

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-277/84-23
50-278/84-18

Docket No. 50-277
50-278

License No. DPR-44
DPR-56 Priority -- Category C

Licensee: Philadelphia Electric Company
2301 Market Street
Philadelphia, PA 19101

Facility Name: Peach Bottom Unit 2&3

Inspection At: Delta, Pennsylvania

Inspection Conducted: July 23-24, 1984

Inspectors: J. E. Briggs, Jr. 9/10/84
J. Chung, Lead Reactor Engineer date

S. Kucharski 9/10/84
S. Kucharski, Reactor Engineer date

Approved by: L. H. Bettenhausen 9/17/84
L. H. Bettenhausen, Chief, date
Test Programs Section

Inspection Summary: Inspection on July 23-24, 1984 (Report No. 50-277/84-23 and 50-278/84-18)

Areas Inspected: Routine, unannounced inspection of licensee action on previous inspection finding; licensing issues on torus/drywell vacuum breaker and air sampling system; QA program implementation; and plant tour. The inspection involved 31 inspector hours on site and at corporate headquarters by two region-based NRC inspectors.

Results: Noncompliance - None; Deviation - None

DETAILS

1. Persons Contacted

Philadelphia Electric Company (PECO)

+W. Alden, Engineer-In-Charge, Licensing Section
+D. Baldwin, Licensing Group Engineer
+W. Birely, Senior Licensing Engineer
*R. Fleischmann, Station Superintendent
*J. Mitman, Result Engineer
+M. Ryan, Licensing Engineer Supervisory
*H. Watson, Plant Chemist

Nuclear Regulatory Commission (NRC)

*A. Blough, Senior Resident Inspector
*S. Ebner, Chief, Engineering Program Branch

*Denotes those present at the exit meeting on July 24, 1984

+Denotes those present at the meeting at Corporate Office on July 24, 1984

2. Licensee Action on Previous Inspection Items

(Closed) Unresolved Item (277/83-09-02) (278/83-09-03): The air sampling system was not reliable for measuring the reactor coolant system leakage as a backup to the sump pump-out system.

On May 3, 1983, unidentified leakage in the Unit 2 Drywell exceeded the 5 gpm Technical Specification limit. The air monitoring system count rate readings did not change significantly, even though the system was properly operating during that period. Subsequently, a question was raised to clarify how the air monitoring system would be used to correlate the leakages from the reactor coolant system.

The sump pump-out system was designed to measure the condensed water from leaks collected in the sump, which might include both radioactive and non-radioactive fluid. The air sampling system measures only airborne radioactivities. Therefore the air sampling system data could not be correlated with the sump pump-out rates quantitatively.

The inspector concluded that the large leaks, in excess of 5 gpm on May 3, 1983, could have originated from the non-radioactive water sources which could not be detected by the air sampling system. This item is considered closed.

3. Containment Air Sampling System

An inspection was conducted to determine the adequacy of the leak detection system and procedural controls for the air sampling, particulate and iodine activity measurements when the drywell sump flow detection system

was inoperable or when the flow detection system demonstrated excess leakage or leak rate changes. Also, the sampling points of the air samples and triggering to events initiate and to utilize iodine tests were reviewed.

The isometric piping diagrams of the air sampling system and sample suction points were compared with other system piping layouts in the drywell, including steamlines, recirculation and reactor water cleanup systems. The inspector also inspected penetrations and outboard isolation valves of the air sampling system at elevation 116', and the sample count rate meters and recorder at elevation 134'.

The surveillance records of the sample and iodine tests for a period from May 2, 1983 through May 22, 1983 were reviewed, and comparisons were made with the reactor coolant leakage surveillance tests performed May 2 and 8, 1983.

Findings

The air sampling and iodine charcoal filter tests were intended to monitor the radioactivities or a significant change of the radioactivities in the drywell so as to detect the reactor coolant leakages qualitatively.

On the other hand, the sump flow detection system was intended to quantify all the liquid leakages into the drywell, which might include not only leakages from the reactor coolant system water but also non-radioactive water from other support systems. Thus, the unidentified leaks observed by the floor drain system could include both radioactive and non-radioactive water collected in the drywell sump.

When a large leakage rate was detected by the sump pump-out system, the air sample and charcoal filter analyses could differentiate the sources of the leaks qualitatively, and thus could provide valuable information in order to quickly identify the status of the reactor coolant system boundary.

The inspector noted that there were three sampling points in the drywell, located at 142', 169' and 204' elevations, and that only one suction point was utilized. Even though air circulation in the drywell was sufficient to provide some representative air at the one point due to the forced and convective flow, the sampling points were positioned in such a manner that all three sampling points could be utilized effectively, particularly when large unidentified leakages were observed by the sump flow system.

The inspector determined that there were no clear procedural controls other than normal scheduled surveillances, to utilize the containment air sampling system to perform gaseous, particulate and/or iodine analyses from different sampling points and when the sump flow detection system was inoperable or when the flow detection system identified increasing leakages. This is an unresolved item pending further clarification and subsequent NRC:RI inspection. (50-277/84-23-01 and 50-278/84-18-01).

4. Torus - Drywell Vacuum Breaker

An inspection was conducted at two locations, Peach Bottom and Philadelphia, to determine the operation and the area calculation of the torus-drywell vacuum breakers. The inspector discussed the operation of the vacuum breakers in detail with the site licensee representatives to verify the operability requirements. The inspector verified by review of surveillance test procedures that a vacuum valve operability test was performed monthly and that the visual inspection and leakage tests were performed at the end of the fuel cycle. Also, the setting of limit switches and light indicators were tested using two maintenance procedures.

At the corporate office, the inspector questioned the the correlation between a 3° opening of a vacuum breaker specified in Technical Specifications, and a one inch hole, the acceptance criterion of NUREG 0800. The licensee was unable to produce the information and stated that a follow-up report would be sent to the inspector. This is an inspector follow-up item (277/84-23-02 and 278/84-18-02).

The following procedures were reviewed:

- Surveillance Test, ST 9.6 - Drywell Torus Vacuum Breaker Operability, Peach Bottom Unit 2 and 3
- Surveillance Test, ST 12.7 - Visual Inspection of Vacuum Breakers, Peach Bottom Unit 2 and 3
- Surveillance Test, ST 12.6-1 - Primary Containment Drywell to Torus Bypass Area Test - Unit 2 only
- Surveillance Test, ST 12.6-2 - Primary Containment Drywell to Torus Bypass Area Test - Unit 3 only
- Maintenance Procedure M-7.10 - Replacement of Torus/Drywell Vacuum Breaker Hinge Arms, Hinge Pins, Hinge Pin Bushings, Pallet Seal and 24 inch "O" Ring, Peach Bottom Unit 3
- Special Procedure, SP-714 - Torus/Drywell Vacuum Breaker Inspection and Maintenance, Peach Bottom Unit 2

5. Facility Tour

The inspectors, accompanied by a licensee representative performed a limited facility inspection of the following areas:

- The Control Room
- 116' elevation: vacuum breaker room and outboard isolation valves of the air sampling system - Unit 2
- 116' elevation: vacuum breaker room - Unit 3

-- 134' elevation: air sample recorders and counters - Unit 3

The inspector also discussed surveillance performance with the reactor operator and observed the light indicators for the vacuum breakers located outside the control room.

6. QA/QC Program

The following QA/QC activities were noted by the inspector:

- Review of Maintenance Procedure M-7.10 - Replacement of Torus/Drywell Vacuum Breaker Hinge Arms, Hinge Pins, Hinge Pin Bushings, Pallet Seal and 24 inch "O" rings, Peach Bottom Unit 2, reveals that the setpoint check must be verified by the QC inspector.
- Review of Special Procedure - 714 - Torus-Drywell Vacuum Breaker Inspection and Maintenance - has various hold points in which a QC inspector signature is required.

No required unacceptable conditions were identified.

7. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable, an item of noncompliance, or a deviation. An unresolved item discussed during the inspection is discussed in Paragraph 3.

8. Management Meetings

Licensee management was informed of the scope and purpose of the inspection at an entrance interview conducted on July 23, 1984. The findings of the inspection were periodically discussed with licensee representatives during the course of the inspection. An exit interview was conducted on July 24, 1984 (see paragraph 1 for attendees) at which time the findings of the inspection were presented.

At no time during this inspection was written material provided to the licensee by the inspectors.