

January 21, 2000

Mr. Sander Levin  
Acting Site Director  
GPU Nuclear Incorporated  
Oyster Creek Nuclear Generating Station  
P.O. Box 388  
Forked River, New Jersey 08731

SUBJECT: NRC INTEGRATED INSPECTION REPORT NO. 05000219/1999009

Dear Mr. Levin:

On January 2, 2000, the NRC completed an integrated inspection at your Oyster Creek reactor facility. The enclosed report presents the results of that inspection.

During the eight-week period covered by this inspection report, your conduct of activities at the Oyster Creek facility was characterized by safe operations, sound engineering and maintenance practices, and careful radiological work controls.

Selected aspects of the radiological controls program were also reviewed, including contamination control practices, calibration of area radiation monitors and 1999 quality assurance audits and surveillances of the radiation protection program. Overall, these areas were deemed satisfactory.

Based on the results of this inspection, the NRC has determined that one Severity Level IV violation of NRC requirements occurred. This violation is being treated as a Non-Cited Violation (NCV), consistent with Section VII.B.1.a of the Enforcement Policy. This NCV regarding inadequate corrective actions associated with control rod drive pump cooling system post maintenance configuration control is described in this inspection report. If you contest the violation or severity level of this NCV, you should provide a response within 30 days of the date of this inspection report, with the basis for your denial, to the Nuclear Regulatory Commission, ATTN: Document Control Desk, Washington DC 20555-0001; with copies to the Regional Administrator, Region 1; the Director, Office of Enforcement, United States Nuclear Regulatory Commission, Washington, DC 20555-0001; and the NRC Resident Inspector at the Oyster Creek facility.

Mr. Sander Levin

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In accordance with 10 CFR 2.790 of the NRC's "Rules of Practice," a copy of this letter and its enclosures will be placed in the NRC Public Document Room (PDR).

We appreciate your cooperation.

Sincerely,

**ORIGINAL SIGNED BY:**

Peter W. Eselgroth, Chief  
Projects Branch No. 7  
Division of Reactor Projects

Docket No.: 05000219  
07201004  
License No.: DPR-16

Enclosure: NRC Inspection Report No. 05000219/1999009

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REGION I

Report No. 05000219/1999009

Docket No. 05000219  
72-1004

License No. DPR-16

Licensee: GPU Nuclear Incorporated  
1 Upper Pond Road  
Parsippany, New Jersey 07054

Facility Name: Oyster Creek Nuclear Generating Station

Location: Forked River, New Jersey

Inspection Period: November 8, 1999 - January 2, 2000

Inspectors: Laura A. Dudes, Senior Resident Inspector  
Thomas R. Hipschman, Resident Inspector  
Joseph T. Furia, Senior Radiation Specialist, December 6-10, 1999  
Jason C. Jang, Senior Radiation Specialist, November 15-19, 1999

Approved By: Peter W. Eselgroth, Chief  
Projects Branch No. 7  
Division of Reactor Projects

## EXECUTIVE SUMMARY

### Oyster Creek Nuclear Generating Station Report No. 05000219/1999009

This integrated inspection included aspects of licensee operations, engineering, maintenance, and plant support. The report covers an eight-week period of inspection.

#### Plant Operations

- Operator performance during this inspection period was adequate. Overall operator response during the year 2000 (Y2K) transition was appropriate and focus on plant activities was at a high level. (Section O1.1)
- Operations management demonstrated safety-focus to determine appropriate actions in the event the Q121 offsite power line is lost. (Section E2.1)

#### Maintenance

- Maintenance personnel obtained approval for work and conducted activities in accordance with approved job orders and applicable technical manuals and instructions. Personnel were knowledgeable of the activities and observed appropriate safety precautions and radiological practices. The licensee was appropriately monitoring performance for equipment within the scope of the maintenance rule. (Section M1.1)
- Overall, personnel used the appropriate procedure, obtained prior approval, and completed applicable surveillance testing prerequisites. Personnel used properly calibrated test instrumentation, observed good radiological practices, and properly documented test results to ensure that equipment met TS requirements. However the inspector did note one instance where two surveillances which had the potential to impact safety related control room torus level indicators, were inappropriately authorized to be performed simultaneously. (Section M1.2)
- Ineffective corrective actions and a less than thorough work package led to a condition which could have degraded a pump that is important to safety. Specifically, after a maintenance activity to replace a valve in the control rod drive pump oil cooling system, operators identified that the valve was left in the wrong position and the pump was put in service for fifteen hours with no oil cooling available. A similar issue associated with post maintenance configuration control was identified in November 1998 and the licensee did not take adequate corrective actions as evidenced by the second occurrence in 1999. The inadequate corrective actions associated with this activity were determined to be a Severity Level IV violation of 10 CFR, Appendix B, Criterion 16, "Corrective Action." This severity level IV violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1.a of the NRC Enforcement Policy. This matter is in the licensee's corrective action program as CAP No. 1999-1557. **(NCV 50-219/99009-01)** (Section M.2.1)

#### Engineering

## Executive Summary

- Following the identification that the core spray room recirculation cooling fans were not working properly, engineering performed a thorough evaluation of the operability requirements and initiated appropriate corrective actions to assure the fans would be maintained within the preventive maintenance program. (Section E1.1)
- Engineering performed a thorough evaluation and determined that one of the technical specification credited offsite power sources (Z52 line) should not be considered an active source of offsite power. (Section E1.2)
- The licensee's 10 CFR 50.59 safety evaluation for the sale of the Forked River land appropriately addressed any potential changes to the technical specifications and the final safety analysis report. (Section E8.1)

## Plant Support

- Poor radiation work practices, specifically less than thorough planning and communications, led to increased radiation exposures during an emergent work activity. During a leak repair, the radiological conditions at the work location were significantly different than those specified on the radiation work permit survey used to plan the job. As a result of this mis-communication unnecessary radiation surveys were performed in the condenser bay leading to an additional radiation dose of approximately 100 millirem to radiation technicians. No individual personnel exposure limits were exceeded. (Section R1.1)
- While contaminated area controls in the turbine building, reactor building, and yard area were generally acceptable, controls in the old radwaste building were generally lacking. In addition, there appeared to be a lack of upkeep in the old radwaste building. (Section R1.2)
- As of December 10, 1999, the licensee was within its annual exposure goal and, based on remaining work in 1999, was expected to meet its goal. (Section R1.2)
- Calibration records for area monitors were appropriately maintained and retrievable, and demonstrated acceptable calibration practices. Three monitors, listed in the Updated Final Safety Analysis Report (UFSAR), were no longer in service, and an action to modify the UFSAR is being prepared. (Section R1.2)
- Although the scope of Quality Assurance Services reviews of the health physics program evaluated all major functional areas, a lack of review depth was apparent. (Section R7.1)

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## Report Details

### Summary of Plant Status

The plant began this inspection period at full power and remained there until December 31, 1999, when power was reduced to 70 percent to accommodate potential grid challenges due to the year 2000 (Y2K) rollover. The unit was restored to full power on January 1, 2000; however, an erratic temperature indicator on the "A" feedwater pump motor bearing caused operators to reduce power a second time to 80 percent to troubleshoot the problem. The indicator troubles were not related to any Y2K rollover problems. The indicator was repaired and full power was achieved on January 2, 2000.

## **I. OPERATIONS**

### **O1 Conduct of Operations**

#### O1.1 General Observations (71707)

##### a. Inspection Scope (71707)

The inspectors observed operation's shift turnover meetings, control room activities, equipment operator tours and operators response during the year 2000 (Y2K) rollover. Also, the inspectors conducted routine plant tours to assess equipment conditions, indications of operator work-arounds, procedural adherence, and compliance with regulatory requirements.

##### b. Observations and Findings

Overall, the operators used three part communications, conducted detailed status briefings during shift turnovers and demonstrated good command and control in the control room during normal operations.

Operators conducted control room activities in a professional manner with staffing levels above those required by technical specifications (TS). The inspectors verified operator knowledge of ongoing plant activities, the reason for any lit annunciators, and the adequacy of existing fire watches. The inspectors also routinely performed independent verification of safety system status, from the control room indications and in the plant observation of equipment operation/position, for the plant operational mode.

The inspector observed the Y2K rollover transition briefing and observed a high level of management attention and focus on human performance. In the control room during the transition the inspector noted good command and control by the group operating supervisor. After the rollover period the operators remained focused on the reactivity management of the plant during post transition testing.



c. Conclusions

Operator performance during this inspection period was adequate. Overall operator response during the Y2K transition was appropriate and focus on plant activities was at a high level.

## II. MAINTENANCE

### M1 Conduct of Maintenance

#### M1.1 Maintenance Activities

a. Inspection Scope (62707)

The inspectors observed selected maintenance activities on risk significant safety-related and non safety-related equipment to ascertain that the licensee conducted these activities in accordance with approved procedures, TS, and appropriate industrial codes and standards. Activities were selected based on systems, structures, or components being contained within the scope of the maintenance rule.

b. Observations and Findings

The inspectors observed all or portions of the following job orders (JO):

- JO 535206 Temperature Indicator From Stand-By Gas Treatment System (SBGTS)
- JO 536560 Collect Y2K Data from Emergency Diesel Generator No. 1.
- JO 537093 Main Feedwater Regulating Valve
- JO 537163 480V Motor Control Center (MCC) Breaker for Reactor Building Supply Fan
- JO 531995 Control Rod Drive (CRD) Pump Planned Outage for Seal/Oil Cooler Valve Replacements
- JO 537712 CRD Pump Gear Box Inspection and Oil Change

c. Conclusions

Maintenance personnel obtained approval for work and conducted activities in accordance with approved job orders and applicable technical manuals and instructions. Personnel were knowledgeable of the activities and observed appropriate safety precautions and radiological practices. The licensee was appropriately monitoring performance for equipment within the scope of the maintenance rule.

## M1.2 Surveillance Activities

### a. Inspection Scope (62707)

The inspectors performed technical procedure reviews, witnessed in-progress surveillance testing, and reviewed completed surveillance packages. They verified that the surveillance tests were performed in accordance with TS, approved procedures, and NRC regulations. Activities were selected based on the systems, structures, or components being contained within the scope of the maintenance rule.

### b. Observations and Findings

The inspectors reviewed all or portions of the following surveillance tests:

- 619.3.001 Turbine Load Rejection above 45 percent power
- 617.4.001 "A" CRD Pump Operability test
- 607.4.055, Rev 37, Containment Spray and Emergency Service Water Pump System 2 Operability and Inservice Test.

Overall, surveillances were conducted with an appropriate focus on safety; however, while observing the performance of the, "Containment Spray and Emergency Service Water Pump System 2 Operability and Inservice Test" (607.4.055, Rev 37,), the inspector noted that operations allowed two surveillances that when performed together, had the potential to impact safety related torus level indicators.

Specifically, procedure 607.4.055, includes a precautionary statement which indicates that operators may need to rely on the torus wide range level instrumentation while performing this test due to the fact that the narrow range indication may not be acceptable during portions of the test. While performing this test, a second surveillance was authorized by the control room supervisor. This second surveillance calibrated the torus wide range instrumentation and would render both indicators inoperable for a brief period of time. Although, the pump test was completed prior to the time when the torus wide range instrumentation was inoperable, the inspector concluded that the authorization of both tests simultaneously was not in accordance with management expectations and did not demonstrate conservative decision making.

Further inspection revealed that these tests were not originally scheduled to be performed on the same day; however, due to changes earlier in the work week, the tests were moved to the same day without an additional operations review.

c. Conclusions

Overall, personnel used the appropriate procedure, obtained prior approval, and completed applicable surveillance testing prerequisites. Personnel used properly calibrated test instrumentation, observed good radiological practices, and properly documented test results to ensure that equipment met TS requirements. However the inspector did note one instance where two surveillances which had the potential to impact safety related control room torus level indicators, were inappropriately authorized to be performed simultaneously.

**M2 Maintenance and Material Condition of Facilities and Equipment**

M2.1 Control Rod Drive Pump Post Maintenance Configuration Restoration

a. Inspection Scope (71707, 62707)

The inspector reviewed the work package and observed portions of the maintenance activities associated with the "A" control rod drive pump.

b. Observations and Findings

On December 2, the licensee removed the "A" control rod drive (CRD) pump from service to perform minor maintenance and to replace three valves associated with the pump oil cooling system.

On December 5, after the pump had been returned to service for 15 hours, an equipment operator noted that the valve which isolates cooling water to the CRD pump oil cooler was in the closed position. The licensee immediately removed the pump from service and performed diagnostic testing of the pump to determine if the isolated oil cooling caused any degradation to the pump. Further investigation revealed that this valve had been replaced during the pump maintenance; however, its appropriate inservice position had not been established by maintenance prior to turning over the pump to operations. In addition, operations did not perform a system valve line-up to verify that the pump and its supporting systems were in the appropriate configuration.

The inspector observed portions of the diagnostic testing including the oil change, portions of the gear box inspection and the final operability run of the pump. The oil analysis and gear box inspection indicated no damage to the pump as a result of the isolated oil cooling water.

In reviewing this event, the inspector noted that on November 11, 1998, a similar event occurred during maintenance on the same pump. The licensee initiated a corrective action program document (CAP 1998-1178) to review the root cause and develop corrective actions. The 1998 corrective actions did not fully address the configuration control issues associated with restoring equipment from a maintenance activity. Specifically, the actions did not preclude the recurrence of a configuration control issue within the boundaries of a similar CRD pump maintenance work activity. Although, maintenance workers were counseled on the sensitivity of valve manipulation during work activities the work process was not enhanced to include additional information

involving as left positions for valves that are replaced during maintenance activities.

The inspector reviewed the work package associated with the December 2 maintenance activity and noted that there were no instructions as to what position maintenance personnel should leave the valves that they had replaced. In addition, there were no additional instructions for operations personnel to verify that the new valves were in the proper position after the maintenance activity. Configuration control after the maintenance activity was limited to the restoration of those valves which had been used to provide personnel and system protection during the maintenance activity. Any valves that were replaced during the activity that were within the protective tagout boundary were left in an unknown position with no further configuration control. The inspector concluded that the work package did not provide adequate information to control the position of the new valves, nor did the work management process provide direction to the operators for restoring the system to an appropriate system configuration.

The inspector concluded that the licensee's corrective actions associated with the 1998 configuration control issue were ineffective and did not address the issue of maintaining system configuration after maintenance activities. The inadequate corrective actions associated with this activity were determined to be a Severity Level IV violation of 10 CFR, Appendix B, Criterion 16, "Corrective Action." This severity level IV violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1.a of the NRC Enforcement Policy. This matter is in the licensee's corrective action program as CAP No. 1999-1557. **(NCV 50-219/99009-01)**

c. Conclusions

Ineffective corrective actions and a less than thorough work package led to a condition which could have degraded a pump that is important to safety. Specifically, after a maintenance activity to replace a valve in the control rod drive pump oil cooling system, the valve was left in the wrong position and the pump was put in service for fifteen hours with no oil cooling available. A similar issue associated with post maintenance configuration control was identified in November 1998 and the licensee did not take adequate corrective actions as evidenced by the second occurrence in 1999. The inadequate corrective actions associated with this activity were determined to be a Severity Level IV violation of 10 CFR, Appendix B, Criterion 16, "Corrective Action." This severity level IV violation is being treated as a Non-Cited Violation, consistent with Section VII.B.1.a of the NRC Enforcement Policy. This matter is in the licensee's corrective action program as CAP No. 1999-1557. **(NCV 50-219/99009-01)**

### III. ENGINEERING

#### E1 Conduct of Engineering

##### E1.1 Core Spray Cooling Fans

###### a. Inspection Scope (37551, 71707)

The inspector reviewed the licensee's response to an unknown condition regarding the adequacy and availability of a core spray room recirculation cooling fan.

###### b. Observations and Findings

On November 9, 1999, the quality assurance organization initiated a corrective action program document (CAP1999-1464) to capture an unknown condition of the core spray room recirculation cooling fans. These fans were originally intended to keep the core spray system, control rod drive pumps and associated equipment cool as described in the Updated Final Safety Analysis Report (UFSAR) section 9.4.2.2.3. However, the quality assurance inspector observed that although the motor was running, there did not appear to be any air flow into the room. Discussions with maintenance and operations personnel indicated that this fan was not needed and had been abandoned in place because the coolers were plugged with dirt and debris from the room.

The system engineers assessed the validity and safety impact of this issue. No immediate safety concerns were identified as routine monitoring indicated that the temperatures within that room were well within the design limits for the pumps. In addition, the fans are not seismically qualified and therefore are not credited under accident conditions. Section 6.3.2.5.6 of the UFSAR indicated that the loss of corner room cooling has been evaluated and the pumps can be operated for more than 48 days without mechanical cooling from the coolers.

However, system engineering did note that there were certain accident conditions which could necessitate personnel having to enter the room to perform emergency maintenance. Because of the room habitability associated with some emergency operating procedural steps, engineering concluded that the fans should be available and initiated action items to develop more extensive preventive maintenance programs for the fans and their support equipment.

###### c. Conclusions

Engineering performed a thorough evaluation of the core spray motor pump cooling fan operability requirements and initiated appropriate corrective actions to assure the fans would be maintained within the preventive maintenance program.

## E1.2 Closed URI 50-219/99007-01: Offsite Power Source Availability

### a. Inspection Scope (71707, 37551)

The inspector reviewed engineering's operability evaluation of the Z52 line offsite power source. The inspector performed this review due to an unresolved issue identified in NRC Integrated Inspection Report No. 50-219/99-07 (**URI 50-219/99-07-01**) when engineering identified a potential operability concern involving one of two redundant TS-required 34.5KV offsite power sources.

### b. Observations and Findings

Technical Specification (TS) 3.7.A.3 requires one 230KV line and one 34.5KV line to be fully operational. There are two 34.5KV offsite power sources connected to Oyster Creek Nuclear Generating Station (OCNGS). The Manitou line (Z52) provides an interconnection with the 34.5KV General Public Utilities - Electric (GPUE) transmission system at the Manitou substation and delivers power to OCNGS. The second offsite source is the Whiting line (Q121) which also provides an interconnection with the 34.5KV GPUE transmission system at the Whiting substation and delivers power to OCNGS.

In October 1999, engineering noted that the Z52 line is normally configured with an open load break switch at the Pinewald substation. Under normal conditions, the 34.5KV Z52 line can not provide power to OCNGS without GPUE actions to close the Pinewald load break switch. The Q121 line does not have a normally open load break switch. When in service, the Q121 line satisfies the TS requirement. Another line, the Sands Point tie (69 kV), is also available for system restoration; however, the Sands Point tie is not included in TS.

Engineering performed a thorough evaluation and determined that the Z52 line should not be considered an active source of offsite power. Engineering questioned the operability of the Z52 line and reportability (operation outside the design basis), especially during periods when GPUE removed the Q121 line for maintenance. As a result of this concern, a preliminary engineering evaluation determined that the Z52 line should not be considered an active transmission source even if the disconnect were closed. They determined that if the Q121 line is lost, Z52 would not be capable of providing sufficient voltage to the plant's safety related busses because they are too heavily loaded. As a result of this review, engineering also determined that the startup transformer voltage regulators must be in the automatic mode of operation in order to provide sufficient voltage to the plant's safety related busses.

The engineering analysis of offsite power sources determined changes were made in the offsite transmission system since the initial licensing of the facility. The initial system design was for the Z52 line to be continuous to the Oyster Creek substation, but a load break switch in another substation was opened around 1989. The Z52 line is no longer used to transmit power to the Oyster Creek substation, and is not referenced in any GPUE restoration procedures. GPUE procedures reference the Q121 line and the Sands Point tie for system restoration, however, the Sands Point tie is not included in TS. The Z52 line could be used for emergency restoration, but GPUE procedures would prefer the Q121 and Sands Point lines. Because of the current transmission system

configuration, loss or maintenance on the Q121 line makes the OCNGS vulnerable to be outside of TS requirements. The inspector reviewed operations logs for the previous 18 months and did not identify any occurrences that would have placed the plant in a TS LCO condition other than that already identified by licensee staff. The licensee is continuing to review the reportability to determine if a situation existed when the facility did not meet the offsite power sources TS requirement. The inspector determined that the licensee is adequately addressing the availability of offsite power sources and that this previously unresolved item is closed. The licensee plans to make changes to the FSAR and submit a TS amendment to accurately reflect offsite power sources.

Operations management demonstrated safety-focus to determine appropriate actions in the event the Q121 offsite power line is lost. On October 22, 1999, the Operations Director appropriately provided guidance to operations personnel to enter a 30 hour shutdown LCO in the event the Q121 was lost. Subsequently, the Operations Director made a change to procedure 106, *Conduct of Operations*, attachment 106-4, to provide further guidance concerning startup transformer daily checks and operability. The inspector reviewed the procedure changes and determined that they were adequate. The inspector interviewed several operations personnel, concerning the availability of the Z52 line and the requirement that the startup transformer voltage regulators be in automatic, to evaluate their knowledge of offsite power sources. Generally, operations personnel were familiar with the changes, however, a few licensed personnel were not aware of the requirement to declare a startup transformer inoperable whenever its associated voltage regulator is not in the automatic mode of operation.

c. Conclusions

Following the identification that the core spray room recirculation cooling fans were not working properly, engineering performed a thorough evaluation of the operability requirements and initiated appropriate corrective actions to assure the fans would be maintained within the preventive maintenance program.

**E8 Miscellaneous Engineering Issues**

E8.1 10 CFR 50.59 Evaluation for the Sale of Part of the Oyster Creek Site Boundary

a. Inspection Scope (37551)

In August 1999, the licensee documented a safety evaluation, performed in accordance with 10 CFR 50.59, to support that the proposed sale of the Forked River Site, which would effectively reduce the current site boundary, and included combustion turbines currently relied on as an alternate AC power source for station blackout recovery, did not constitute an unresolved safety question. This inspection activity included in-office review by the NRC staff to determine the adequacy of the licensee's evaluation with respect to addressing: 1) control and availability of the combustion turbines if transferred

to a non-licensee owner; 2) the continued maintenance of the limits established by 40 CFR Part 190; and 3) assessment of the licensee's evaluation affecting maintenance of 10 CFR Part 100 design basis accident radiation dose limits with respect to the exclusion area boundary (EAB).

b. Observations and Findings

The staff determined that the sale of the combustion turbines did not constitute a change to the current licensing basis of Oyster Creek, provided that the licensee maintained commitments as specified in Schedule 6.13, "Additional Forked River Covenants," of the licensee's 10 CFR 50.59.

The staff determined that the licensee's qualitative analysis for the impact of a reduced site boundary on the dose to the members of the public from routine radioactive gaseous and liquid effluents provided reasonable assurance that public exposure would be maintained in accordance with the requirements of 40 CFR 190. The staff determined that the analysis was adequate and the licensee's continued maintenance of the radiological effluent control program in accordance with regulatory requirements provide adequate assurance that the change in site boundary would not affect environmental dose assessment specifications or result in exposure in excess of the environmental standard specified in 40 CFR 190.

To confirm this aspect, the inspector reviewed data collected from the licensee's direct radiation measurement program, i.e. the environmental thermoluminescent dosimeter (TLD) program for 1997 and 1998. The review included TLD monitoring results for 10 TLDs located on the Forked River Site property, in closest proximity to the Oyster Creek facility, i.e. adjacent to the switch yard at the Forked River site. The highest site boundary TLD readings (Station No. 55) were 66.4 mrem and 66.0 mrem, respectively. The control TLD readings (background) for 1997 and 1998 were 50.2 mrem and 45.6 mrem, respectively. Accordingly, the net dose rates at Station No. 55 during 1997 and 1998 were 16.2 mrem/year and 20.4 mrem/year, respectively. These dose rates were less than the 40 CFR Part 190 environmental standard of 25 mrem/year, whole body.

The NRC also determined that the design basis dose assessment calculations would not be affected as long as the EAB remained unchanged. Although the site boundary would be affected if the property is transferred, the inspectors confirmed that the licensee would continue to maintain effective control of the exclusion area boundary as defined in the current design basis for the Oyster Creek facility.

c. Conclusions

The licensee's 10 CFR 50.59 safety evaluation for the proposed sale of the Forked River Site property was sufficient to demonstrate that the transfer of the property would not result in an unresolved safety question.



#### IV. PLANT SUPPORT

### R1 Radiological Protection and Chemistry (RP&C) Controls

#### R1.1 Radiation Protection Performance During an Emergent Condenser Bay Leak Repair

##### a. Inspection Scope (71750, 71707)

The inspector reviewed the licensee's performance with respect to radiation protection during an emergent repair to a leaking sea water condenser bay pipe. In addition, the inspector reviewed the adequacy of the communications and how information was translated into the final planning and preparation of the work package.

##### b. Observations and Findings

On November 5, 1999, the licensee noted high conductivity in the 1-3 sump due to a leak on the 72 inch sea water piping down stream of the "C" condenser bay backwash outlet valve. The licensee made preparations to perform a leak repair on the piping. The initial pre-job walkdown was performed by representatives from operations and maintenance. The workers entered the condenser bay area, a high radiation area, and proceeded to the location of the condenser bay backwash outlet valve. They noted that the leak was further downstream of the valve than originally thought which would change the location of the repair work. This information was not clearly communicated to radiation personnel and therefore no one questioned the radiation survey used to identify and minimize radiation exposure during the work activity.

A radiation technician did accompany the maintenance mechanics into the area when the work package was ready to work. At that time, the work group proceeded to the location of the leak rather than the location where the leak was originally thought to have been. The electronic dosimeters worn by the mechanics began to alarm indicating that they were in an area where the dose rates exceed the expected level. The maintenance workers and the radiation technician immediately left the area. Two radiation technician then re-entered the area and performed a thorough survey of the condenser bay. This survey which examined locations directly in contact with the condenser bay yielded contact dose rates on the order of 400 to 800 mR/hr. Initially, the licensee responded as if the dose rate in the area had increased significantly without a reason. Several engineers were called in to try to identify possible sources of radiation with systems that interact with the condenser bay. Upon further investigation, the licensee concluded that the original radiation work permit (RWP) had been assigned to the exact location of the valve instead of approximately ten feet away where the leak had occurred. At that location the dose rate were, and had always been, significantly higher than the dose rates recorded at the valve location.

The inspector noted that the second survey performed by the radiation technicians in response to the alarming dosimeters was unnecessary and exposed the two technicians to an additional 100 millirem radiation dose. Less than thorough planning and communications contributed to this additional radiation dose. The licensee initiated a corrective action program (CAP 1999-1456) report on this matter.

c. Conclusions

Poor radiation work practices, specifically less than thorough planning and communications, led to increased radiation exposures during an emergent work activity. During a leak repair, the radiological conditions at the work location were significantly different than those specified on the radiation work permit survey used to plan the job. As a result of this mis-communication unnecessary radiation surveys were performed in the condenser bay leading to an additional radiation dose of approximately 100 millirem to radiation technicians. No individual personnel exposure limits were exceeded.

R1.2 Performance Review of Radiation Protection Practices and Procedures

During radiologically controlled area (RCA) tours the inspectors observed that technicians: posted proper warning signs, conducted adequate radiological monitoring of personnel and materials leaving the RCA, maintained monitoring instrumentation functional and in calibration, and maintained radiation work permits (RWPs) and survey status boards up-to-date and accurate. Technicians observed activities in the RCA and verified that personnel complied with the requirements of applicable RWPs, and that workers remained aware of the radiological conditions in the area.

a. Inspection Scope (83726)

Areas of inspection focus were based on the following regulatory requirements from 10 CFR Part 20:

20.1101	Radiation protection program
20.1601	Control of access to high radiation areas
20.1602	Control of access to very high radiation areas
20.1902	Posting requirements
20.1904	Labeling containers
20.2103	Records of surveys

The inspection was conducted via direct observation of in-process work in the radiologically controlled areas (RCA), review of pertinent documents including surveys, radiation work permits (RWPs) and as low as is reasonably achievable (ALARA) reviews, and discussions with cognizant personnel.

Specific inspection focus was placed on the program for controlling the generation and spread of contaminated materials. Review of procedures and practices related to the identification, posting and control of contaminated areas within the plant, and the surveillance of materials exiting the RCA, was conducted.

b. Observations and Findings

Radiological housekeeping and contamination control practices were generally acceptable in the reactor and turbine buildings and RCA yard area. However, conditions within the old radwaste building were generally below that exhibited in other portions of the station. Numerous examples of poor contamination control practices, abandoned contamination control boundaries and piles of uncontrolled and abandoned loose materials were observed throughout the facility. Areas such as the centrifuge and hopper rooms, which were cleaned as part of a campaign in the early 1990's have been permitted to deteriorate, and now again require control as contaminated or highly contaminated areas. Also, extensive portions of the facility contain abandoned in place radwaste processing equipment, but a number of piping runs are still in service, such as the fuel pool clean-up system components. The inspector tours also identified some areas (e.g., the small and large pump rooms, large tank room and stairway to the mezzanine and centrifuge rooms) that exhibited difficult walking conditions due to a lack of sufficient lighting. The conditions appeared, based on discussions, to have existed for an extended period and appeared attributable to a lack of basic maintenance activities within the old radwaste building.

For 1999, the licensee had established an exposure goal of not more than 45 person-rem. Through December 8, 1999, total site exposure was approximately 41.1 person-rem, and it appeared, based on remaining work, that the licensee would meet its annual exposure goal. While the goal included no planned outages at the facility, it was established with the planned use of quarterly power reductions to allow for scheduled maintenance and observations in the condenser area, and included a budget for clean-up work in the spent fuel pool, involving the volume reduction and packaging of irradiated hardware. The most dose significant emergent work which has occurred was work in condenser water box A to locate and plug leaking condenser tubes, resulting in 4.755 person-rem of dose, which was not planned in the budget.

For 2000, the licensee has begun planning for the 18R outage, which is scheduled to commence in the fall. Due to a number of deferred work items from the 17R outage, especially in-service inspections, the scope of the 18R outage is significantly larger. Although final dose goals for this outage have not yet been established, preliminary estimates by the radiological engineering staff are for an estimated dose of 375 person-rem.

From a listing of monitors found in Section 12.3 of the Updated Final Safety Analysis Report (UFSAR) 13 monitors were randomly selected for review. Three of the selected monitors, listed in the UFSAR and located in the new radwaste building, are no longer in service. An action to modify the UFSAR is being prepared. All of the remaining monitors selected had records of their calibration available for review. No discrepancies were identified in reviewing the calibration documentation.

c. Conclusions

While contaminated area controls in the turbine building, reactor building, and yard area were generally acceptable, controls in the old radwaste building were generally lacking. In addition, there appeared to be a lack of upkeep in the old radwaste building.

As of December 10, 1999, the licensee was within its annual exposure goal and, based on remaining work in 1999, was expected to meet its goal.

Calibration records for area monitors were appropriately maintained and retrievable, and demonstrated acceptable calibration practices. Three monitors, listed in the UFSAR, were no longer in service, and an action to modify the UFSAR is being prepared.

**R7 Quality Assurance in RP&C Activities**

R7.1 Review of Oyster Creek Quality Assurance in Radiation Protection

a. Inspection Scope (83726)

Audits and surveillances performed by Quality Assurance Services (QAS) during 1999 were reviewed. An evaluation of the scope and depth of these reviews, together with the tracking to resolution of identified deficiencies was conducted.

b. Observations and Findings

Monthly plant support surveillances were performed in 1999, and included some topics in health physics. A review of the surveillances performed demonstrated that while the scope was sufficiently broad to include most of the major functional areas of the health physics program, they lacked depth of review and tended to be compliance-based reviews only. No corrective action process (CAP) forms were generated as a result of these surveillances. No QAS audits of the health physics program were performed in 1999.

Additionally, QAS has a radiological assessor who performs monthly assessments of the radiation protection programs at all GPUN facilities on a monthly basis. Due to personnel changes, however, only five monthly assessments were performed in 1999. Again, the focus of these assessments was primarily compliance-based, and they were lacking in depth of review. The only additional periodic reviews of the health physics program were contained in departmental self-assessments.

c. Conclusions

Although the scope of QAS reviews of the health physics program evaluated all major functional areas, a lack of review depth was apparent.

**S1 Conduct of Security and Safeguards Activities****S1.1 General Observations (71750)**

During routine tours, the inspectors noted that security controlled vital and protected area access in accordance with the security plan, properly manned security posts, locked or guarded protected area gates, and maintained isolation zones free of obstructions.

**V. MANAGEMENT MEETINGS****X1 Exit Meeting Summary**

The inspectors provided a verbal summary of preliminary findings to senior licensee management at an exit meeting on January 6, 2000. During the inspection period, inspectors periodically discussed preliminary findings with licensee management. Inspectors did not provide any written inspection material to the licensee. The licensee did not indicate that any of the information presented at the exit meeting was proprietary.

**INSPECTION PROCEDURES USED**

<u>Procedure No.</u>	<u>Title</u>
37551	Onsite Engineering
61726	Surveillance Observation
62707	Maintenance Observation
71707	Plant Operations
71750	Plant Support
83726	Control of Radioactive Materials and Contamination, Surveys, and Monitoring

**ITEMS OPENED AND CLOSED****Opened\Closed**

<u>Number</u>	<u>Type</u>	<u>Description</u>
50-219/99-09-01	NCV	Control rod drive pump post maintenance configuration inadequate corrective actions. (Section M2.1)

**Closed**

<u>Number</u>	<u>Type</u>	<u>Description</u>
50-219/99-07-01	URI	Operability and reportability aspects concerning 34.5KV offsite power availability. (Section E1.2)

**LIST OF ACRONYMS USED**

AC	Alternating Current
ALARA	As Low As Is Reasonably Achievable
CAP	Corrective Action Process
CFM	Containment Failure
CRD	Control Rod Drive
CFR	Code of Federal Regulations
DRP	Division of Reactor Projects
EAB	Exclusion Area Boundary
FSAR	Final Safety Analysis Report
DRS	Division of Reactor Safety
GPUE	General Public Utilities (GPU) - Electric
GPUN	General Public Utilities (GPU) - Nuclear
IST	In-Service Test
JO	Job Order
LCO	Limiting Condition for Operation
NCV	Non-Cited Violation
NRC	Nuclear Regulatory Commission
NRR	Office of Nuclear Reactor Regulation
OCNGS	Oyster Creek Nuclear Generating Station
PDR	Public Document Room
QAS	Quality Assurance Services
RCA	Radiologically Controlled Area
REMP	Radiological Environmental Monitoring Program
RWP	Radiation Work Permit
RP&C	Radiological Protection and Chemistry
SBGTS	Stand-By Gas Treatment System
TIA	Task Interface Agreement
TLD	Thermoluminescent Dosimeter
TS	Technical Specifications
UFSAR	Updated Final Safety Analysis Report
Y2K	Year 2000