

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

Region I

Report No. 50-412/81-05

Docket No. 50-412

License No. CPPR-105 Priority -- Category A

Licensee: Duquesne Light Company

435 Sixth Avenue

Pittsburgh, Pennsylvania

Facility Name: Beaver Valley Power Station, Unit 2

Inspection At: Shippingport, Pennsylvania

Inspection Conducted: June 15-25, 1981

Inspectors: *R.J. Paolino*
R.J. Paolino, Reactor Inspector

7-15-81
date signed

G.A. Walton
G.A. Walton, Reactor Inspector

7-15-81
date signed

Approved by: *S.D. Ebner*
S.D. Ebner, Chief, Plant Systems Section,
DE&TI

7/16/81
date signed

Inspection Summary:

Inspection on June 15-25, 1981 (Report No. 50-412/81-05)

Areas Inspected: Routine, announced inspection by two regional based inspectors to review cable tray qualification data, storage and maintenance surveillance program for electrical equipment and Vendor Quality Assurance program and discussions of the planned independent examinations of the Neutron Shield Tank at Babcock & Wilcox Co. The inspector also reviewed the status of the resident inspectors office. **The inspection involved 44 inspection hours on site by two regional based inspectors.**

Results: No items of noncompliance were identified.

DETAILS

1. Persons Contacted

Duquesne Light Company (DLC)

J. Ankney, Project Engineer (via telephone)
*L. Arch, Senior QA Engineer
*R. Coupland, Director SQC
*C. Davis, QA Supervisor
*D. Denning, Assistant Director
C. Hill, QA Engineer
W. Laughlin, Electrical Engineer (via telephone)
*C. Majumdar, Senior SQC (Electrical)
G. Ritz, Senior Project Engineer (via telephone)
*K. Troxler, Licensing Engineer
*R. Washabaugh, QA Manager

Stone and Webster Engineering

*C. Bishop, Resident Manager
W. Bohlke, Project Manager (Boston Office)
S. Diaz-Gomez, Electrical Engineer (Boston Office)
E. Farino, Electrical Engineer
*A. McIntyre, Site Lead Engineer
P. Raysircar, Project Engineer (Boston Office)
H. Sacco, Mechanical Engineer (Boston Office)

Sargent Electric Company

J. Kaminski, Project Manager
R. Cannon, QC Supervisor
B. Smith, General Foreman

In addition, the inspector interviewed other licensee and contractor personnel as required.

*Denotes personnel attending exit meeting.

2. Plant Tour

The inspector observed work activities in progress, completed work, and construction status in several areas. Work items were examined for obvious defects and for noncompliance with regulatory requirements and licensee commitments. Specific activities and completed work observed by the inspector included general housekeeping, cable tray hanger supports and panel embedments.

No items of noncompliance were identified.

3. Status of Previously Identified Items

(Open) Unresolved Item (50-412/80-08-04) pertaining to the qualification of the safety related cable tray system.

Personnel from the licensee's A/E organization, presented a general description of the approach taken in qualifying the cable tray system, referencing documents which were said to contain calculations and/or justification for qualifying the installed system.

The inspector reviewed the document (12241-NM(B)-157CZ) said to contain the calculations and analysis for qualifying the installed tray systems. In reviewing the document, the inspector noted that the calculation and analysis was based on a cable tray system made from Aluminum (6061-T6) and not the installed galvanized steel cable tray system. There were other discrepancies noted between the installed cable tray configuration versus assumptions made in the calculations such as material thickness, flange width, flange thickness, distances between hanger supports and the width of the tray rung load bearing surface. The report noted that tray failures occur for hanger support distances of 8 ft. The report recommends using 6 ft. between hanger supports. Installation drawings show support distances as varying from 3 ft. to 8 ft. Calculations in CZ157 indicated an overstress condition (above 29,400 psi) for modified swage rung construction and load bearing surfaces of 3/4 inch width; recommending a modified swage construction and 13/16 inch width giving a stress value of 28,189 psi. Visual examination of tray rungs in the cable spreading room and the cable tunnel show tray rung load bearing surfaces for both welded and swaged construction to vary from 1/4 inch to 3/4 inch width. In addition, during this visual inspection, it was observed that the tray rung load bearing surface contains what appears to be metal fatigue or ruptures along the axis of the tray rung. This defect appears to have been the result of flattening the tubing to provide the load bearing surface of the correct width. It appears to occur only on tubing in which the tube seam is in the flattened area.

This item remains open pending NRC review of licensee evaluations and resolution.

(Open) Unresolved Item (50-412/80-08-03) pertaining to the use of threaded bolts on cable tray splice plates in lieu of the specified knurled round shank or plain round shank.

This item is an integral part of the tray system and as such is dependent upon the resolution of the above item 50-412/80-08-04.

This item remains open pending NRC review of licensee evaluation and resolution.

(Open) Unresolved Item (50-412/80-08-02) pertaining to defective weld areas of galvanized steel cross over tray.

This item has been reported by the licensee as a 10 CFR 50.55(e) for Beaver Valley Unit 2 (CDR-80-05).

The licensee has removed approximately 200 crossover sections which have been returned to the vendor for rework. Shop inspection reports indicate welding is still a problem area. Tray crossover sections were redone five (5) times before completion and final acceptance. A number of these accepted units required further touchup at the site, using Galvanox to mask visual weld defects.

The licensee has prepared special instructions and assigned QC inspection personnel to monitor vendor performance for balance (approximately 5%) of cable tray order.

This item remains unresolved pending NRC review of final disposition and qualification of cable tray system.

4. Interim Storage of Electrical Equipment

During the plant tour the inspector observed that the temperature and humidity control in the control building, elevation 707'-0, consisted of a min/max thermometer which indicated the minimum and maximum temperature achieved between readings and a hygrometer to indicated humidity. A review of surveillance records indicate readings are taken once daily during the regularly scheduled work week only. The time during which the readings are taken is not indicated, however, licensee personnel responsible for taking the readings stated the readings are taken in the early morning hours.

The inspector determined that the once daily reading in the early morning hours of the regular scheduled work week was inadequate and not representative of actual environmental conditions over the 24 hour period between readings or the 72 hour weekend. There is no assurance that the humidity limits have not been exceeded during the time span between readings. For temperature, even though the min/max thermometer provides an indication of the lowest and highest temperature achieved, there is no way of determining when the high or low temperature occurred and for what length of time between readings.

The licensee acknowledges the problem and is considering placement of automatic recording devices for both temperature and humidity.

This item is unresolved pending NRC review of licensee corrective action. (50-412/81-05-01)

5. Vendor Quality Assurance

The inspector reviewed the licensee's 1980 quality assurance audits of the Architect Engineers vendor surveillance program to determine why the program is not identifying vendor problem areas as noted in unresolved item 50-412/80-08-02.

Licensee Audit No. DC-2-80-19 of May 27-30, 1980 was based on the Architect Engineers check list procedure consisting of (1) Rating Review; (2) Bidder Survey/Manual Review System; (3) Seller Shop QC Inspection System; and (4) QA Audit Program of Seller.

Item 3 of this audit was not performed. The audit states there was no activity in this area and therefore not inspected. Licensee audit No. DC-2-81-11 of May 4-5, 1981 consisted of a review of (1) PQA use of engineering data originating of the Architect Engineers Boston Office (2) PQA use of engineering data originating at the site.

The audit findings for this audit were satisfactory in all cases noting no significant items. This finding was determined by the audit team in spite of the NRC inspection findings (IE Report 50-412/80-08) and the resultant license 10 CFR 50.55(e) report.

In addition, the inspector reviewed the Architect Engineers Vendor surveillance program for maintaining an approved vendor list. The inspector reviewed the cable tray vendor audit No. DC-2-80-16 and follow-up audit No. DC-2-80-35. The audit finding were based on reviewing conformance with the 10 CFR 50, Appendix B, eighteen point criteria. There were no findings in Criteria I: pertaining to control of Special Process (Welding & Welder Qualification). Discussions with the licensee's architect Engineer indicated there has been an on-going dialog with the cable tray vendor for the past year regarding **problems** in welding, yet the audits indicate satisfactory performance in this area.

The inspector expressed his concern in that the audits performed appear to be a paper review and as such are misleading in determining the effectiveness of the audit program.

This item is unresolved pending NRC review of licensee evaluation of program and corrective action. (50-412/81-05-02)

6. Resident Inspector Office and Independent Inspections

The inspector discussed the status of the resident inspector office with appropriate personnel at the site. Work has commenced on the office and the inspector was advised that the office would be finished by August 3, 1981, the planned arrival date of the senior resident inspector. The inspector made arrangements for receiving and storing the inspectors furniture when it arrives on site.

The inspector also discussed the NRC's planned independent examinations which will be conducted July 6-17, 1981 at the Babcock & Wilcox Company, Mt. Vernon, Indiana. The examinations will be conducted on the Beaver Valley, Unit 2 neutron shield tank, using the NRC-NDE Mobile Lab. The examinations will be conducted on selected welds using ultrasonic, radiography, and magnetic particle test methods. The examinations will be conducted using NRC contract personnel.

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 noncompliance. Unresolved items identified during this inspection are discussed in Details, Paragraph 4 and 5.

8. Exit Meeting

The inspector met with licensee and contractor representatives (denoted in paragraph 1) at the conclusion of the inspection on June 19, 1981. The inspector summarized the scope and findings of the inspection as described in this report.