

U.S. NUCLEAR REGULATORY COMMISSION  
REGION I

Report No. 50-353/88-04

Docket No. 50-353

License No. CPPR-107

Category B

Licensee: Philadelphia Electric Co.  
2301 Market Street  
Philadelphia PA 19101

Facility Name: Limerick Nuclear Generating Station Unit No. 2

Inspection At: Limerick, Pennsylvania

Inspection Conducted: February 8-12, 1988

Inspector:

Henri F. van Kessel

Henri F. van Kessel, Reactor Engineer

3-16-88

date

Approved by:

Dr. P. K. Eapen

Dr. P. K. Eapen, Chief Special Test  
Section, EB, DRS

3/16/88

date

Inspection Summary: Inspection on February 8-12, 1988 (Inspection  
No. 50-353/88-04).

Areas Inspected: Routine Unannounced Inspection of the Preoperational Test Program, including the review of preoperational test procedures, the review of the overall preoperational test program review requirements, and the review of activities in the QA/QC interface with the preoperational test program. Also witnessed a "bluetag" test and determined the status and schedule of the preoperational test program.

Inspection Results: Completed the preoperational program review. Had two unresolved items concerning the use of asterisk items (Steps) in the Preop. Test Procedure which can be skipped (88-04-01) and the absence of the schematic diagram in the field (88-04-02).

Note: For acronyms not defined refer to NUREG 0544, "Handbook of Acronyms and Initialisms."

## Details

### 1. Persons Contacted

#### Philadelphia Electric Co.

- \*J. M. Corcoran, QA/QC Manager
- \*J. A. Dahnert, QC Staff (Bechtel QC)
- \*D. A. DePaolo, Startup QA Supervisor
- R. Jerger, Field Engineer (EEFE)
- G. C. Kelly, QA Engineer (Bechtel)
- F. Kreuke, QA Engineer (Bechtel)
- G. Lauderback, Startup QC Supervisor
- \*W. L. McCullough, Project Startup Engineer (Bechtel)
- \*K. W. Meck, QA Coordinator Mechanical
- \*J. C. Nagle, TRB Chairman
- \*W. T. Ullrich, Unit 2 Startup Manager
- H. R. Wiegler, Startup Superintendent, Operations

#### U.S. Nuclear Regulatory Commission

- \*R. A. Gramm, Senior Resident Inspector

\*Denotes those present during exit meeting held on February 12, 1988.

### 2. Preoperational Test Program

#### 2.1 Preoperational Test (POT) Program Review

The review of the POT program against the requirements of the FSAR, Chapter 14 and the Startup Administrative Manual, with PECO Startup management, was continued and completed.

There were a number of questions on maintenance and on housekeeping. All of these questions were answered satisfactorily. The inspector has no further questions on the POT program at this time with the exception of the problem of the "asterisk items". This problem is addressed under Subsection 2.3 below.

#### 2.2 Preoperational Test Procedure Review

The preoperational test procedures, as listed in Attachment A were reviewed for the attributes as listed below:

- Management review and approval
- Procedure format
- Clarity of stated objectives

- Prerequisites
- Environmental conditions
- Acceptance criteria and their sources
- References
- Initial conditions
- Attainment of test objectives
- Test performance documentation and verification
- Degree of detail for test instructions
- Restoration of system to normal after testing
- Identification of test personnel
- Evaluation of test data
- Independent verification of critical steps or parameters
- Quality control and assurance involvement

No noncompliances were identified by the inspector within the scope of this inspection.

### 2.3 Blue Tag Testing

The inspector witnessed a blue tag test performed on the control circuit of Instrument Air Compressor 2-AK-101. The test was recorded on Schematic Diagram, Joy Manufacturing Company drawing No. E-570 C, Revision PBR (Bechtel Control No. M-22-77-15), by yellow lining the drawing for completed parts of the circuit. The inspector made the following observation during the test.

- (1) Housekeeping around the compressor was satisfactory.
- (2) Each test instrument had a calibration sticker, which showed the instrument to have a valid calibration.
- (3) Good communications with the other locations containing part of the control circuit were established prior to the test.

- (4) The test was conducted without separate test instructions (prepared by PECO). There were, however, detailed notes on the schematic drawing referenced above. These notes were used by the Field Engineer to guide his actions related to the test.
- (5) The test was performed successfully. All devices acted as intended.
- (6) The referenced schematic was yellow lined for all completed circuit components.
- (7) A PECO QA inspector was present to witness the test with a prepared Surveillance checklist.

The inspector verified that blue tag tests for safety related circuits are conducted in the exact same manner as the non safety circuit test witnessed above.

The inspector noted that the licensee intends to use blue tag test records to eliminate the equivalent steps in the preoperational test procedure for the same circuit (asterisk items). This matter was discussed with startup management. The inspector pointed out that the absence of a verifiable test record in the form of signed off test instructions (steps) is an unacceptable condition if the equivalent steps in the preoperational test are not going to be executed. Startup management is considering the use of test instructions for the blue tag test of circuits under these (asterisk) circumstances. These test instructions must be essentially equivalent to the comparable steps in the pertinent preoperational test procedure.

This item is an unresolved item pending licensee resolution of adequate documentation of Blue Tag test results for preoperational testings (50-353/88-04-01).

### 3. Licensee Action on Previously Identified Items

(Closed) Unresolved Item 88-02-01: "Methods to ensure that test personnel know the test procedures."

Review of the Startup Administrative Manual (SAM) AD 8.3P rev. 1 revealed that no methods had been identified to ensure that test personnel, involved in the conduct of a test, are knowledgeable of the applicable test procedure.

Startup management revised the SAM procedure AD 8.3P (rev. 2) to correct the identified omission. Statements were added to paragraphs 4.4, 4.7 (a), 4.8(a), and 5.2a to accomplish the objective. Revision 2 of SAM was signed prior to the end of this inspection. The inspector has no further questions on this item.

(Closed) Unresolved Item 88-02-02: "Recorded communication after test interruption."

The Startup Administrative Manual (SAM), rev. 1, did not identify what was to be done in terms of recorded communication, after a test interruption and prior to continuation of the same test, between the test engineer/test director and the shift supervisor of operations.

In response to this unresolved item, startup management revised paragraph 5.2.g of SAM proc. AD 8.3P to provide added control during the hold status. Appendix S, "Test Interruption Notice", was added to AD 8.3P, "Preoperational Test Implementation", to document what system status is to be maintained during the hold period. The inspector noted that the draft of Appendix "S" did not accomplish the objective of communication between the test director and the shift Supervisor. A signature block for the shift supervisor was added to Appendix "S" to address this problem. This correction was made prior to the issue of rev. 3 of AD 8.3P.

The inspector has no further questions on this item. This item is closed.

#### 4. QA/QC Interface

A review was made of a completed audit, Audit Report 25-72, dated 12-09-87, "Blue Tag Testing", as conducted by LGS-QA. The following observations were made:

- (1) A checklist was used for the audit. This checklist contained most of the important attributes from procedure EE 11.11 (Inspection and Testing Proc. Implementation) as they apply to circuit testing.
- (2) Two findings were identified. These findings were put into a Finding Report which was addressed to the responsible manager. A reply is required.
- (3) Item No. 8 reveals that the schematic diagram for the test was not available to the Field Engineer in the field.

Further inquiry revealed that there is no requirement in the administrative procedures for the field engineer to have the schematic diagram in the field to guide him during the circuit test. This means that the field engineer can elect to yellow line his schematic diagram, after the test, in the field office. Such yellow lining would be based on memory.

Although no specific deficiencies were identified, appropriate drawings, procedures, and specifications must be available where the work is performed. Resolution of the above concern is an Unresolved Item (50-353/88-04-02).

## 5. Plant Tours

The inspector made a tour of the plant including the control room, switchgear rooms, cable spreading rooms, and the turbine building, to observe the status of construction, work in progress, housekeeping, testing activities and cleanliness.

It was noted that the control boards of Units 1 and 2 are in the same control room. The inspector pointed out that the future intensive preoperational test activities in the Unit 2 section might distract the operators of the Unit 1 section, involved in normal reactor operation. Startup management replied that they are aware of this potential problem and are taking steps to control the activities in the unit 2 control section.

No unacceptable conditions were noted.

## 6. Unresolved Items

Unresolved items are matters about which more information is required in order to determine whether they are acceptable, an item of noncompliance, or a deviation. New unresolved items in this report are identified in paragraphs, 2.3 and 4.0.

## 7. Exit Interview

At the conclusion of the site inspection, on February 12, 1988, an exit interview was conducted with the licensee's senior site representatives (denoted in Section 1). The findings were identified and previous inspection items were discussed.

At no time during this inspection was written material provided to the licensee by the inspector. Based on the NRC Region I review of this report and discussions held with licensee representatives during this inspection, it was determined that this report does not contain information subject to 10 CFR 2.790 restrictions.

Attachment A

Review of Preoperational Test Procedures

<u>Proc. No.</u>	<u>Description</u>	<u>Rev. No.</u>	<u>Appr. Date TRB</u>
2P3.1G	13.2 kV Unit Auxiliary Power System, Startup Subsystem B, 20 A 101 (21 Unit Aux. Bus)	0	11-25-87
2P3.1H	13.2 kV Unit Auxiliary Power System Startup Subsystem B, 20 A 102 (22 Unit Aux. Bus)	0	11-25-87
2P13.2	Fire Protection CO <sub>2</sub> System, Startup Subsystem 13C	0	01-07-88
2P13.4	Smoke Detection System, Startup Subsystem 13E	0	01-07-88
2P28.1	Diesel Generator Enclosure HVAC System, Startup Subsystem 28E	0	08-31-87
2P34.2	Refueling Floor HVAC, Startup Subsystem 34C and 34H	0	12-29-87