

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-277/84-32
50-278/84-26

Docket No. 50-277
50-278

License No. DPR-44
DPR-56

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

Facility Name: Peach Bottom Atomic Power Station

Inspection At: Delta, Pennsylvania

Inspection Conducted: September 13 - 19, 1984

Inspectors: *T. L. Harpster*
T. L. Harpster, Lead Reactor Engineer

10/5/84
date

J. Prell for
J. Prell, Reactor Engineer

10/16/84
date

E. T. Shaub for
E. T. Shaub, Reactor Engineer

10/16/84
date

Approved by: *A. T. Gody*
A. T. Gody, Chief MPS, DETP

10/16/84
date

Inspection Summary: Inspection on September 13-19, 1984 (Combined Inspection Report 50-277/84-32; 50-278/84-26)

Areas Inspected: Announced Special Safety inspection of near-term follow-up of responses to Generic Letter 83-28. Inspection in areas of equipment classification, post-maintenance testing, and vendor interfaces.

The inspection involved 101 inspection hours by 3 region based inspectors.

Results: No violations were identified.

Details

1. Persons Contacted

Philadelphia Electric Company (PECO)

- W. Baxter, (QA) Quality Assurance Engineer, Engineering & Research Department (E&RD)
- W. Boyer, (EQ) Equipment Qualification Group Leader, E&RD
- C. Brinkman, General Store Keeper
- W. Cann, Spare Parts Coordinator
- J. Davenport, Maintenance Engineer
- G. Dawson, Instrumentation and Controls (I&C) Engineer
- T. Donaghy, Shift Superintendent
- *R. Fleischmann, Plant Superintendent
- B. Geiger, Preventive Maintenance Engineer
- F. Mascitelli, Assistant Mod Coordinator
- W. Mindick, Electrical Project Engineer
- J. Mittman, Results Engineer
- W. Pinner, Supervisory Engineer, Maintenance Department
- B. Raftovitch, Procurement and Receipt Inspector
- J. Rogenmuser, Engineer Maintenance
- *D. Smith, Assistant Plant Superintendent
- S. Spitko, Site QA Engineer
- P. Tutton, Mechanical Project Engineer
- D. Warfel, Assistant Maintenance Engineer
- T. Wilson, QA Site Supervisor

Catalytic

- T. Kopac, Supervisory Engineer
- J. Nye, Engineer

NRC

- *H. Williams, Resident Inspector

*denotes those present at the exit interview on September 19, 1984.

2.0 Inspection Summary

2.1 Background

The reactor trip system, as part of the reactor protection system, is fundamental to reactor safety for all nuclear power reactor designs. Transient and accident analyses are predicated on the assumption that the reactor trip system will automatically initiate reactivity control systems on demand to assure that fuel design limits are not exceeded. The design and regulatory philosophies for attaining the high reliability required of the reactor trip system have been based primarily on the use of redundancy, periodic testing, and quality assurance.

In February, 1983 the Salem Nuclear Power Station experienced 2 failures of the reactor trip system on demand. Regulatory and industry task forces were formed to determine the safety significance and generic implications of the events. Based on these findings, certain actions were required of all licensees. These actions, transmitted in Generic Letter 83-28, fell into 4 areas: (1) post-trip review, (2) equipment classification and vendor interface, (3) post-maintenance testing, and (4) reactor trip system reliability improvements.

PECO submitted their response to Generic Letter 83-28 in letters dated November 4, 1983, April 23, 1984, June 29, 1984, and August 31, 1984. This inspection included the areas of equipment classification, vendor interface and post-maintenance testing.

3. Equipment Classification

3.1 References

Peach Bottom Atomic Power Station (PBAPS) Updated Final Safety Analysis Report (UFSAR), Section 1.4, Classification of BWR Systems, Criteria and Requirements for Safety Evaluation
 PBAPS UFSAR, Section 13, Conduct of Operations
 PBAPS UFSAR, Section 14, Plant Safety Analysis
 PBAPS UFSAR, Appendix D, quality Assurance Program
 PBAPS UFSAR, Appendix H, Conformance to NRC Criteria
 PBAPS Technical Specifications
 PBAPS Quality Assurance Plan, Volume III
 PBAPS Project Q-List and QAD's
 Engineering and Research Department Procedure (ERDP) 3.1, Procedure for Handling Q-Listed Modifications, Revision 5
 ERDP 3.2, Procedure for Maintaining, Amending and Revising the Project Q-List, Revision 5
 ERDP 3.3, Procedure for Performance of Safety Evaluations and Application for Amendments to Facility Operating Licenses
 ERDP 3.7, Procedure for Control and Revision of Quality Assurance Diagrams
 Administrative Procedure (A)-14, Plant Modification, Revision 9
 A-25, Preventive Maintenance Program, Revision 2
 A-26, Procedure for Corrective Maintenance, Revision 23
 A-27, Procedure for Material Control, Revision 2
 Letters, Daltroff to Eisenhut; dated November 4, 1983, April 23, 1984, June 29, 1984 and August 31, 1984; "Response to Generic Letter 83-28"

3.2 Program Review

The PECO program for equipment classification, described by references in section 3.1, was reviewed and determined:

- The criteria and source documents which form the bases for the scope of the Project Q-List and quality assurance program

- The extent to which the Nuclear Plan Reliability Data System (NPRDS) or other industry reporting systems are used as inputs
- The extent to which corrective actions or other PECO management informations systems are used as inputs
- The assignment of responsibility for reviewing and updating the Project Q-List
- The distribution and control of the Project Q-List
- The frequency and sources of revision to the Project Q-List
- The training provided to engineering and station personnel associated with the classification of equipment.

3.3 Program Implementation

A number of components were selected which have finite lifetimes because of wear, environment, etc. For these components:

- Procurement documents, including engineering specifications were sampled and proper classification, inspection, storage and other quality requirements were verified
- Maintenance requests, modifications, and their associated schedules were sampled and proper classification, preplanning for maintenance and quality involvement were observed
- Associated documentation was sampled and preplanning for procurement, storage, maintenance, preventive maintenance and replacement was observed
- There was adequate interface between engineering and station personnel in the equipment classification area.

Various other components were reviewed and noted that they were properly classified. The components selected included instrumentation required by the off-normal and emergency procedures and components which are assumed to operate in transient and accident analyses in the UFSAR.

3.4 Findings

No violations were identified.

4.0 Post-Maintenance Testing

4.1 References

- PBAPS Operational Quality Assurance Program Volume III

- A-26, Procedure for Corrective Maintenance, Revision 2
- A-26-A, Procedure for Corrective and Preventive Maintenance using CHAMPS, Revision 0
- A-89, Modification Acceptance Tests, Rev. 0

4.2 Program Review

The references in Section 4.1 were reviewed and determined that Peach Bottom was implementing a post-maintenance and modification testing program which included the following:

- Written procedures for initiating requests for post-maintenance testing
- Criteria and responsibilities for review and approval of post-maintenance testing
- Criteria and responsibilities for performing inspection of post-maintenance testing activities
- Methods for performing functional testing following maintenance and prior to returning to service
- Requirements for adequate documentation of the above reviews, approvals, inspections, and tests.

4.3 Implementation Review

The licensee's post-maintenance and modification testing program was reviewed.

The following indicated that the program was implemented effectively:

- 40 completed Maintenance Work Requests (MRF) and the associated Operational Verification Forms (OVF)
- 4 Modification packages with completed Modification Acceptance Tests (MAT)
- 30 Maintenance procedures which addressed post maintenance testing
- 7 Modification Acceptance Tests, written and porc approved to support the current Unit 2 outage modifications
- The deferred testing file used to coordinate and ensure completion of post-maintenance testing for outage related activities

- The basis for determining the minimum testing requirements to prove equipment operability
- Blocking Permits and Reactor Operator log entries associated with maintenance of an inoperable control rod (March 19, 1984 MRF No. 3 84 00599)

The licensee has recently established procedure A-89, "Modification Acceptance Test" to provide control of post-modification testing activities. A plant staff engineer is assigned responsibility for each modification and development of the MAT to adequately test the newly installed modification. Each MAT, is developed with input from the Engineering & Research Department and approved by the Plant Operations Review Committee.

4.4 Findings

No violations were identified

5.0 Vendor Interface

5.1 References

- Letters from S. L. Daltroff, Vice President Electrical Production, (PECO) to D. G. Eisenhut, Director Division of Licensing, NRC, dated November 4, 1983, April 23, 1984, June 29, 1984 and August 31, 1984
- Generic Letter 83-28 to all licensees dated July 8, 1983, subject: Required Actions Based on Generic Implications of Salem ATWS Events
- Final draft of Nuclear Utility Task Action Committee (NUTAC) dated February 1984 entitled "Vendor Equipment Technical Information Program"
- PECO memorandum from W. T. Ullrich to M. J. Cooney dated April 2, 1984 entitled "Peach Bottom Shelf Life Program and Environmental Qualification Program"
- ANSI N45.2.13-1976, Quality Assurance Requirements
- ANSI N45.2.2-1972, Packaging Shipping Receiving, Storage and Handling of Items For Nuclear Power Plants
- A - 25, Preventive Maintenance Program, Revision 2
- A-14, Plant Modifications, Revision 9
- A-27, Procedure for Material Control System, Revision 13
- A-27.5, Procedure for Procurement and Control of Catalog Items, Revision 0

- A-27.4, Limerick Generating Station, Units 1 & 2 Request for a Permanent Transfer of equipment/material, Revision 0
- Maintenance Procedure (M) - 9.1, Limitorque Switches Inspection, Maintenance, Adjustment, Lubrication
- M-9 2, Asco Valve Repair, Revision 1
- M-9.3, Disassembly and Repair of Limitorque Valve Operators, Revision 1
- M-4.12, SRM/IRM Drive Unit Maintenance
- M-10, Residual Heat Removal (RHR) 20" 10-48 A, B, C, and D Discharge Check Valve Maintenance
- M-13.1, Reactor Core Isolation Cooling (RCIC) Turbine-Maintenance
- M-1.25, Main Steam Isolation Valve (MSIV) Air cylinder and oil Dashpot Maintenance and Seal Leak Test
- M-13.7, Reactor Core Isolation Cooling (RCIC) Turbine Trip Throttle Valve Maintenance
- M-52.2, Diesel Engine Maintenance
- Maintenance Administrative Procedure (MA)-8, Control of Purchased Material and Services, Revision 2
- Stores Division Administrative Procedure (SDA) - 5, SDAP for Storage, Packaging and Shipping of Items for Nuclear Power Plants, Revision 3
- Audit (AP) 84-43 MEM, Preventive Maintenance Program, July 13, 1984
- AP 84-04 SP, Procurement and Storage, February 2, 1984
- Writing Guide For Maintenance Procedures

5.2 Program

The procedures referenced in Section 5.1 were reviewed and determined that Peach Bottom had established a vendor program for the storage and maintenance of safety related items which included the following:

- only approved and qualified suppliers (vendors) are used for supplying Q-listed items
- Purchasing documents contain clear quality assurance criteria

- A program exists for assuring that current vendor information is received and reviewed by the licensee
- Vendor recommendations and technical manuals are appropriately reviewed and the information distributed where needed
- Items are stored and preventive maintenance is performed in accordance with supplier or engineering recommendations
- Only items receipt inspected and accepted are issued for plant use
- Purchase and receipt records for Q-listed items are retained and maintained in accordance with established requirements
- QA/QC overview of the above activities

5.3 Implementation

A tour of the warehouse was made and verified adequate proper storage conditions. Several items were selected and their purchase receipt and storage record were reviewed and verified proper implementation of the procurement, receipt, storage and maintenance program. Those items selected were:

- BW 306705 Limitorque Motor
- BW 234349 Dings Motor
- BW 367908 Porter Periless Motor
- BW 367704 Cutler Hammer Thermal Relay
- SO 112854 Asco Valve solenoid
- BW 343777 Veton Disc #438.7

Discussions were held with Stores, QC and Maintenance personnel regarding the licensee's shelf life and preventive maintenance programs. An in-depth review of the maintenance procedures listed in Section 5.2 was made and verified that engineering personnel and plant management evaluated and incorporated, if appropriate, vendor recommended maintenance guidance. The inspector observed preventive maintenance for reactor core isolation cooling turbine trip throttle valve.

No violations were identified.

6.0 QA/QC Involvement

The quality assurance program and associated documentation was reviewed and determined that the QA/QC involvement in activities associated

with equipment classification, post-maintenance testing and vendor interfaces was effective. The specific areas of involvement included:

- QA audit of activities associated with maintaining and revising the Project Q-List and the QAD's
- QA audit, surveillance or other involvement in maintenance activities and modifications
- QA audit, surveillance or other involvement in post-maintenance testing activities
- QA audit, surveillance or other involvement in procurement, receipt inspection, and storage of material.

7. Conclusion

PECO has established adequate controls for equipment classification, vendor interfaces and post-maintenance testing activities.

8. Exit Meeting

The inspector scope and findings were summarized on September 19, 1984, with those persons indicated in paragraph 1.

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