U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report Nos. 50-277/83-21
50-278/83-21

Docket Nos. 50-277
50-278

License Nos. DPR-44 Priority -- Category C
DPR-56 Priority -- Category C

Licensee: Philadelphia Electric Company (PECO)

2301 Market Street

Philadelphia, Pennsylvania 19101

Facility Name: Peach Bottom Atomic Power Station (PBAPS), Units 2 and 3

Inspection At: Delta, Pennsylvania and Philadelphia, Pennsylvania

Inspection Conducted: August 1 - 5, 1983

Inspector: Richard K. Struckmeyer 9/8/83
R. K. Struckmeyer, Radiation Specialist date signed

Approved by: W. J. Pasciak 9/9/83
W. J. Pasciak, Chief, Effluents Radiation Protection Section, Radiological Protection Branch date signed

Inspection Summary:

Inspection on August 1 - 5, 1983 (Combined Inspection Report Nos. 50-277/83-21 and 50-278/83-21)

Areas Inspected: Routine, unannounced inspection of environmental monitoring programs for operations, including: management controls for these programs; the licensee's program for quality control of analytical measurements; implementation of the radiological and non-radiological environmental monitoring program and the meteorological monitoring program; and, followup on the licensee's actions on previous inspection findings. The inspection involved 38 hours of direct inspector effort by one region-based inspector.

Results: Within the areas inspected, no violations were found.

Details

1. Individuals Contacted

Peach Bottom Atomic Power Station (PBAPS)

C. Anderson, Branch Engineer, Susquehanna Tests Branch
J. Baddick, Supervisory Engineering Technician, Susquehanna Tests Branch
H. Carr, Engineering Technician, Susquehanna Tests Branch
R. Fleischmann, Station Superintendant
C. Hoffmaster, Chemistry Technician
J. Mitman, Results Engineer
* D. Smith, Assistant Station Superintendant
* H. Watson, Plant Chemist

Philadelphia Electric Company (PECo) Corporate Offices

** J. Allen, Assistant Chief, Mechanical Engineering Division
J. Annable, Technical Assistant, Materials Test Branch
** J. Ballantine, Engineer, Environmental Branch, Nuclear and Environmental Section
** W. Baxter, Quality Assurance, Engineering and Research Department
R. Costagliola, Senior Engineer, Quality Assurance Division
S. Shoemaker, Engineer, Electrical Engineering
J. Smerke, Senior Engineer, Materials Test Branch

* Denotes those present at the exit interview on August 3, 1983, at the PBAPS site.
** Denotes those present at the exit interview on August 5, 1983, at PECo Corporate Office.

2. Licensee Action on Previous Inspection Findings

(Closed) Unresolved Item (277/81-02-01; 278/81-02-01): Assignment of environmental audit responsibility, scheduling of audits, and satisfactory performance and completion of the audits. The inspector reviewed the following annual audit reports covering the Environmental Technical Specifications:

Audit Date	Audit Number
May 22, 1981	A81-08 SO
February 26, 1982	A82-04 SO
February 7, 1983	A83-07 SO

The audits were found to be satisfactory.

(Closed) Followup Item (277/81-02-02; 278/81-02-02): Records of air sampler vacuum gauge checks. The licensee now keeps such records. The inspector reviewed selected records and found them satisfactory.

(Closed) Followup Item (277/81-02-03; 278/81-02-03): Reporting of radioactive cesium results. The Environs Radiation Monitoring Program (ERMP) reports, formerly produced by Interex Corporation, and currently by Chemical Waste Management Corporation, now include correct identification of total beta-emitting cesium, and of Cs-134 and Cs-137, where appropriate.

(Closed) Followup Item (277/81-02-04; 278/81-02-04): Extension of meteorological tower temperature sensor booms. The licensee stated that new meteorological monitoring equipment has been installed since the previous inspection. The inspector observed that this equipment appeared to be properly situated.

(Closed) Followup Item (277/81-02-05; 278/81-02-05): Environmental (water) thermal sensor calibrations. The inspector reviewed calibration procedures and records, and found that they now contain provision for a check of the response of the temperature sensors against known temperatures.

(Closed) Unresolved Item (277/81-02-06; 278/81-02-06): Operation and effectiveness of new sewage treatment plant. The licensee stated that the new treatment plant is now in operation. The inspector's review of records indicated that there have been no new environmental deviation reports concerning instances of exceeding pH limits or total suspended solids limits since the last inspection in this area.

(Closed) Noncompliance (277/81-02-07; 278/81-02-07): Failure to collect condensor chlorine samples. The inspector's review of selected records indicated that grab samples are normally taken at the start, midpoint, and end of periods of chlorination. One exception was noted in the week ending February 20, 1983 (record number 2-83-1-07, procedure number ST 7.3.2.a).

(Closed) Noncompliance (277/81-02-08; 278/81-02-08): Failure to calibrate chlorine analyzer. The PBAPS ETS (Section 3.2.1) require the chlorine analyzer to be calibrated monthly, but in the event the continuous chlorine analyzer is inoperable, the licensee is required to make manual measurements of the free residual chlorine level in the condensor discharge water at the start, midpoint, and end of chlorination. The licensee stated that the continuous chlorine analyzer was taken out of service due to continuing operability problems, and that manual measurements are being made instead. The inspector's review of selected records indicated that the required manual measurements have been made, with one exception as noted above.

(Closed) Unresolved Item (277/81-02-09; 278/81-02-09): Correlation of condensor discharge chlorine concentrations with canal discharge limits to Conowingo Pond. The inspector reviewed the licensee's procedure ST 7.3.2.b, "Analysis of Circulating Water Chlorine Residuals," and confirmed that

correlations have been performed as required by the licensee's Technical Specifications (Section 3.2.1).

3. Management Controls

The inspector reviewed the licensee's management controls for the environmental monitoring programs, including assignment of responsibility, program audits, and corrective actions for identified inadequacies and problem areas in the program.

a. Assignment of Responsibility

The inspector determined that management of the environmental monitoring programs remains essentially the same as it was at the time of the last inspection in this area. The licensee stated that radiological analyses are now contracted to Chemical Waste Management Corporation and Teledyne Isotopes. These contractors have taken over the programs formerly carried out by Interex Corporation and Radiation Management Corporation, respectively. These changes are further discussed in Detail 3.b and Detail 6, below.

b. Audits

The inspector reviewed audits conducted by the licensee of its contractors in the area of environmental monitoring, and noted that in the case of the Chemical Waste Management (CWM) Corporation, actions were taken as required to follow up and correct audit-identified deficiencies. In the case of Radiation Management Corporation (RMC), considerably more effort was required to elicit the necessary cooperation to resolve deficiencies. The previous inspection of the environmental monitoring program identified similar difficulties with RMC. The licensee stated that all audit-identified deficiencies were eventually resolved to the licensee's satisfaction and, furthermore, that Teledyne Isotopes has replaced RMC for this portion of the environmental monitoring program. The licensee stated that the first audit of Teledyne will be conducted during the first quarter of 1984. The inspector stated that records of this audit will be reviewed during the next inspection of this area (277/83-21-01; 278/83-21-01).

The inspector also reviewed internal audits of both the radiological and non-radiological environmental monitoring programs. The former are conducted biannually, and the latter, annually. The inspector review these audits for the years 1981 through 1983, and found them satisfactory.

4. Licensee Program for Quality Control of Analytical Measurements

The licensee described the QC programs conducted by its contractors, RMC and CWM. Both contractors participate in the EPA crosscheck program. The environmental TLD program has been conducted by RMC, and now by Teledyne.

The licensee stated that quality control of the TLD program is obtained by participation in the U.S. Department of Energy intercomparison program. In the most recent tests, RMC's TLDs were found to be within acceptable limits.

The inspector reviewed selected samples of quality control data submitted to the licensee by its two contractors. These data indicated, with few exceptions, agreement between EPA spike samples and the contractors' results. Where discrepancies were found, reasons for the differences were investigated and satisfactorily resolved.

5. Implementation of the Environmental Monitoring Program - Radiological

The inspector examined selected environmental monitoring stations including air samplers for iodines and particulates, and TLDs for direct radiation measurement. All equipment at these stations was operational at the time of the inspection. The inspector reviewed procedures and records for calibration and maintenance of the air samplers and vacuum gauges, and found that these calibrations were performed regularly and on schedule.

The inspector reviewed the annual reports for 1980, 1981, and 1982 (draft), prepared by the contractors for the licensee: Interex (now Chemical Waste Management Corporation) and RMC. No significant problems were identified. The contractors cover a greater number and variety of environmental samples than is required under the PBAPS ETS, and in several instances, overlapping data are obtained by the two contractors.

The inspector discussed with the licensee an apparent trend in the data plotted in Figure IV.9.1 of the CWM annual report for 1981. This figure displays the mean annual concentration of Sr-90 radioactivity in milk samples for farms at nearby, intermediate, and distant locations relative to PBAPS. According to the figure, the annual mean value for the distant farms has been consistently below the values for the nearby and intermediate farms since 1973. Although this apparent trend may in fact not exist (due to statistical consideration), the text of the report makes no mention of the trend, and presents no statistical analysis. The range of all Sr-90 values is, as the report states, within the range of PBAPS preoperational data. A similar trend, beginning in 1977, may be seen in the data of Figure 13 of the RMC annual report for 1981, regarding average Sr-90 concentrations in top soil for on-site and distant soil locations. In this case, the text of the report points out a reason for the difference, but does not discuss the apparent trend. The difference was attributed to the accumulation of vegetative debris at the on-site location.

6. Implementation of the Environmental Monitoring Program - Nonradiological

The inspector reviewed procedures and records (ST 7.3.2.a and ST 7.3.2.b) pertaining to chlorine analysis at the discharge of the condensors and at the point of discharge into Conowingo Pond. The inspector discussed with the licensee certain difficulties with regard to the chlorine analyses,

including one instance in which the chlorine level exceeded the Technical Specification limit at the discharge into Conowingo Pond, and one instance in which grab samples were not taken at the discharge into Conowingo Pond at the midpoint and end of a period of chlorination. In the former case, it appears that the level was exceeded only momentarily; continued analysis showed the amount of chlorine returning to a level below the Technical Specification limit. In the latter case, chlorination was performed under the control of the Test Engineers, which is not the usual procedure. This was the only period of chlorination during the month. The Technical Specifications require grab sampling at the discharge to Conowingo Pond once a month during periods of chlorination. Chemistry had not been informed that a chlorination would take place, and did not expect it because the chlorinators had been out of service for an extended period of time. The licensee stated at the site exit meeting that communication between these groups would be improved in order to avoid recurrence of this problem.

7. Meteorological Monitoring

The inspector examined the licensee's meteorological monitoring system, including the primary and backup meteorological towers, the digital read-outs and recorder charts in the equipment houses at each tower, and the digital read-outs, charts, and computerized print-out in the control room. The temperature indication from the 33' elevation sensor on the back-up tower was reading abnormally low at the time of the inspection. The licensee investigated and found that this recorder was out of calibration due to a loose connection. It was repaired and calibrated. The remainder of the system was operating properly at the time of inspection.

The licensee stated that new meteorological monitoring equipment had recently been installed. The inspector reviewed the calibration procedures and records and found that procedures were thorough and calibrations were performed as scheduled. The licensee stated that new procedures are being written that will better reflect the new meteorological monitoring equipment.

8. Exit Interview

The inspector met with licensee representatives denoted in Detail 1 at the conclusion of the PBAPS site portion of the inspection on August 3, 1983, and at the PECo corporate offices on August 5, 1983. The inspector summarized the purpose and scope of the inspection, and discussed the findings. At no time during this inspection was written material provided to the licensee by the inspector.