

U.S. NUCLEAR REGULATORY COMMISSION

Region I

Report No. 84-28

Docket No. 50-219

License No. DPR-16

Priority --

Category C

License: GPU Nuclear Corporation  
100 Interpace Parkway  
Parsippany, New Jersey 07054

Facility Name: Oyster Creek Nuclear Generating Station

Inspection At: Forked River, New Jersey

Inspection Conducted: September 5 - October 15, 1984

Inspectors: *C. J. Cowgil III*  
C. J. Cowgil, Senior Resident Inspector

2/8/85  
date

*E. L. Conner*  
for J. Wechselberger, Resident Inspector

2/11/85  
date

*E. L. Conner*  
for W. H. Baunack, Project Engineer

2/11/85  
date

Approved: *E. L. Conner*  
E. L. Conner, Chief, Reactor  
Projects Section 1A

2/11/85  
date

Inspection Summary: During this report period, inspections were conducted by the resident and region-based inspectors of licensee action on previous inspection findings, plant operations, radiation protection, physical security, valve lineup checks, electrical breaker fire, inspector attendance at licensee meeting, maintenance, cancellation of SGTS filter tie-in, surveillance testing, review of periodic reports and allegation follow-up.

Results: The facility remained shutdown for the current maintenance and refueling outage. Valve lineup verifications were performed in preparation for reactor startup. One violation was identified relative to failing to restore a system to normal following maintenance. Also, the licensee's system for Regulatory Correspondence Management through an Action Item Tracking System was found to be poorly implemented. The licensee will provide written comments concerning this matter.

This inspection involved 222 hours of inspection time.

8502220129 850215  
PDR ADOCK 05000219  
G PDR

## DETAILS

### 1. Review of Previous Inspection Findings

(Closed) Violation 79-18-24: Failure to resolve identified Nonconformance/ Corrective Action Reports in a timely manner. The licensee reevaluated the system (Audit S-OC-80-02) to determine appropriate corrective action to correct the deficiency. Additional procedures were prepared to address the handling of audit findings. The following procedures are in affect which now govern the handling of audits, nonconformances, and deficiencies.

--Procedure 1000-ADM-7215.01, "Important to Safety Material Nonconformance Reports"

--Procedure 1000-ADM-7215.02, "GPUN Quality Deficiency Reports"

--Procedure 1000-ADM-7218.01, "Response to GPUNC Quality Assurance Audits"

--Procedure C100-QAP-7216.01, "Management Escalation Program for Quality Assurance Deficiencies"

(Closed) Violation 79-18-13: Procedures and drawings not revised to incorporate a completed modification. The inspector verified Operating Procedures 316 and 316.1, and Burns and Roe drawings 2003 and 2004 have been revised to incorporate Modification 213. Also, Technical Functions Procedures and Station Procedure 124, Plant Modification Control, were verified to specify procedure and drawing revisions following completion of modifications.

(Closed) Violation 79-18-14: Complete modification packages not filed as required. A complete audit of all engineering modification packages was performed by the licensee in Audit S-OC-80-53-01. The audit findings and corrective actions are recorded in various QA files. The final resolutions and closeout are documented in Audit S-OC-83-03, "Modifications". The control of modifications is described in Station Procedure 124, "Plant Modification Control", and in various Technical Functions Division Procedures. Adherence to these procedures should preclude a repetition of this violation. Routine inspections of modifications have disclosed no similar problems.

(Closed) Violation 79-18-16: Formal training had not been conducted for certain station personnel. The licensee committed to appoint a manager of training responsible for developing and administering an overall training program. This was accomplished by an internal memo dated December 19, 1980, from the Station Manager to the Vice President Generation, JCP&L. In addition, routine inspections have not identified any similar problems.

(Closed) Violation 80-30-10: Failure to operate dilution pumps due to an inadequate procedure. Procedure number 324, "Thermal Dilution Pumps", Revision 8, dated November 1, 1982, was reviewed and found to provide

adequate direction concerning the cooling water temperature conditions under which the dilution pumps must be operated.

(Closed) Violation 81-05-10: Test procedures have not been prepared, issued, or implemented for inservice testing of numerous valves. A review of closed out Licensing Tasks 81049.12,13,14, and 16; The Testing Valve Status Report; Procedure 125.1, "Inservice Test Program Administration"; and discussions with personnel indicated the actions described in Licensee Letter, P. Clark (GPUN) to T. Martin (NRC) dated June 24, 1981, have been completed. The completion dates for various actions described in the June 24, 1981, letter were modified on various occasions, including a licensee letter to Region I dated March 18, 1982. The entire licensee's Inservice Test Program is reviewed as part of the routine inspection program.

(Closed) Violation 81-14-01: Inoperability of a Reactor Building ventilation system automatic isolation valve not immediately recognized as constituting a violation of secondary containment integrity. To prevent recurrence a deviation report system for documenting failures, malfunctions, deficiencies or deviations, defective materials and equipment, and nonconformance is in place to assure corrective action is taken for discrepant items, supervision is aware of plant conditions, and events are reviewed and reported in accordance with procedures and Technical Specifications. Also, records show training is being provided on a continual basis whereby the working knowledge of the Group Shift Supervisors and Group Operating Supervisors with regard to Technical Specification requirements is being upgraded. This training includes: (1) review of Technical Specifications, (2) review of reportable occurrences, (3) notification requirements, (4) environmental Technical Specifications, and (5) Administrative Controls.

(Closed) Violation 81-21-01: Isolation Condenser was not manually isolated when one trip system was inoperable. The event resulted from an error in judgement. Shift Supervisors have been reinstructed in Technical Specification requirements. Also, a Technical Specification change has been made which permits isolation condenser steam and a return valve to be inoperable for a period of four hours.

(Closed) Violation 82-17-01: Unmonitored environmental release of radioactive liquid. The licensee has taken extensive corrective action to prevent reoccurrence. A total of eight licensing action items were written to track the completion of the corrective actions. The action items consisted of: (1) review all floor and roof drain systems for discharge points, (2) mark all drains as to discharge point, (3) provide plugs for drains going to the environment, (4) identify cross-connect paths to clean systems, (5) establish procedural controls to verify discharge paths, (6) evaluate redirecting drain paths, (7) establish procedural controls for cross-connections, (8) evaluate acceptable isolation of contaminated and noncontaminated systems. Included in the corrective action was an independent "Drains Identification Study" performed by United Engineers and Constructors. Licensee records show all action items have been completed.

(Closed) Violation 83-24-03: Insufficient records of design process activities. The licensee provided formal documentation justifying adequacy of containment pressure monitoring, containment water level monitoring, and containment hydrogen monitoring instrumentation. In addition, by letter dated July 25, 1984, the licensee described the mechanism utilized to ensure responses made to the NRC are accurate. The licensee's implementation of the multi-level review process for correspondence to the NRC was verified to be in accordance with Procedure LP-002, Regulatory Correspondence Management and Commitment Control. Proper reviews were verified to have been performed in accordance with a licensing checklist for correspondence to the NRC, dated August 14, 1984, the response to Bulletin 83-07 and letter to the NRC, dated July 31, 1984, Spent Fuel Pool - Additional Information.

(Closed) Violation 83-23-01: Failure to maintain a fire watch when required. The inspector verified a proper fire watch was immediately established. The problem of improperly terminating a fire watch was discussed with all GSS's and GOS's by Operations Management. The individual responsible for the improper termination of the fire watch is no longer employed by the licensee. Also, routine inspections have not identified any other instances where fire watches were not properly posted.

(Closed) Violation 83-04-03: Use of filter material which did not meet Quality Assurance requirements. The licensee has on file a letter obtained from the filter material vendor stating the material meets specifications. In addition, documentation exists which shows material to be used as filter media have been changed from non-QA to QA.

(Closed) Violation 83-27-01: Shipping cask drain line and access plugs not verified sealed prior to transport. By letter dated January 31, 1984, GPUN received confirmation from Chem-Nuclear Services, Inc., that the tack-welded drain plug was in place prior to delivery to Oyster Creek and upon receipt of the shipment at the disposal site. Also, the inspector verified Facility Procedure 351.32 was revised to include documentation of inspection of drain plug and lid access plugs prior to shipment.

(Closed) Violation 83-25-02: Monthly composite sample not analyzed for Tritium. The required surveillance has been added to Procedure 832.1, "Chemistry Surveillance Test Program". Supervisor approval of weekly and monthly surveillance verification sheets is required by the procedure. Also, periodic independent in-depth reviews of various aspects of the chemistry surveillance program are being performed.

(Open) Violation 83-26-01: Fire pump surveillance procedure failed to incorporate a new surveillance required by a Technical Specification (TS) change. The licensee, by letter, P. B. Fiedler to R. W. Starostecki, dated March 28, 1984, described the corrective actions which had been taken to assure that Technical Specification changes are incorporated into facility procedures. Among the corrective actions taken were a revision to the fire pump surveillance procedure incorporating the TS change and a review of all surveillance procedures to ensure that the procedures reflect TS

requirements. This action was verified to have been performed. Also, the formalized process by which TS changes are now incorporated into facility procedures was described. This process consists of controlling the distribution of TS changes through a Licensing Action Item System. By this system, the licensing organization, generates Action Items that are routed to Plant Engineering for verification that all procedures, affected by each amendment, are reviewed and changed as necessary.

The effectiveness of this system was reviewed during this inspection. The licensee's Procedure LP-002, Regulatory Correspondence Management and Commitment Control, establishes the system for the assignment of tasks associated with regulatory correspondence. The procedure requires the Unit Licensing Supervisor to assign action, as appropriate, using the Action Item Form. This form describes the action to be taken and also establishes a due date for completion of the action. The procedure also states in paragraph 4.1.6, "If the Section Manager assigned to the Action Item is unable to complete the task by the assigned date, he shall notify licensing immediately."

The licensee's actions taken to ensure facility procedures are reviewed and revised, to include changes resulting from three recently issued License Amendments (Amendments 71, 72, and 73) were reviewed. Results of this review show that for each amendment a Licensing Action Item was prepared and assigned to Plant Engineering for completion. The Action Items basically required procedure reviews to ensure the requirements of the amendments are incorporated in the appropriate procedures. Also, the Action Items established assignment due dates. None of the Action Items had been completed at the time of the inspection. The Action Item associated with Amendment 73 was being processed in accordance with Procedure LP-002 in that an extension for the due date had been requested. The Action Items associated with Amendments 71 and 72 were not processed entirely in accordance with Procedure LP-002, in that due dates were not adhered to, nor were extensions requested in a timely manner. The dates associated with these amendments are as follows:

#### Amendment 71

Action Item # 83178.02 assigned to Plant Engineering on 2/6/84.  
Action Due Date: 3/6/84.  
Plant Engineering requested an extension to 8/17/84 on 7/2/84.  
Action Item overdue in that on 9/7/84 it had not been completed.

#### Amendment 72

Action Item # 83071.02 assigned to Plant Engineering on 2/16/84  
Action Due Date: 4/27/84.  
Plant Engineering requested an extension to 8/15/84 on 6/35/84.  
Action Item overdue in that on 9/7/84 it had not been completed.

The inspector noted in addition to the above, a significant number of other assigned Action Items have not been completed nor have they requested an

extension to the due date. This is true despite the fact that licensing, two weeks prior to a due date, notifies departments having Action Items assigned of the impending due date.

The failure to process Action Items in accordance with LP-002 was discussed in detail with the licensee during the inspection and again during a telephone conversation on September 20, 1984. The licensee noted the delay in completing the Action Items was partially due to the heavy workload during the extended outage, that no violations of TS had occurred, and that the restart certification program, as well as Procedure LP-006, "Plant Technical Specification/Operating License Change Control" would ensure that all requirements of these and other assigned Action Items would be completed prior to their need for plant operation. The licensee further stated he was not satisfied with the implementation of the corrective action specified in his response to Violation 83-26-01 and that a supplementary response would be provided to amplify the original response.

(Open) Violation 81-05-02: Failure to conduct procedure reviews as required by Technical Specifications. The licensee by letter, P. R. Clark to T. T. Martin, dated June 24, 1981, described the corrective actions which would be taken to avoid further violations. These corrective actions basically consisted of a commitment to revise Procedure 107, "Procedure Control", to require a more effective means of documentation of periodic procedure reviews and that all procedure reviews will be documented as per the revised system. The letter further stated full compliance will be achieved by December 31, 1981. In addition, in the same letter the licensee described a commitment control system which was established to ensure that commitments made are adequately addressed. During the review of the licensee's corrective action it was noted the licensee's commitment, to be in full compliance by December 31, 1981, was not met. An attachment to Task Status Report for Task 81026.12, which was prepared to accomplish the actions necessary to fulfill the commitment, documented that the revision to Procedure 107 was not submitted until June 8, 1982 and that the December 31, 1981 deadline was not met.

The significance of failing to meet a commitment made to the NRC in response to a Notice of Violation was discussed with licensee representatives on site and again, in detail, during a phone conversation with the Director of Licensing on October 11, 1984. During the phone conversation the NRC requested the licensee provide written comments on this matter and proposed corrective actions to ensure the maintenance of an effective tracking system. This written response will also incorporate the supplementary response to violation 83-26-01 discussed above.

The licensee's adherence to the requirements of Procedure 107, "Procedure Control", as it relates to periodic reviews of procedures was reviewed. Specifically, records of the periodic reviews of the 200, 300, and 600 series procedures were selected. These procedures are required, by Procedure 107, to be reviewed annually. Procedure 107 states, "records of periodic procedure reviews will be maintained by the Safety Review Manager." At the time of the inspection, the Safety Review Manager had no

records of periodic reviews of 200, 300, and 600 series procedures later than 1982. The licensee stated that due to the extended outage and the significant number of procedure changes made necessary by the large number of modifications, records of periodic reviews are presently not in the hands of the Safety Review Manager as required. A sampling review by the inspector verified that all procedures had been reviewed or changed. At the conclusion of the inspection, the licensee was consolidating records of periodic procedure reviews. This item remains unresolved pending the establishment of procedurally required records.

(Closed) 80-BU-21: Valve yokes supplied by Malcolm Foundry Company, Inc. Records show 57 companies which have supplied valves to Oyster Creek were contacted by the licensee. Responses from these companies show that none have purchased valve yokes from the Malcolm Foundry Co. No further action was required of the licensee.

(Closed) 80-BU-16: Potential misapplication of Rosemount Inc. Models 1151 and 1152 Pressure Transmitters with either "A" or "D" Output Codes. The licensee by letter dated July 24, 1980, responded that Oyster Creek does not utilize transmitters of the type described. Subsequently, during and NRC inspection, transmitters of the type described were identified being utilized in a non-safety related system. The licensee by letter dated November 9, 1983, revised the initial response. In this revised response the licensee committed to a sample review of documentation packages for those bulletins which the NRC has not yet verified. The inspector verified by review of Licensing Action Item 80062.03 and associated documentation that a review by the licensee of 19 IE Bulletin responses was conducted and none were identified which required re-investigation.

(Closed) 80-BU-15: Possible loss of Emergency Notification System (ENS) with loss of Offsite Power. A review of a completed action item and discussions with personnel shows the Oyster Creek Emergency Notification System is powered through safety related busses backed up by diesel generators. Also, instructions are provided which require NRC notification within one hour if any extension of the ENS is found to be inoperable. No further action was required of the licensee.

(Closed) 80-BU-03: Loss of Charcoal from Standard Type II, 2 inch, tray adsorber cells. The only charcoal filter cells in use at Oyster Creek are in the Standby Gas Treatment System (SGTS). The licensee performed a visual inspection of 15 filter cells, both spare cells and those in use in the SGTS. No problems similar to those identified in the Bulletin were identified. No further action was required by the licensee.

(Closed) 80-BU-02: Inadequate Quality Assurance for Nuclear Supplied Equipment. Serious deficiencies may exist in reactor feedwater spargers and thermal sleeves manufactured by Marvin Engineering Company. The inspector verified by review of a licensee inter-office memorandum that a review of the purchase order and an investigation of associated documentation showed that Oyster Creek reactor feedwater spargers and thermal

sleeves were manufactured by Lamco Industries, Inc. No further action by the licensee was required.

## 2. Plant Operations Review

### 2.1 Shift Logs and Operating Records

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

- Control Room and Group Shift Supervisor's Logs, all entries;
- Drywell Entry Log;
- Technical Specification Log;
- Control Room, and Shift Supervisor Turnover Check Lists;
- Reactor Building and Turbine Building Tour Sheets;
- Equipment Control Logs;
- Standing Orders;
- Operational Memos and Directives.

### 2.2 Facility Tours

The inspector frequently toured the following areas:

- Control Room (daily)
- Reactor Building
- Turbine Building
- Augmented Off-Gas Building
- Rad-Waste Buildings
- Drywell Inspection



- Cooling Water Intake and Dilution Plant Structure
- Monitor and Change area
- 4160 Volt Switchgear, 460 Volt Switchgear, and Cable Spreading
- Diesel Generator Building
- Battery Rooms
- Maintenance Work Areas
- Yard Areas (including Area Perimeter)

The following were observed:

- 2.2.1 During daily control room tours, the inspector verified that the control room manning requirements of 10 CFR 50.54(k) and (i), Technical Specifications, and the licensee's conduct of operations procedure were met. Shift turnovers were observed for adequacy. Selected control room instrumentation needed to support the cold shutdown, conditions were verified to be operable and indicated parameters within normal expected limits. Recorders were examined for evidence of abnormal or unexplained transients. The inspector verified compliance with Technical Specification Limiting Conditions for Operation (LCO's) applicable to the cold shutdown condition, including those relating to secondary containment integrity, and fire protection systems. The inspector closely monitored activities associated with the outage preparations for startup and hydrostatic testing of the reactor vessel.

No unacceptable conditions were identified.

- 2.2.2 The inspector reviewed the lighted annunciator windows with respect to plant operating conditions. During this review the inspector verified the validity of the annunciators with the control operators and Procedure 2000 RAP - 3024.01, NSSS Annunciator Response Procedures. In addition, the inspector reviewed the licensee's progress in verifying alarm functions. The licensee is in the process of confirming that alarms function as designed. The inspector confirmed that progress is being made and that identified problems are being addressed. The inspector will continue to follow alarm status in future inspections.

No unacceptable conditions were identified.

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

routine plant tours, the inspector noted continued effort to improve housekeeping conditions throughout the period. The inspector noted that large volumes of trash and debris were being removed from various areas in preparation for reactor plant startup.

No unacceptable conditions were identified.

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

No unacceptable conditions were identified.

#### 2.2.5 Drywell Inspection

On September 19, 1984, the inspector observed activities in the primary containment during a 1020 pound pressure test of the Reactor Vessel. The inspector noted that the licensee had teams of individuals inspecting for leaks. The inspector noted several small leaks and confirmed that licensee personnel had identified them as well and planned corrective actions. The inspector noted that significant effort had been made to improve housekeeping conditions in the drywell. The inspector had no further questions on this area.

### 3. Radiation Protection

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

4. Physical Security

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

5. Valve Lineup Checks

The inspectors conducted independent verification that selected system valve alignments were in accordance with approved alignment procedures in preparation for reactor startup. In addition, the inspectors accompanied licensee personnel during the performance of selected valve and electrical breaker lineups. The inspectors verified proper position for valves and breakers, valves being properly labeled and procedures properly initialed and signed off. The following system lineups were checked:

Procedure	System	Revision
310	Containment Spray System check off list for System I and II	16
410	Placing Instrument Racks RK01, RK02, RK03, and RK04 in service	3
302.1	Control Rod Drive Hydraulic System	16
304	Standby Liquid Control System	13
330	Standby Gas Treatment System	11
306	Reactor Vessel Head Cooling System	7
231.1	Return from Layup of the Condensate and Feedwater Systems	0
412	Torus Instrument	0

The inspectors identified the following discrepancies:

Procedure 410: The inspectors noted that a number of valve handwheels were missing from the instrument rack. The procedure contained a number of temporary changes, and one valve that was not in existence was listed as signed off in the proper position. The licensee conducted an investigation and determined that the most probable cause for the error was a transposition error while recording information. Two persons had been dressed in anticontamination clothing and had transferred initials from one procedure that was

used in a controlled area to the formal copy for the current lineup. The inspector reviewed this information and checked the three previous lineups performed on this instrument system. The valve in question was listed not applicable on these lineups. In view of the number of procedure changes and the missing hand wheels, the licensee committed to revising the procedure and performing a complete instrument valve lineup again before reactor startup. The inspector had no further questions regarding this matter.

Procedure 310, Containment Spray System: During the valve lineup check, the inspector identified four valves V-3-527, V-3-528, V-3-520, and V-3-521 closed. The valve lineup procedure requires them to be open. The system would perform as designed with these valves closed. The licensee investigation showed that new gauges had been installed after the system valve lineup had been performed. The inspector reviewed Maintenance and Construction Short Form (SF) Number 02877, dated 9-27-84. This SF required that the gauge isolation valves be closed for gauge replacement and verified open on completion. The SF was signed off as complete by operations department and maintenance department supervision on October 9, 1984. The failure to restore system lineups after maintenance as required is a violation of Technical Specification 6.8.1 and Administrative Procedure 105, "Conduct of Maintenance", revision 22.

In general, the inspectors noted that licensee personnel were knowledgeable of procedural requirements and valve locations and that operators used verified prints to identify and check lineups.

#### 6. Electrical Breaker Fire

On September 25, 1984, an electrical fault occurred when the Number 2 Emergency Service Water Pump breaker was closed for testing. A grounding cable had been left on the breaker, and closing it caused the loss of the 1C and 1D 4160 volt buses. The reactor was in cold shutdown condition at the time of the occurrence. All safety systems functioned as designed and no offsite releases occurred. Control room operators racked out the affected breaker and restored the affected buses. The licensee inspected the busing and affected breaker and identified extensive flashing on the 1-2 ESW rear cable entrance, bus phase links partially melted, the load side porcelain bushings were damaged, and some contact splash on the breaker. There was no damage to the main bus.

As a result of the incident, the following actions were taken and confirmed by the inspector. The porcelain load bushings were replaced, the main bus was megged and hi-poted satisfactorily, affected copper bus bar sections were replaced. The EWS pump motor was megged and hi-poted successfully, all relay wiring was inspected, the current transformers were inspected, and all protective relays were megged.

Additional corrective actions included sending the affected circuit breaker to the manufacturer for repair. Review of licensee actions regarding this

incident identified no unacceptable conditions. The inspector had no further questions regarding this matter.

7. Inspector Attendance at Licensee Meeting

On September 5, 1984, the licensee met with NRC Region I personnel to discuss plans for operator training during post-outage reactor startup and measures taken to ensure that operators had maintained necessary skills during the prolonged refueling and modification outage. The licensee stated that a systematic startup including preplanned training evolutions including approach to critical, starting and stopping reactor recirculation pumps, reactor feed pump, and main turbine evolutions would be performed for each shift.

Additionally, the licensee stated that throughout the course of the outage, operators had been required to perform complex evolutions, such as isolating and restoring systems to operation, reactor vessel draining and refilling, as well as many switching and tagging evolutions. The NRC staff acknowledged the licensee's statements and asked the licensee to certify in writing that operators were properly trained. The licensee acknowledged the NRC request and agreed to submit the certification.

8. Maintenance

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

- Cable spreading room installation;
- Control Room alarm system testing and repair;
- Containment Vent Valve;
- Scram Discharge Volume modification;
- Condensate and Feed System;
- Post Accident Sampling Modification;
- Replacement of 24 volt Battery Chargers;
- Local leak rate testing of Containment Isolation Valves;

- Hydrostatic test of Feedwater System; and
- Replacement of Feeder Cables for V-14-34.

No unacceptable conditions were identified.

9. Cancellation of SGTS Filter Tie-In

A tie-in connection to the Standby Gas Treatment Systems (SGTS) filter trains was committed to be installed as part of GPUN's implementation of NUREG - 0737, Item II.B.2, "Design Review of Plant Shielding". The potential for post-accident charcoal change-out was identified by licensee letters to NRR dated April 10 and June 10, 1980, and since prohibitively high radiation dose rates would preclude access to the filters, additional connections for an alternate filter train were proposed. An Order was issued by the NRC on March 14, 1983, which confirmed that this modification would be completed during the Cycle 10 refueling outage begun in February 1983. However, in an April 15, 1983, letter to NRR, GPUN stated their intention to cancel the project, based upon their reassessment of the bases for the tie-in in light of the NRC's evaluation of SEP Topic XV-19 (provided in an NRC letter to P. Fiedler dated September 2, 1982).

In assessing the implementation of Item II.B.2. at Oyster Creek, NRC Inspection 50-219/83-13 identified several inadequacies with GPUN's shielding study, and posed five questions for which additional information would be required. These questions, submitted to GPUN formally by NRC letter dated December 7, 1983, included one which requested an explanation of the cancellation of the filter tie-in. Following the June 21, 1984 GPUN response, which reiterated that SEP Topic XV-19 evaluation provided sufficient bases to justify the cancellation, an August 27, 1984 conference call was held between NRC and GPUN representatives to discuss this issue.

GPUN contracted United Engineers and Constructors, Inc. (UE&C) to analyze iodine saturation of the charcoal beds. The assumptions and calculations were reviewed during a September 11, 1984 meeting held at UE&C's Philadelphia office. The calculations were summarized in a GPUN letter to NRR dated September 18, 1984, which conclude that post-LOCA iodine loading would not significantly affect SGTS charcoal filter efficiency during an accident, thereby justifying cancellation of the tie-in modification. Further, an analysis of the shielding provided by the below grade concrete tunnel within which the filters are located, demonstrated that the filters will not affect nor restrict post accident access to vital (in the sense of Item II.B.2) areas.

The calculational assumptions and methods employed were found to be highly conservative, for example:

- full power core equilibrium iodine inventory;

- 0.5% per day design basis drywell leakage for the full 30 days, post-accident;
- 100% charcoal removal efficiency for all iodine species (including stable, and organic and elemental radio iodines); and
- 25% of core halogens released to drywell.

Calculated charcoal bed loading approached a value of 2.60 mg of total iodine per gram of activated carbon at the end of 30 days, post-accident. Regulatory Guide 1.52, "Design, Testing and Maintenance Criteria for Post-Accident Engineered Safety Feature, Filtration, and Adsorption Units", (Revision 2, March 1978), recommends that the charcoal adsorbent bed be designed for a maximum loading of 2.5 mg of total iodine per gram of impregnated activated carbon (regulatory position C.3.i). The calculated value of 2.60 for Oyster Creek's SGTS filters only slightly exceeds the recommended limit. Therefore, when the calculational conservatisms are taken into consideration, the filters are found to be adequately sized for iodine loading.

Oyster Creek employs MSA Type 463563 charcoal filters, with a total activated weight of 285 pounds (129kg). The calculated loading of 2.60 mg/gm equates to a total disposition of 335 grams of iodine isotopes, 334 of which are stable. This loading should not significantly lower iodine removal efficiency. Therefore, change-out of the SGTS filters during a design basis accident will not be required, providing that relative humidity of the Reactor Building atmosphere remains below 80-90%. This conclusion is based on:

- The charcoal has been shown to be adequately sized for iodine loading by UE&C calculations;
- The major contributor to offsite dose has been predicted to be unfiltered, ground level-released, MSIV leakage (SEP Topic XV-19); and
- The filters are located below-grade, in a concrete tunnel with 1.5 ft. thick walls, and thus, do not represent an appreciable post-accident radiation source affecting access to vital plant areas. The August 30, 1984 UE&C calculations predict a maximum dose rate on the floor directly above the filters of 1.3 mr/hr.

Therefore, the bases used by GPUN to cancel the tie-in modification to the SGTS filters is found to be justified.

#### 10. Review of Periodic and Special Reports

Upon receipt, periodic and special reports submitted by the licensee pursuant to Technical Specification 6.9.1 were reviewed by the inspector. This review included the following considerations: the report includes the information required to be reported to the NRC; planned corrective

actions are adequate for resolution of identified problems; and that the reported information is valid. The August and September Monthly Operating Reports were reviewed by the inspector.

11. Allegation Follow-Up

The inspector received an allegation regarding work performed on valves V-16-1 and V-16-2 during the outage. Specifically, the job on V-16-1 took longer than required and improper work was performed on the limitorque operator on Valve V-16-2. In addition, a wedge was used during the repair on Valve V-16-1.

The inspector reviewed the work packages for Valves V-16-1 and V-16-2 to determine if all work had been properly closed out and to identify any abnormal actions. The inspector also discussed these activities with site engineering personnel to determine if unusual problems had been identified. The review identified that Valve V-16-2 had been replaced. Review of all associated documentation with the replacement identified no unacceptable conditions.

The inspector reviewed completed work packages for Valve V-16-1. During this review, the inspector noticed that the licensee had identified that the valve body and valve disc guides had a slight misalignment. This had necessitated machining of valve internals to ensure proper alignment. In addition, a wedge had been used to assist in obtaining proper seating of the valve disc in the valve body. The inspector asked about the use of the wedge. Licensee representatives showed the inspector the manufacturer's instructions which authorized the use of a wedge. The inspector had no further questions regarding this matter. The inspector concluded that based on available information work on Valves V-16-1 and V-16-2 had been performed in accordance with appropriate station administrative instructions. No unacceptable conditions were identified.

12. Exit Interview

At periodic intervals during the course of this inspection, meetings were held with senior facility management to discuss the inspection scope and findings. A summary of findings was presented to Mr. P. Fiedler and other members of the licensee's staff at the end of this inspection.