

U. S. NUCLEAR REGULATORY COMMISSION  
OFFICE OF INSPECTION AND ENFORCEMENT

REGION I

Report No. 352/82-02  
353/82-01  
Docket No. 50-352/50-353  
License No. CPPR-106/CPPR-107 Priority -- Category A  
Licensee: Philadelphia Electric Company  
2301 Market Street  
Philadelphia Pennsylvania 19101

Facility Name: Limerick Generating Station, Unit Nos. 1 & 2

Inspection At: Limerick, Pennsylvania

Inspection Conducted: January 26-29, 1982 and February 1-2, 1982

Inspectors: *R. J. Paulino* 2/19/82  
R. J. Paulino, Reactor Inspector date  
*A. A. Varela* 2/19/82  
A. Varela, Reactor Inspector date

Approved by: *S. D. Ebner* date  
S. D. Ebner, Acting Chief, Plant 2/24/82  
Systems Section date

Inspection Summary:  
Combined Inspection of Units 1 & 2 on January 26-29, 1982 and February 1-2, 1982.  
(Combined Inspection Report No. 50-352/82-02 and 50-353/82-01).  
Areas Inspected: Routine, unannounced facility inspection by regional based  
inspectors of licensee work activity and documentation pertaining to the install-  
ation of electrical equipment; quality control documentation of the containment  
drywell interior for structural steel receipt, erection, welding and testing;  
to observe in-process QA inspection on erection, welding and testing and; to  
review licensee audit and surveillance reports on the Unit 1 and 2 Containment  
drywell-interior structural steel. The inspection involved 36 inspection-hours  
on site for Unit 1 and 38 inspection-hours on site for Unit 2.  
Results: No items of noncompliance were identified.

Region I Form 12  
(Rev. April 1977)

## DETAILS

### 1. Persons Contacted

#### Philadelphia Electric Company

- 1-2 D. T. Clohery, QAE
- 1-2 J. W. Corcoran, Field QA Branch Head
- 1 P. J. Coyle, QAE
- 1-2 G. Lauderback, QAE
- 2 D. C. McLean, Construction Engineer

#### Bechtel Power Corporation

- 1 C. Berezich, Lead Cable/Termination Superintendent
- 1-2 H. D. Foster, Project Field QCE
- 1 J. M. Kelleher, Electrical Engineer (cable)
- 1-2 E. R. Klossin, Project QAE
- 2 J. L. Martin, Lead Site QAE
- 1 J. B. McLaughlin, Lead Electrical Staff Engineer
- 1 K. L. Quintar, Assistant Project Field QCE
- 1 D. Shaw, Assistant Project Field Engineer
- 1-2 D. C. Thompson, Assistant Project Field Engineer
- 1 M. G. Tokolics, QAE
- 2 J. Givin, Field Construction Manager
- 2 G. E. Fissel, Assistant Project Field Engineer
- 2 R. Thomas, Lead S/C Engineer
- 2 M. Held, Lead Civil QCE
- T. Wood, Civil/Structural QCE
- D. Suloff, Welding QCE
- E. Innes, Resident Engineer
- J. E. Waddington, Lead QC Electrical

#### U. S. Nuclear Regulatory Commission

- 1-2 J. Durr, Senior Resident Inspector

1 denotes personnel present at exit meeting of January 29, 1982

2 denotes personnel present at exit meeting of February 2, 1982

### 2. Facility Tour

The inspector observed work activities in progress, completed work and plant status in several areas of the plant during a general inspection of Units 1 and 2. The inspector examined work items for obvious defects or noncompliance with NRC requirements or licensee commitments. Particular note was taken regarding the presence of quality control inspectors and indications of quality control activities through visual evidence such as inspection records, material certifications, nonconformance and acceptance tags. Periodically during the inspection, tours were made of Unit No. 1 and 2 Containment drywell structural steel platforms to observe/compare

features of the box beam structural steel and, to evaluate and verify QC records on erection and welding. During the tour of Unit #2, QC inspections of erection tolerances and, welding and magnetic particle testing of welded plates to restrain movement of the box beams at the wall were witnessed.

No items of noncompliance were identified.

### 3. Drywell Interior Structural Steel

#### a. Potential Significant Deficiency in Design of Box Beams

The licensee reported a deficiency in design of Unit 1 and 2 structural steel box beams for the containment drywell interior in accordance with 10 CFR 50.55e. In licensee interim reports to the NRC, letters of August 7 and October 28, 1981, Philadelphia Electric provided information relative to reanalysis of the structural steel box beams to comply with FSAR requirements on pipe whip loads for the box beams' appropriate category as pipe restraints. Final results of the reanalysis and evaluation of the significance of the problem will be complete by May, 1982. The effect on the functional safety of the plant will be identified in the final report.

The inspector discussed on-going box beam installation with Bechtel's resident engineer to understand why erection of the box beams for Unit #2 have been undertaken considering the final report might require changes in the beams. The inspector was informed that early calculations indicate any needed modifications to the beams would not preclude their erection.

#### b. Review of Quality Related Records on Drywell Box Beams - Units 1 and 2

Pertinent quality records were reviewed by the inspector to determine their adequacy and to confirm that quality requirements fulfilled criteria identified in the following:

- PSAR, Appendix D
- FSAR Chapter 3, Section 3.8, Design of Category I Structure
- Project Specifications and drawings

The documentary evidence was ascertained to satisfy the above criteria and, specifically was controlled by check list for these principal elements:

- Receiving/vendor manufacturing (Specification C-72) and inspection records including control of field changes and nonconformances - Unit 1 and 2.
- Standard steel erection (Specification C-63) including control of field changes and nonconformances - Unit 2.

-- Welding and non-destructive examination of structural steel (Specification C-91) - Unit 2.

c. Observation of Erection and Welding - Unit 2

The inspector witnessed QC inspection of structural steel erection, welding and nondestructive testing. Erection tolerances required by check lists in QC IR C-2.10 and welding inspection activities in QC IR W-200 were observed applied to box beams at elevation 286'. The in-process inspection of beams erected between azimuth 120° and 240° disclosed some box beams, at their containment liner plate attachment, exceeded tolerances in elevation. This is addressed in NCR N. 5396. Observation of welding by the inspector consisted of examination of cleanliness, fitup, and alignment of the parts; proper welding equipment and electrodes; pre and post weld heat; and appearance of weld deposit and technique. The inspector also witnessed magnetic particle testing of the restraint plate welds of the box beams at their attachment to the bioshield wall. He verified that the required procedure and technique was applied and was verified and documented by QC.

d. Licensee Audit and Surveillance of Structural Steel.

A review of licensee QA records relating to receipt inspection, erection, welding, and nondestructive testing of structural steel welds was performed. The inspector ascertained that commensurate with the licensee's established schedule and frequency, audit requirements have been exceeded. The inspections appear complete as to coverage and follow-up of findings.

No item of noncompliance was identified.

e. Unresolved Item - Structural Steel Erection

Paragraph 3.c above identifies some box beams which were found to be out of tolerance in elevation, and were categorized as nonconforming as included in NCR No. 5396 written by QC. The fixed position of the bracket at the containment liner controls the elevation of the box beam at that end. This was installed by CB&I several years ago and records were not readily available. This is considered unresolved pending disposition of the NCR. (353/82-01-01)

4. Electrical (Components and Systems I)---Work Observations

The inspector examined work performance and partially completed work pertaining to safety-related equipment to determine whether the requirements of applicable specifications, work procedures, drawings and instructions have been met in areas relating to receipt inspection, storage/handling, installation and maintenance.

Items examined for this determination include:

- Diesel Generator No. 1CG501
- 480 Volt Load Center No. 10B203
- 480 Volt Load Center No. 20B202
- SKV Switchgear Nos. 10A116 and 10A115
- Purchase Specification Nos. 8031-LX-393907, 8031-E-10AC, 8031-LX-239585
- Material Receiving Reports Nos. SF-2446, SF-1907, PE-1465, 70278
- Specification Nos. M-71, E-7-PE-1511, 8031-E-10,
- Drawing Nos. 8031-E-10-97-6, 8031-E-10 100-7, E-7-31-10 and E-7-30-9
- Inspection Criteria - FIP-G-3, FIP-G-5, PSP-G-5.3, PSP-6.5

No items of noncompliance were identified.

5. Electrical (Components & System I) --- Quality Records

The inspector reviewed pertinent work and quality records for in-place storage and installation of safety-related electrical equipment to determine whether the records reflect work accomplishments consistent with NRC requirements and licensee commitments in the areas of surveillance, personnel qualifications, audits, legibility, accuracy, approved signatures and ease of retrieving data.

Items examined for this determination include:

- M-71 QA document (Diesel Generators)
- QCIR Nos. E-7-PE-1465, E-7-PE-1468, E-7-PE-1477, E-10-SF-1907
- Certified test report for switchgear and circuit breakers
- Audit Report Nos. E-078 on storage of electrical equipment, E-102 on cable storage and E-065 on DC Panels Receipt Inspection.

No items of noncompliance were identified.

6. Electrical (Cables Terminations I) --- Work Observations

The inspector examined three power cables and three control cables with safety-related functions to determine whether the requirements of applicable specifications, work performance procedures and inspection procedures are being accomplished in the areas of issue controls, specified materials, cable pulling, routing and termination.

Items examined for this determination include:

- Cable Nos. 1AA11505A, 1AB20124A, ODB522040, 1AB51521A and 1AA 11510A
- Cable Scheme Nos. E-322, E-453, E-377
- Drawing Nos. E-2072, E-2090
- Quality Control Instruction No. E-4.0 for installation of cables
- Cable Pull Card for cables identified above

No items of noncompliance were identified.

7. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items or items of non-compliance. An unresolved item is identified and discussed in Details, Paragraph 3.e.

8. Exit Meeting

The inspector met with licensee and construction representatives (denoted in Details, Paragraph 1) at the conclusion of the inspection on January 29, 1982 and February 2, 1982 to summarize the scope of the inspection and the inspection findings.