

U.S. NUCLEAR REGULATORY COMMISSION

Region I

Report No. 50-277/84-31
50-278/84-25
50-277
Docket No. 50-278
DPR-44
License No. DPR-56 Priority _____ Category c
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Licensee: Philadelphia Electric Company
2301 Market Street
Philadelphia, Pennsylvania 19101

Facility Name: Peach Bottom
Inspection at: Delta, Pennsylvania

Inspection conducted:

Inspectors: A. R. Blough, Senior Resident Inspector 10/22/84
J. H. Williams, Resident Inspector 10/22/84
date signed date signed

Approved by: Robert M. Gallo 11/2/84
R. M. Gallo, Chief date signed
Reactor Projects Section 2A date signed

Inspection Summary: September 1 - October 10, 1984 (Combined Inspection Report
50-277/84-31 and 50-278/84-25

Routine, on-site regular and backshift resident inspection (73 hours Unit 2; 113 hours Unit 3) of: accessible portions of Unit 2 and Unit 3, operational safety, radiation protection, physical security, control room activities, licensee events, surveillance testing, refueling activities, Unit 2 pipe replacement, maintenance, and outstanding items.

Results: Except as follows, activities appeared to be conducted safely and in accordance with regulations: failure to post a contaminated area is a Violation, Detail 5.1.

Region I Form 12
(Rev. April 77)

DETAILS

1. Persons Contacted

J. K. Davenport, Maintenance Engineer
*R. S. Fleischmann, Station Superintendent
N. Gazda, Applied Health Physicist
A. Hilsmeier, Senior Health Physicist
J. Mitman, Results Engineer
F. W. Polaski, Outage Manager
S. R. Roberts, Operations Engineer
D. C. Smith, Assistant Station Superintendent
S. Q. Tharpe, Security Supervisor
H. L. Watson, Chemistry Supervisor
J. E. Winzenried, Technical Engineer

Other licensee employees were also contacted.

*Present at exit interview on site and for summation of preliminary inspection findings.

2. Previous Inspection Item Update

- 2.1 (Closed) Violation (277/83-27-01), impeded access to fire extinguishers. Corrective actions included sending a letter to all supervisors, and including fire protection equipment accessibility in Nuclear Plant Rules. The inspector reviewed these actions and also toured the plant. No blocked fire equipment was noted.
- 2.2 (Closed) Violation (277/84-20-01), impeded access to fuel floor fire extinguishers. In addition to counseling personnel, the licensee posted signs on both fuel floors to make fire equipment stations more readily identifiable. The inspector toured both fuel floors; no blocked equipment was noted.
- 2.3 (Closed) Inspector Follow Item (278/83-09-01), review licensee investigation of open secondary containment door. The licensee's investigation was inconclusive. Some improvement in secondary containment door adherence has been noted, and no defeated switches have been identified.
- 2.4 (Closed) Unresolved Item (277/82-21-01), instrument valve handwheel problems (missing handwheels, misleading color-codes). The licensee inspected and upgraded the handwheels shortly after the original inspection. This area is covered in an I&C Technician training session on instrument valving. Similar problems have not recurred.
- 2.5 (Closed) Inspector Follow Item (278/84-03-05), review results of torus vent header inspection at Unit 3. These inspections were done on June 4, 1984. The inspector reviewed the Construction Division Inspection Report and engineering evaluation. One minor indication, a slight indentation on the inside wall behind a support plate weld, was identified and evaluated as insignificant. The finding and evaluation were similar to the Unit 2 inspection findings.

2.6 (Closed) Violation (277/84-07-01) failure to follow SGTS operating procedure. The licensee revised the procedure and also issued a letter to operations personnel emphasizing (1) adherence to procedures, and (2) responsibility for notifying supervision of deficient procedures.

3. Plant Operations Review

3.1 Facility Tours

Daily tours and observations included the Control Room, Turbine Building (all levels), Reactor Buildings (accessible areas), Radwaste Building, Diesel Generator Building, yard perimeter outside the power block (including Emergency Cooling Tower and torus dewatering tank), Security Building (including CAS, Aux SAS, and control point monitoring), lighting, vehicular control, the SAS and power block control points, security and High Radiation areas (including locked door checks), TV monitoring capabilities and shift turnover.

3.1.1 Control Room staffing frequently was checked against 10 CFR 50.54(k), 10 CFR 50.54(m), Technical Specifications, and the NRR letter of July 31, 1980. Presence of a senior licensed operator in the control room was verified frequently. The posting of information in the control room was observed. The Rod Block Monitor (RBM) high rod block label indicated a trip point of $.66W + 42\% - .66\Delta W$ at both Unit 2 and Unit 3 RBM cabinets. Technical specifications (Table 3.2.C) give a trip setpoint for the RBM flow biased rod block of $.66W + 41\% - .66\Delta W$. The surveillance test procedure ST-3.5.1-2,3, Revision 3, November 8, 1983 RBM Function and Calibration Test, uses the appropriate technical specification value. The discrepancy was pointed out to the licensee on October 1, 1984 and actions taken to correct the label. The inspector will verify the labels are corrected properly in a future inspection.

3.1.2 Monitoring Instrumentation. The inspector frequently confirmed that selected instruments were operating and indicated values were within Technical Specification requirements. ECCS switch positioning and valve lineups were verified based on control room indicators and plant observations. Observations included flow setpoints, breaker positioning, PCIS status and radiation monitoring instruments. The inspector reviewed a potentially generic problem identified at another plant regarding the deletion of torus level narrow range instrumentation from the technical specifications when the wide range instruments were added. Peach Bottom's technical specifications and TMI-2 action item (II.F.1.5) requirements were reviewed. The technical specifications include the narrow range but not the wide range instruments. The licensee has included the wide range instruments in ST9.1 (the shift surveillance log to fulfill technical specification requirements for instrument checks) and has added the instruments to its calibration program. After discussions with operations and engineering personnel, the inspector had no further questions at this time. Technical Specification changes involving torus water level instruments will be examined when they are made. (277/84-31-01)

- 3.1.3 Off-Normal Alarms. Selected annunciators were discussed with control room operators and supervision to assure they were knowledgeable of plant conditions and that corrective action, if required, was being taken. Examples of specific alarms discussed during the report period were RBM inoperable, APRM bypassed, HPSW radiation monitor high, and rod block. The operators were knowledgeable of alarm status and plant conditions.
- 3.1.4 Fluid Leaks. The inspector observed sump status, alarms and pump-out rates, and discussed leakage with licensee personnel. The unidentified drywell leak rate was increasing to about 4 gpm during this report period on Unit 3. The Moisture Monitoring System was inoperable at Unit 3 and the inspector verified frequently that hourly pump-out calculations were being performed.
- 3.1.5 No significant or unusual piping vibration was found.
- 3.1.6 Environmental Controls. The inspector observed visible main stack and ventilation stack radiation recorders and periodically reviewed traces from backshift periods, to verify that radioactive gas release rates were within limits. During this report period numerous spikes in radioactive gas releases occurred due to the increased reactor coolant activity and associated Reactor Water Cleanup System demineralizer resin regeneration on Unit 3. The inspector discussed this situation with the licensee and noted the licensee is investigating the operations. The inspector will follow the licensee's activities.
- 3.1.7 Fire Protection. The inspector observed control room indications of fire detection and fire suppression systems, spot-checked for proper use of fire watches and ignition source controls, checked a sampling of fire barriers for integrity, and observed fire-fighting equipment stations.
- 3.1.8 Housekeeping. The inspector observed housekeeping conditions, including control of combustibles, loose trash and debris; and spot-checked on cleanup during and after maintenance. The licensee's QC group is responsible for evaluation of housekeeping and appeared to be effective in early identification and resolution of housekeeping discrepancies.
- 3.1.9 Equipment Conditions. The inspector verified operability of selected safety equipment by in-plant checks of valve positioning, control of locked valves, power supply availability, operating procedures, plant drawings, instrumentation and breaker positioning. Selected major components were visually inspected for leakage, proper lubrication, cooling water supply, operating air supply, and general conditions. Systems checked included the Emergency Diesel Generators and associated support systems, Emergency Service Water System and the Standby Liquid Control System.

The following diesel generator system procedures were reviewed:

- S.8.4.A, Revision 8, March 13, 1984, Manual Start of Diesels
- S.8.4.C, Revision 1, June 9, 1982, Auto Operation of Diesel Generators
- S.8.4.D Revision 3, October 27, 1982, Manual Shutdown of Diesels
- COL S.8.4.A, Revision 9, May 23, 1982, Diesel Generator Operation

A prerequisite common to the above procedures authorizes disabling the Carbon Dioxide Fire Suppression (CARDOX) system in the diesel generator room for personnel protection upon entering each room. This is not consistent with the posted label in each room which specifies that prior to disabling the CARDOX system, check with shift supervision first and establish a fire watch within 15 minutes. In discussions with operators, the inspector determined that current practice is to follow the posted label (procedure) in the diesel generator rooms. Technical Specification 3.14.B.3 and 3.14.B.4 require the diesel generator CO₂ system to be operable or establish a continuous fire watch with backup fire suppression equipment within one (1) hour. The following discrepancies were noted in COL S.8.4.A:

*Step 9 requires the starting air tanks outlet air valves be positioned "1 open and 1 closed", however it does not specify which one (automatic and manual) is open and which is closed.

*Step 23 requires check of of 3 DC feed switches "on", however the E-2 diesel has 4 DC feed switches (the additional switch feeds the CARDOX horn).

*Step 36 requires all annunciators to be clear, however on all four diesel generator local control panels, alarm "Aux Horn Relay" was energized.

The latest completed COL's for all four diesel generators were reviewed. Except as noted no discrepancies were identified. The above discrepancies with the COL as well as the CARDOX operating guidance inconsistency were discussed with the licensee who stated the items would be reviewed. This item will be reviewed in a future inspection (277/84-31-02).

A letter from another plant reported a potential problem in accordance with 10CFR21.21. The problem was a potential defect with respect to Uninterruptible Power Supply (UPS) batteries supplied by Exide Corporation. The inspector reviewed drawings describing the UPS power supplies and discussed the problem with the licensee. It was determined that Peach Bottom does not use the type of batteries (size E) that were causing the problem. The inspection had no further questions.

Except as indicated, no unacceptable conditions were found.

3.2 Followup on Events Occurring During the Inspection

On September 11, at about 4:45 p.m. a 6-8 foot portion of the SGTS duct work was found to be collapsed at a location upstream of the A030469-1 and 2 valves in the sump pump room. The SGTS had been in operation since September 7, due to airborne radioactivity levels in the Unit 3 Reactor Building. The operators examined the flow chart recorder and found no flow changes and verified that the hatch was open on the refuel floor. This allows communication between the refuel floor and the rest of the Reactor Building. The inspector examined the flow chart traces and could see no change in flow from the time SGTS was started until after the event date. The shift reported the situation to plant management and initiated a maintenance request for the duct. On September 11 at about 6:00 p.m., the licensee took the SGTS off line after health physics surveys of the Reactor Building verified that airborne radioactivity levels were back to normal.

On September 12 at about 1:00 p.m. the licensee ran a test (ST 13.9) to demonstrate secondary containment integrity with a completely collapsed duct (closed A030469-1 and 2). The test failed in that the SGTS drew only 0.23 inches H₂O vacuum in the lower level of the Reactor Building whereas 0.25 inches H₂O vacuum is the minimum acceptable for the test and the licensee declared SGTS inoperable. A second test was performed at 2:00 p.m. after the mechanical stops on the vortex dampers were adjusted. This test passed, but showed more flow through the collapsed duct than through the good duct. After the first test failed, the licensee started an unplanned shutdown by dropping 10 MW electrical as required by technical specification 3.7.C.2. An ENS call was made at about 2:30 p.m. A 16-foot section of duct work was removed and a third secondary containment integrity test was performed at about 5:00 p.m. This test passed also. The inspector questioned plant management on the decision not to test secondary containment integrity immediately after the collapsed duct was found. The licensee stated that based upon previous tests and experience it had been shown that larger portions of the duct work could be out of service and secondary containment integrity still be maintained by the redundant duct that runs to the refuel floor. The licensee also expressed concern with getting a Group I isolation by taking the ventilation system out of service. The inspector requested copies of the September 12 tests and the earlier tests referred to by the licensee. The inspector reviewed the following completed tests:

ST13.9, Revision 6, November 1, 1979, Secondary Containment Capability Test, performed September 19, 1981

ST13.9, Revision 6, November 1, 1979, Secondary Containment Capability Test, performed September 22, 1981

ST13.9, Revision 6, November 1, 1979, Secondary Containment Capability Test, performed September 22, 1981

ST13.9, Revision 7, May 16, 1983, Secondary Containment Capability Test, performed July 18, 1984

ST13.9, Revision 7, May 16, 1983, Secondary Containment Capability Test, performed Sept. 12, 1984 at 1:00 p.m.

ST13.9, Revision 7, May 16, 1983, Secondary Containment Capability Test, performed Sept. 12, 1984 at 2:00 p.m.

ST13.9, Revision 7, May 16, 1983, Secondary Containment Capability Test, performed Sept. 12, 1984 at 5:05 p.m.

The tests done in 1981 involved a 30 foot section of collapsed duct in the RCIC and reactor sump rooms. These tests demonstrated that secondary containment integrity had been maintained with a collapsed duct. The inspector also reviewed MRF No. 1-82-0504120 involving the replacement of the duct work in 1981. The inspector reviewed the last surveillance test completed before the September 11 event as well as the three tests done on September 12. The inspector reviewed the logs and discussed the event with the licensee.

The licensee investigated the cause of the low flow through the "good" duct on September 12 and determined that a refuel floor duct modulating damper was sticking in the closed position. Plans to inspect all dampers during a future dual unit outage are being made. The inspector will further review the licensee's activities in this area during the future inspections of the dampers. (277-83-31-03*) Except as noted the inspector had no further questions.

3.3 Logs and Records

The inspector spot-checked logs and records for accuracy, completeness, abnormal conditions, significant operating changes and trends, required entries, operating and night order propriety, correct equipment and lock-out status, jumper-log validity, conformance to Limiting Conditions for Operations, and proper reporting. The following logs and records were reviewed: Shift Supervision Log, Reactor Engineering Log (Unit 3), Reactor Operators Log (Unit 2), Reactor Operators Log (Unit 3), CO Log Book, and CTA Log Book, Night Orders (Current Entries), Radiation Work Permits (RWP's), Maintenance Request Forms (sampling), Ignition Source Control Checklists, and Operation Work & Information Data, all September 1 - October 10, 1984.

Control room logs were compared against Administrative Procedure A-7, "Shift Operations." Frequent initialing of entries by licensed operators, shift supervision, and licensee on-site management constituted evidence of licensee review.

No unacceptable conditions were identified.

4. Surveillance Testing

The inspector observed surveillance to verify that testing had been properly approved by shift supervision, control room operators were knowledgeable regarding testing in progress, approved procedures were being used, redundant systems or components were available for service as required, test instrumentation was calibrated, work was performed by qualified personnel, and test acceptance criteria were met. Parts of the following tests were observed:

HPO/CO-27, Revision 1, May 9, 1977, Sampling of Reactor Water performed on October 4, 1984 on Unit 3.

CA-72, Revision 2, March 10, 1983, Routine Chemistry Sampling performed for Unit 3 on October 4, 1984.

HPA-78, Revision 1, February 2, 1984, Determination of Dose Equivalent uCi/gm I-31 performed for Unit 3 on October 4, 19-4

CA-13a, Revision 2, August 20, 1981, Determination of Conductivity performed for Unit 3 on October 4, 1984

RCA-15, Revision 2, November 6, 1980, Radiochemical Analysis for Iodine (Organic Extraction), performed for Unit 3 on October 4, 1984

ST 3.3.2, Revision 8, December 28, 1981, Calibration of the Average Power Range Monitor (APRM) System, performed on October 2, 1984 at Unit 3.

No unacceptable conditions were identified.

5. Radiation Protection

During this report period, the inspector examined work in progress in both units, including the following:

- a. Health Physics (HP) controls
- b. Badging
- c. Protective clothing use
- d. Adherence to RWP requirements
- e. Surveys
- f. Handling of potentially contaminated equipment and materials

More than 50 people observed met frisking requirements of Health Physics procedures. A sampling of high radiation doors was verified to be locked as required.

Compliance with RWP requirements was verified during each tour; special emphasis was placed on RWP adherence in work associated with the Unit 2 outage. About 15 RWP's were checked during the month. Line entries were reviewed to verify that personnel had provided the required information and about 30 people working in RWP areas were observed to be meeting the applicable requirements.

- 5.1 About 11:15 a.m., September 12, the inspector noted that the entrance to the condensate pump area from the condenser area walkway was not posted as a radiation area or contaminated area. There was no barrier or step-off pad inside the door. However, other entrances to the area were posted as "contaminated", and "RWP required for entry". When informed, the licensee promptly posted the entrance. The condenser area walkway had recently been decontaminated, and personnel involved had overlooked the fact that a new barrier would have to be established at the end of the walkway (i.e., the door to the condenser area). Condensate pump area surveys of September 11 and 13 indicated maximum contamination levels of 3200 and 12,000 disintegrations per minute per 100 square centimeters (dpm/100 cm²) respectively. In addition to correcting the specific deficiency, the licensee counseled his decontamination support technicians regarding the importance of evaluating the postings during, and subsequent to decontamination. He also re-emphasized these instructions in a letter to all technicians on October 5, 1984.

Technical Specification 6.8 and Regulatory Guide 1.33 (November 1972) require implementation of procedures for control of radioactivity. Health Physics Procedure HPO/CO-100, Revision 13, April 25, 1983, Health Physics Guides Used in the Control of Exposure to Radioactive Material, requires "Contaminated Area" signs or a radiation tape barrier for areas with removable contamination above 1,000 dpm/100 cm². Failure to post a contaminated area is a Violation (277/84-31-04). Because this violation was corrected, including measures to prevent recurrence, during the inspection, no written response to this item will be required.

5.2 On September 12, 1984, a contractor employee expressed a concern that the firewatch in the Unit 2 drywell often times had to remain in the drywell after all work was completed for long periods of time. His concern was over the apparently unnecessary radiation exposure as a result of the practice. The inspector discussed the problem with regional specialists and brought the concern to the licensee's attention. The licensee's investigation did not reveal any actions to solve the apparent problem. The RWP's for drywell firewatches were reviewed, but no trends in absorbed dose increase or maximum stay time in the drywell could be identified. The inspector reviewed the procedure for restoring smoke detectors to service and determined that if the licensee placed more priority on restoring smoke detectors located in higher radiation areas before restoring detectors in lower radiation areas, the ALARA concept would be better served. Licensee management provided direction to plant operators at shift meetings to give more attention to radiation areas in restoring smoke detectors. The inspector had no further questions at this time.

5.3 Contamination of Reactor Building Access. On September 30, a roving Health Physics Technician identified contamination outside the Unit 2 Reactor Building railroad access door. An area about 3 feet by 100 feet had spots reading up to 30,000 counts per minute by direct frisk. The licensee began decontaminating the area and initiated an investigation. After initial decontamination attempts, remaining spots of contamination were covered with plastic. On October 1, the contaminated asphalt was removed and packaged for disposal as radioactive waste. The licensee suspended use of the railroad access until completion of his investigation on October 5. The investigation concluded that the contamination must have resulted from carelessness during transport of used recirculation piping or valve parts from the Reactor Building to a decontamination trailer. To prevent recurrence the licensee established additional pre-transport survey requirements for plastic-wrapped packages. The inspector interviewed licensee personnel, reviewed survey data, and periodically observed the area involved in this event. The inspector had no further questions.

No other unacceptable conditions were identified.

6. Physical Security

The inspector spot-checked compliance with the accepted Security Plan and implementing procedures, including: Operations of the CAS and SAS, over 10 spot-checks of vehicles onsite to verify proper control, observation of protected area access control and badging procedures on each shift, inspection of physical barriers, checks on control of vital area access and escort procedures.

No violations were identified.

7. Review of TMI Action Plan (TAP) Requirements

The inspector reviewed the status of the following TAP item to verify that the licensee is meeting his commitments.

7.1 TAP Item II.E.4.2.7. Containment Purge and Vent Valves to Close on a Radiation Signal

The licensee, in a letter of January 25, 1984, supported a BWR Owner Group position that this feature was unnecessary. NRR:NRC, in a September 28 letter, rejected the owners group position and requested further commitments. This item remains open.

8. In-Office Review of Periodic and Special Reports

Peach Bottom Atomic Power Station Monthly Operating Report for August 1984 was reviewed pursuant to Technical Specification and verified to determine that operator statistics had been accurately reported and that narrative summaries of the month's operating experiences were contained therein.

Peach Bottom Atomic Power Station Semi-Annual Effluent Release Report No. 17 for January 1 - June 30, 1984 transmitted by letter dated August 30, 1984 was reviewed pursuant to Technical Specifications.

9. Inspector Follow Items

Inspector follow items are items for which the current inspection findings are acceptable, but due to on-going licensee work or special inspector interest in an area, are specifically noted for future follow-up. Follow-up is at the discretion of the inspector and regional management. Inspector follow items are discussed in Details 3.1.2, 3.1.9, and 3.2.1.

10. Management Meetings

a. Preliminary Inspection Findings

A verbal summary of preliminary findings was provided to the Station Superintendent at the conclusion of the inspection. During the inspection, licensee management was periodically notified verbally of the preliminary findings by the resident inspectors.

b. Attendance at Management Meetings Conducted by Region-Based Inspectors

The resident inspectors attended entrance and exit interviews by region-based inspectors as follows:

<u>Date</u>	<u>Subject</u>	<u>Inspection Report No.</u>	<u>Reporting Inspector</u>
Sept 4 (Entrance) Sept 7 (Exit)	Torus Modification	277/84-30 278/84-24	Narrow
Sept 13 (Entrance) Sept 19 (Exit)	ATWS Follow up (Salem)	277/84-32 278/84-26	Harpster

11. Inspection Notes and Proprietary Information

At no time during this inspection was written material concerning inspection findings provided to the licensee by the inspectors. No proprietary information was identified as being included in this inspection report.