

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report Nos. 50-277/84-17  
50-278/84-15

Docket Nos. 50-277  
50-278

License No. DPR-44  
DPR-56

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

Facility Name: Peach Bottom Atomic Power Station

Inspection At: Delta, Pennsylvania

Inspection Conducted: May 14-18, 1984

Inspectors:	<u><i>J.E. Dyer</i></u>	<u>7.3.84</u>
	for J.E. Dyer, Inspection Specialist, IE	date
	<u><i>D.F. Linroth</i></u>	<u>7.3.84</u>
	D.F. Linroth, Inspection Specialist, IE	date
	<u><i>L.J. Callan</i></u>	<u>7.3.84</u>
	for L.J. Callan, Chief, Performance Appraisal Section, IE	date
Approved by:	<u><i>J.E. Tripp</i></u>	<u>7/5/84</u>
	J.E. Tripp, Chief, Reactor Projects Section 3A	date

Inspection Summary: Inspection on May 14-18, 1984 (Combined Inspection Report 50-277/84-17; 50-278/84-15)

Areas Inspected: Routine unannounced inspection by three headquarter-based inspectors of licensee corrective and preventive maintenance programs. The inspection involved 104 hours on site.

Results: Except as follows, activities appeared to be conducted in accordance with requirements: (1) a violation was identified in the area of corrective action (failure to take prompt corrective action) and (2) a violation was identified in the area of test control (failure to permit evaluation of a system's/component's performance).

## DETAILS

### 1. Persons Contacted

A. Donell (2), Quality Control (QC) Site Supervisor  
R. Fleischmann (2), Station Superintendent  
D. Smith (1), Assistant Superintendent  
J. Mitman (2), Results Engineer  
T. Wilson (2), Quality Assurance (QA) Site Supervisor  
J. Davenport (1), Engineer - Maintenance  
B. Hinkle, Supervising Engineer  
S. Spitko, Quality Assurance (QA) Engineer  
W. Texter, Quality Control (QC) General Supervisor  
G. Dawson, Instrument and Control (I&C) Engineer  
D. Sparks, Supervising Maintenance Activities Coordinator  
W. Macneil, Maintenance Engineer  
G. Jackman, Preventive Maintenance Engineer  
J. Rosenmuser, Maintenance Operations Coordinator  
N. Alexakos, Technical Analyst  
K. Jeffers, Technical Analyst

#### NRC

A. Blough (1), Senior Resident Inspector  
J. Gagnon (1), Division of Human Factors Safety, NRR  
G. Meyer (2), Project Engineer, Region I

(1) Present at Entrance and Exit Interview  
(2) Present at Exit Interview

### 2. Exit Interview

The scope of the inspection and findings were summarized on May 18, 1984 with those persons indicated in paragraph 1.

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

### 3. Maintenance

#### 3.1 References

- 10CFR50, Appendix B, Quality Assurance Criteria for Nuclear Power Plants
- Regulatory Guide 1.33 - 1978, Quality Assurance Program Requirements
- ANSI N18.7 - 1972, Administrative Controls and Operational Quality Assurance for Operations

- ANSI N45.2.3 - 1973, Housekeeping for the Construction Phase of Nuclear Power Plants
- Regulatory Guide 1.39 - 1977, Housekeeping Requirements for Water Cooled Nuclear Power Plants
- Directorate of Regulatory Operations Bulletin 72-3
- IE Circular No. 77-01; Malfunctions of Limitorque Valve Operators
- IE Circular No. 78-16; Limitorque Valve Actuators
- IE Information Notice No. 79-03; Limitorque Valve Geared Limit Switch Lubricant
- IE Circular No. 79-04; Loose Locking Nut on Limitorque Valve Operators
- IE Information Notice No. 81-08; Repetitive Failures of Limitorque Operator SMB-4 Motor-to-Shaft Key
- IE Circular No. 81-13; Torque Switch Electrical Bypass Circuit for Safeguard Service Valve Motors
- IE Information Notice No. 82-10; Following Up Symptomatic Repairs to Assure Resolution of the Problem
- IE Information Notice No. 84-10; Motor-Operator Valve Torque Switches Set Below Manufacturer's Recommended Value
- IE Information Notice No. 84-36; Loosening of Locking Nut on Limitorque Operator
- AEOD/C203 May 1982; Survey of Valve Operator Related Events Occurring 1978, 1979, and 1980
- Peach Bottom Atomic Power Station (PBAPS) Technical Specifications, Units 2 and 3
- Peach Bottom Quality Assurance Plan, Volume III

### 3.2 Program Review

The inspector reviewed the licensee's maintenance program to determine whether:

- Preventive maintenance and corrective maintenance programs were established
- Written procedures were established for initiating requests for routine and emergency maintenance

- Procedures and responsibilities were established for equipment control
- Provisions were established for the coordination of maintenance activities and interface controls among participating organizations
- Personnel were trained and qualified to perform maintenance activities
- Criteria and responsibilities were established to identify safety and non-safety-related maintenance activities
- Criteria and responsibilities were established for designating hold points and performing work inspections
- Criteria and responsibilities were established for review and approval of all maintenance requests
- Criteria and responsibilities were established for the use of industry-accepted procedures
- Administrative controls were established to prepare, assemble, review, and store the maintenance records
- A program was established to review the corrective maintenance program; assess the adequacy of the preventive maintenance program; identify repetitive failures of parts and components; and identify design deficiencies

The inspection concentrated primarily on the training, planning, accomplishment, and documentation of maintenance associated with motor-operated valves.

The inspector examined the following documents to determine whether requirements cited in 3.1 above were met:

- A25, Preventive Maintenance Program, Revision 2, December 6, 1983
- A26, Procedure for Corrective Maintenance, Revision 23, May 19, 1981
- A26A, Procedure for Corrective and Preventive Maintenance Using CHAMPS, Revision 0, June 21, 1983
- MA-0, Administrative Procedure Index, Revision 45, February 29, 1984
- MA-3, Documentation and Control of Maintenance, Revision 3, June 10, 1983
- MA-9, Training of Maintenance Division Personnel, Revision 3, November 18, 1983

- MA-21, Procedure for Processing and Completion of a Peach Bottom Maintenance Request Form, Revision 1, September 15, 1982
- M-9.1, Limitorque Switches Inspection, Maintenance, Adjustment, Lubrication, Revision 10, October 11, 1983
- M-9.3, Disassembly and Repair of Limitorque Valve Operators, Revision 1, October 7, 1983
- M-10.4, MO-89 Valve Inspection, Revision 4, January 12, 1979
- M-10.8, MO-10-34 Valve Repair, Revision 3, May 11, 1983
- M-12.6, Reactor Water Clean-Up System Recirc Flow to Reactor - MO-12-68 Valve Maintenance

During the inspection, the PBAPS procedures and organization were undergoing significant changes including:

- Maintenance organizations were being re-aligned into the divisions supporting PBAPS
- A Quality Control group was being formed within the Quality Assurance Division to provide independent review of work
- The Computer History and Maintenance Planning System (CHAMPS) was being established to process and record maintenance actions
- New facilities to house the various maintenance groups were being completed
- A computerized system for storage and retrieval of maintenance material was being established
- Maintenance procedures were under revision to incorporate the contents of vendor technical manuals to alleviate the need for controlling these manuals

The above initiatives have the potential for improving the efficiency of maintenance activities when fully implemented. The transition at the commencement of a 32-week outage is ambitious.

Development of a Preventive Maintenance Program has been completed and is in the stages of initial implementation. This system has the capability to provide feedback information for maintenance procedure revision.

New methods for scheduling and tracking the status of Maintenance Request Form (MRF) preparation/review/approval were being developed using CHAMPS. This included an informal program which provided

information regarding the status of MRFs including quantitative backlog data by management function.

### 3.3 Implementation

Safety-related corrective and preventive maintenance activities were reviewed on a sampling basis to determine if:

- Selected maintenance activities were performed in accordance with administrative procedures as detailed in 3.2
- Approved procedures were used for those maintenance activities which could be considered beyond the skills normally possessed by qualified maintenance personnel
- Post maintenance testing was performed to verify operability including second verification of safety-related component status
- Records to substantiate quality of work and parts used were available for a sample of parts that were listed in Maintenance Requests.

The following documents and activities were reviewed:

- Organization chart of the Station Maintenance Division dated May 8, 1984
- Organization chart of the Electric Production Department dated January 30, 1984
- Organization chart of the Engineering and Research Department dated January, 1980
- Fifty completed maintenance work packages including 16 performed under CHAMPS
- Daily maintenance planning information including four copies of the Maintenance Forecast for Permit Requests
- Tour of maintenance facilities

### 3.4 Findings

- 3.4.1 Procedure Inadequacy. Procedure M-9.1, Limitorque Switches Inspection, Maintenance, Adjustment, Lubrication, Revision 10 dated October 11, 1983, provides guidance for Limitorque limit and torque switches. References were made throughout the procedure to Exhibits 1 through 4 providing direction such as "Turn pc #48 clockwise with a screw driver until it reaches a stop position." Exhibits 1 through 4 did not exist with controlled copies of the procedure.



Maintenance personnel interviewed stated that they thought that the exhibits referred to were the REFERENCES of the procedure. REFERENCES 3 and 4 of this procedure were NRC bulletin 79-01 and 79-03, respectively, and contained no drawings.

The Superintendent who approved the procedure stated that the exhibits had been lost between the time that the secretary had typed the procedure following review by the Plant Operation Review Committee (PORC) and final distribution of the approved version. The Superintendent stated that he had reviewed the procedure after typing to ensure that the necessary administrative processes, e.g., PORC review, had been accomplished; however, he did not review the procedure to insure completeness. It is the Station Superintendent's stated intention that a cognizant technical person shall review procedures after typing to ensure conformity with the draft copy approved by the PORC.

Similarly, Procedure M-9.3, Disassembly and Repair of Limitorque Valve Operators, provides instructions based on Limitorque model SMB-0 as a general example. The procedure makes frequent reference to pieces not identified on the SMB-0 drawing attached to the procedure when discussing maintenance of operators other than the SMB-0 model. The drawings attached to the procedure were of marginal quality.

The above findings, while not violations in themselves, are symptomatic of previously identified programmatic weaknesses such as those discussed in Report numbers 50-277/84-01 and 50-278/84-01.

- 3.4.2 Procedure Review. Maintenance Division Procedure MA-1, Procedure for Generation, Control, and Revision of Maintenance Division Administrative Procedures prescribes the requirement that each MA Procedure shall be reviewed for adequacy within two years of the current revision of the review date. Maintenance Division administrative procedures MA-4, MA-8, MA-11, MA-15, and MA-17 had not been periodically reviewed since 06/18/81, 06/12/79, 04/20/81, 01/11/77, and 08/09/79, respectively. Some of these failures to comply with licensee procedures had been documented in Audit Report AP83-40PR dated January 26, 1984 and previously in non-conformance report NCR A82-37-01.

Criterion XVI, 10CFR50, Appendix B prescribes that measures shall be established to assure that conditions adverse to quality are promptly identified and corrected. Failure to take prompt corrective action is a violation (277/84-17-01; 278/84-15-01).

3.4.3 Procedure inadequacy. Twenty surveillance tests representing about two years' worth of procedures ST 12.15.1-3, ST 12.15.3-3, and ST 12.15.4-3 which partially implement the requirements of Technical Specification 6.14 were reviewed. Some of these were signed as having been completed by two persons and reviewed almost immediately by a shift supervisor; some were signed as having been performed by one person and reviewed by a shift supervisor; some were performed by two persons and not reviewed by a shift supervisor; some procedural steps were initialled as being complete while others were checked; some contained a document titled "Double verification of return to normal" and others did not, and some of these documents which were included were incomplete so that a determination as to which procedure it pertained was not evident; others were initialled "N/A" vice signed; similar documents for the same test were not similarly completed. The lack of uniformity in completion of documentation which provides the objective evidence of compliance with technical specification requirements is symptomatic of inadequate guidance with respect to satisfying the licensee's administrative controls program.

Further, none of the procedures cited above contained criteria or test results against which a pass/fail determination could be made except possibly through the lack of Maintenance Request Form(s) (MRF) being referenced. One of the MRFs referenced, 3-23-M-1-192 required the overhaul of valve MG-3-23-14, the 8-inch steam supply to the high pressure coolant injection (HPCI) turbine due to excessive seat leakage. Another, 3-23-M-1-201, involved the replacement of a 1-inch drain valve due to excessive seat leakage. Step 6 of Part Two of ST 12.15.4-3 (Rev 0) states "6. Note and quantify any leakage found." This item was simply initialled on the surveillance test and the above listed MRFs generated, as the result of the test, stated, "Valve leaks through. Exhaust drain constantly fills with hot condensate." and "Valve leaks thru seat." The test did not provide objective evidence upon which to determine satisfactory or unsatisfactory system/component performance.

Peach Bottom Quality Assurance Plan, article SR 11.4, states that surveillance test instructions, procedures, and drawings shall be designed to permit evaluation of the system's or component's performance. In that the completed documentation did not contain the information on which such a determination could be made, this is a violation. (277/84-17-02; 278/84-15-02).