C failed to start on the first attempt. Further inspector activities included: a review of the licensee's plan of action to restore the containment spray/ESW systems; observation of post-maintenance testing for the pump 51C motor breaker replacement; review of IST data from procedure 607.4.005 taken before the breaker was replaced; review of the job order (number 34523) which replaced the pump 51C motor breaker; and observation of GPUN management response to the event.

Based on the inspector's observations, the licensee promptly responded to the initial failure of the system 1 ESW pumps to meet the IST acceptance criteria. When the containment spray pump for system 2 (51C) failed to start, the GSS appropriately entered the 30-hour shutdown TS action statement action statement of TS 3.0.A. Timely notifications were made to the NRC and offsite agencies when the shutdown was started. GPUN management was aware of the need to restore one of the systems within 8 hours of the start of the shutdown or declare an unusual event as required by the Oyster Creek emergency plan (category N.1). Operations management involvement in responding to the event was good. The plan to restore one of the two containment spray/ESW systems to service adequately addressed the necessary steps to resolve the problems in a timely manner. Once containment spray/ESW system 2 was returned to service, GPUN aggressively pursued restoring the remaining train to a fully operable condition. Evaluation of the faulty pump 51C breaker originally installed was still ongoing at the end of the inspection period. Overall, GPUN responded very well to the occurrence and restored both containment spray and ESW systems to service in an efficient and safety conscious manner.

1.3 High Tides

At 8:30 p.m. on October 30, 1991, the residents were informed of GPUN's decision to reduce reactor power to that which could be maintained using only 3 of the 4 circulating water pumps (about 65%). The reason for the power reduction was an extra-tropical storm off the New Jersey coastline that was causing abnormal high tides. Paragraph 4.7.11 of abnormal procedure 2000-ABN-3200.31, revision 8, "High Winds," requires the water level at the plant intake structure to be monitored continuously when intake level is higher than 3.0 feet above mean sea level. Further, with intake level higher than 4.5 feet above mean sea level an orderly shutdown was required. Emergency plan implementing procedure EPIP-OC-.01, Rev. 0, "Classification of Emergency Conditions," category O.3 calls for an unusual event (UE) classification at an intake level of 4.5 feet above mean sea level and an alert at an intake level at the intake structure lower deck (6.0 feet above mean sea level).

GPUN management made the conservative decision, based on possible abnormally high tides at the intake structure, to reduce reactor power in anticipation of an orderly plant shutdown. At 5:00 a.m. on October 31, the highest level at the intake was recorded as 4 feet 4 inches above mean sea level, just below the UE classification and plant shutdown level. Reactor power was reduced to about 63% before the highest intake level was reached at the intake structure. By 6:00 a.m. on October 31, the intake level had decreased to 4 feet 2 $^1/_2$ inches and was continuing to drop. The unit was held at 63% power while intake level remained above normal. Before reactor power could be increased significantly, the licensee started a plant shutdown because the reactor-building-to-torus vacuum breaker butterfly valve, V-26-18, was declared inoperable (see section 4.1).

The inspector discussed the decision to reduce reactor power due to the rising intake level with the licensee management and reviewed procedures 2000-ABN-3200.31 and EPIP-OC-.01. Based on the inspector's discussions and reviews, the inspector concluded that the licensee was responsive to the changing environmental conditions resulting from the extra-tropical storm that passed along the New Jersey coast on October 30 and 31. Entry into the High Winds abnormal procedure was appropriate and the licensee clearly understood when emergency classifications would have been required. Overall, the licensee response to the event was good.

1.4 Spent Fuel Storage Pool Inventory

The inspector reviewed the licensee's control of spent fuel storage pool (SFP) inventory. Procedure 1002.5, Rev. 2, "Fuel Pool Material and Inventory Control," provides guidelines for determining what items and materials may be placed in the fuel pool and for maintaining inventory control for all items stored in the fuel pool. The Manager, Core Engineering, has the overall responsibility for inventory control.

The procedure provides for move sheets and checklists for maintaining inventory. The procedure requires periodic inventory verification but does not indicate the frequency. An inventory update is also required upon completion of a clean-up effort. The licensee indicated that although move sheets accounted for all items moved in and out of the fuel pool, the inventory checklist had not been updated since October 1990. After that date, and specifically during the last refueling outage (13R), changes were made to the fuel pool inventory such that the October 1990 inventory checklist was out-of-date. The inspector concluded that not specifying a frequency for inventory verification represented a weakness in the program. The licensee plans to clarify the periodic update and verification requirement.

The licensee completed an inventory status verification on November 8, 1991, for non-fuel items. An annual fuel inventory was planned for November 14, 1991. This inventory is to be used as a basis for the 1992 fuel pool cleanup project. The non-fuel item inventory showed that the only items over 100 lbs currently suspended in the SFP consist of five control rod blades (approximately 250 lbs each) suspended on the wall by seismically designed hangers. One fuel support casting weighing approximately 100 lbs is shackled to the SFP rail by stainless steel cable. The licensee indicated that an engineering analysis was done for the control rod blade drop from the hanger which did not indicate any fuel damage. The inspector noted that there are no apparent provisions for periodic inspection of the condition of the ropes and hangers used to suspend items in the pool. The licensee indicated that the procedure would be reviewed for needed changes.

The inspector concluded that the licensee was maintaining adequate control of the fuel pool inventory. The licensee committed to clarify the periodic inventory update requirement and review the procedure for needed rope and hanger inspection. By the end of the inspection period, the licensee had not finalized the method to clarify the periodic inventory update requirements. Also, due to a reorganization of the operations support staff, the staff position specifically responsible for oversight of refuel floor activities was being eliminated. The inspectors will continue to follow the licensee's actions to address their commitment to improve spent fuel pool inventory control, including the assimilation of refuel floor activity oversight within the newly altered operations support organization.

1.5 Facility Tours

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

- control room
- cable spreading room
- diesel generator building
- new radwaste building
- old radwaste building
- transformer yard
- intake area
- reactor building
- turbine building
- vital switchgear rooms
- access control points

Control room activities were found to be well controlled and conducted in a professional manner. Inspectors verified operator knowledge of ongoing plant activities, equipment status, and existing fire watches through random discussions. Efforts were taken by the licensee to further improve the material condition of the emergency diesel generator building. The housekeeping condition of the reactor building corner rooms has also improved.

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. During this inspection period, the inspectors noted continuing overall improvement in radiological controls of station activities.

3.0 MAINTENANCE/SURVEILLANCE (62703,61726)

3.1 Maintenance Observation

On November 3, 1991, the inspector observed partial completion of the corrective maintenance performed on the butterfly valve seat of the reactor-building-to-torus vacuum breaker valve V-26-18. The inspector reviewed the job order (JO# 34928) used to replace the butterfly valve seat. Appropriate procedures were included in the package, the required authorization was obtained and Quality Control hold points were appropriately incorporated. The post-maintenance tests performed and radiological controls observed during the job were adequate. The inspector concluded the work was appropriately performed and well-controlled.

4.0 ENGINEERING AND TECHNICAL SUPPORT (71707,40500)

4.1 Reactor-Building-To-Torus Vacuum Breaker Valves

A summary of problems identified by the licensee regarding the reactor-building-to-torus vacuum breaker valve operation, related engineering evaluations and subsequent corrective actions is provided below.

System Description

Oyster Creek plant has two reactor-building-to-torus vacuum breaker lines, each consisting of a check valve and an air-operated butterfly valve in series which open at a differential pressure of 0.5 psid between the torus and the reactor building. The check valve is located between the reactor building and the air-operated butterfly valve. These valves operate together with the torus-to-drywell vacuum breaker valves to prevent challenges to the containment structure due to a potential vacuum condition resulting from containment spray system operation. Air is required both to open and close the butterfly valve. A solenoid valve directs air to the butterfly valve operator as required during opening and closing. Upon loss of electric power the butterfly valve automatically opens. An air accumulator is provided in conjunction with a trip valve which ensures that the valve automatically opens upon loss of station air.

Vacuum Breaker Line Check Valve Problems

On September 6, 1991, the surveillance test acceptance criterion for a manually-applied opening force on one of the two reactor-building-to-torus vacuum breaker check valves (V-26-17) was exceeded. Subsequent manual opening of the check valve did not require this excessive force. Followup tests performed by the licensee also showed that the associated vacuum breaker butterfly valve (V-26-18) showed some binding when cycled. The licensee secured the vacuum breaker line as required by technical specifications and entered a 7-day technical specification shutdown action statement. The technical specification requires that V-26-17 should open with a force equivalent to a pressure differential of 0.5 psid on the disk.

Successive tests performed by the licensee showed that opening of V-26-18 resulted in an increased pressure in the piping between the two valves (V-26-17 and 18) and that an increased force was subsequently required to open check valve V-26-17. This increased force was consistent with the increased pressure on the check valve disk. During the last refueling outage both valves were rebuilt with new seats. Local leak rate testing performed during the 13R outage indicated acceptable results. The licensee suspected a pressure buildup between the two valves due to possible leakage through V-26-18 seat and/or less leakage through V-26-17 (due to the rebuilt seat). A pressure gauge was installed between these two valves to periodically monitor the pressure and identify the cause of the pressure buildup.

A safety evaluation completed by the licensee on September 10, 1991, indicated that if the vacuum breaker was required to open, the opening of V-26-18 would release any pressure buildup between the valves to the torus. As such, any restriction to V-26-17 movement due to pressure buildup would be removed. The licensee increased the surveillance frequency for V-26-17 from quarterly to weekly to ensure consistent valve operation and provide for additional collection of trend data. On September 10, 1991, V-26-17 was declared operable, the securing mechanism (tie down rope) was removed, and the 7-day technical specification shutdown action statement was terminated.

Vacuum Breaker Line Butterfly Valve Problems

On October 13, 1991, during the performance of a surveillance involving valve stroke timing, one of the two reactor-building-to-torus vacuum breaker butterfly valves (V-26-18) did not meet the acceptance criterion of 4.5 seconds for opening time. The opening time acceptance criterion had been developed from the IST program requirements. Valve V-26-18 was declared inoperable and the associated check valve V-26-17 was secured in the closed position to maintain primary containment integrity as required by the plant technical specifications. The licensee also entered a technical specification shutdown action statement which required a plant shutdown if the condition could not be corrected within seven days.

During the 13R refueling outage, this 20 inch, Fisher Controls, 1910 series butterfly valve was overhauled with a new seat and the operator was adjusted. The first two of three monthly surveillances performed since the 13R outage showed an opening time of less than 4.5 seconds; however, during the third test on October 13, 1991, the stroke time exceeded the acceptance criterion. The licensee replaced the solenoid and blew down the air lines to remove any potential dirt or debris. No debris was found. The licensee performed additional tests to determine if all the components in the air system associated with the vacuum breaker were working as required. No problem was identified. The licensee's evaluation suggested that the valve disk was possibly travelling further into the seat over time, such that more force was needed to move the disk off the seat, resulting in an increased opening time. The licensee theorized that a combination of the new seat and cooler temperatures in the torus and reactor building due to seasonal changes was contributing to the disk fitting tighter into the seat. The licensee performed an engineering evaluation to justify an increase in the stroke time acceptance criterion from 4.5 seconds to 5.5 seconds. This evaluation also indicated that an opening time of up to 10 seconds would maintain the drywell and the torus pressure within the design negative pressure. After successful testing, the valve was declared operable on October 19, 1991, and an increased surveillance frequency was adopted. According to this accelerated surveillance frequency, the valve was to be stroked open three times at progressively increasing time intervals (48 hours, 96 hours, one week, and one month).

The 48 hour tests yielded acceptable opening times, between 2.5 and 3 seconds; however, the first 96 hour test done on October 27, 1991, showed an increased opening time although still within the new 5.5 second acceptance criterion. When the next 96 hour test result (October 31, 1991) exceeded the acceptance criterion (6.2 seconds), the licensee again declared V-26-18 inoperable and initiated a controlled plant shutdown per technical specification 3.5.A.4.C. Appropriately, the licensee did not reenter the 7-day technical specification shutdown action statement as noted above as they concluded that they had not solved the problem which had resulted in the initial determination of valve inoperability on October 13, 1991.

The licensee replaced the trip valve mechanism in the air operator system. However, no problems were found with the replaced trip valve. Valve V-26-18 and its operator were removed from the piping and inspected. Marks observed on the valve seat were indicative of disk overtravel. Testing done on the valve operator indicated that at the end of the closing stroke there was additional room for operator movement and in the opening stroke the operator piston did not start to move until a period of time after application of the air pressure. The licensee concluded that the existing air pressure underneath the operator piston had moved the disk beyond its fully closed position (as evidenced by the rubbing mark on the seat). This condition provided additional resistance to disk travel and required application of air pressure for a certain time before the valve would begin to open.

The licensee replaced the valve seat, replaced and adjusted the operator, and performed a local leak rate test and stroke time test before declaring vacuum breaker V-26-18 operable on November 4, 1991. An accelerated surveillance frequency similar to that established on October 19, 1991, was established.

On November 9, 1991, a surveillance test performed at a 96 hour interval again resulted in a stroke time greater than the 5.5 second acceptance criterion (6.3 seconds). The vacuum breaker butterfly valve was again declared inoperable and a controlled shutdown initiated. After subsequent evaluation, the licensee stated that the increased opening time was not unusual for the current valve configuration. The licensee concluded that increased binding was being caused as the valve moved further into the seat at some time after the end of its closing stroke. The licensee believed this condition was acceptable, since the increased stroke times measured were still within the established 10 second design limit. The stroke time (opening) acceptance criterion was increased to 8 seconds as an interim value. The shutdown was terminated on November 10, 1991. The augmented surveillance program was continued with successively increasing test intervals to reestablish the baseline for the valve opening stroke time. Additional requirements were added to the surveillance procedure to record the air pressure at the operator while opening and closing the valve and a dial indicator was added to ensure full travel of the operator during stroking.

The inspector reviewed the licensee's engineering analysis which established the design stroke time of 10 seconds and inspected the V-26-18 valve, photographs taken of the replaced internals, and a video recording of valve stroking before seat replacement on November 3, 1991. The inspector concluded that the licensee's November 9, 1991, decision to initiate a plant shutdown was again appropriate. The inspector concluded that the licensee's engineering evaluation to allow the extended opening time was adequate. At the end of the inspection period the licensee was reviewing the augmented surveillance test results to finalize the root cause assessment. The inspector's review was continuing.

4.2 Emergency Diesel Generator Troubleshooting

On October 7, 1991, during regular surveillance (load test) of emergency diesel generator (EDG) No. 2, the plant engineer responsible for EDGs heard a small change in the sound the EDG made when it was started. As a result of the plant engineer's sensitivity to the operating characteristics of the EDG, the licensee began troubleshooting to determine the cause of the unusual noise. The licensee's troubleshooting determined that the noise was coming from the No. 5 cylinder head and that the hydraulic lifter mechanism which controls the engine valves was not working adequately, which resulted in the noise and probably a less efficient cylinder performance. The diesel engine met its surveillance criteria for loading and was not inoperable. The licensee replaced the cylinder No. 5 hydraulic lifter and rocker arm shaft mechanism. No obvious defect was found on the removed parts. The licensee plans to send the parts to the diesel maintenance vendor for further inspection. Since these parts have not been replaced previously, the licensee was planning to replace them in the other cylinders (of both diesels) during the next outage. The diesel engines were overhauled with new power packs and fuel injectors during cycle 12 and the 13R outage.

The inspector concluded that the licensee's corrective measures were proactive in correcting a potentially developing problem. Their actions in this case reflected a good safety perspective and a desire to maintain a reliable emergency power system.

5.0 EMERGENCY PREPAREDNESS (71707)

5.1 Annual Exercise

On October 22, 1991, at 3:20 p.m., GPUN conducted their annual emergency preparedness (EP) exercise. NRC both observed and participated in the exercise. See NRC inspection report No. 50-219/91-30 for a discussion of observations of the exercise. The exercise was terminated at 11:15 p.m. on October 22, 1991.

6.0 OBSERVATION OF PHYSICAL SECURITY (71707)

During routine tours, inspectors verified that access controls were in accordance with the Security Plan, security posts were properly manned, protected area gates were locked or guarded and that isolation zones were free of obstructions. Inspectors examined vital area access points and verified that they were properly locked or guarded and that access control was in accordance with the Security Plan.

7.0 SAFETY ASSESSMENT/QUALITY ASSURANCE (71707,40500)

7.1 Observation Teams

The inspectors reviewed the licensee's implementation of management observation teams in response to the Diagnostic Evaluation Team (DET) findings. The DET review conducted in November and December 1990 noted a potential general weakness in supervisory oversight after observing several instances of poor work practices and worker radiological control practices. The DET found a number of inconsistencies in observed work practices resulting from inattention to detail and an apparent lack of questioning attitude on the part of workers and their first-line supervisors. In addition to other actions, the licensee is addressing this issue through the implementation of management observation teams. The first field observations under this program began at the end of September 1991.

The intent of the observation teams is to provide for direct management observation of randomly selected plant activities so that both the work being performed and the interaction between the workers and first-line supervision can be evaluated. In some cases, an extended observation of one activity is performed. In other cases, the observation team tours the facility and observes smaller portions of several activities. In addition to the discovery of problems at the worker/first-line supervisor level through observation, the observation team concept is also intended to help promote a desired change in the quality of work practices through the increased presence of management in the field. GPUN also feels that this change will be promoted by observer coaching. Rather than simply noting observed deficiencies, the observation team charter also includes constructive coaching of the worker and/or the first-line supervisor, as necessary, to remedy a noted deficiency on the spot. The effectiveness of the observation team effort relies on the ability of the observers to provide this constructive criticism in the proper manner so as to gain the acceptance and confidence of those being observed.

Twelve senior level managers at Oyster Creek have been assigned to the observation tour management team. All of these managers have taken formal training in how to effectively observe work and provide constructive feedback. One of these individuals has been designated as the observation team coordinator. This individual assigns team members, develops observation schedules, and files observation team reports. At least two members are assigned to each observation team and at least one of these individuals is to have a radiological controls background.

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