

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Report No. 50-412/85-19
 Docket No. 50-412
 License No. CPPR-105 Priority -- Category B
 Licensee: Duquesne Light Company
 Robinson Plaza Building No. 2
 Suite #210, PA Route 60
 Pittsburgh, Pennsylvania 15205
 Facility Name: Beaver Valley Power Station, Unit 2
 Inspection At: Shippingport, Pennsylvania
 Dates: August 6 - September 16, 1985
 Inspectors: G. A. Walton 9-20-85
 G. A. Walton, Senior Resident Inspector date
L. J. Privity 9-20-85
 L. J. Privity, Resident Inspector date
 Approved by: L. E. Tripp 9-26-85
 L. E. Tripp, Chief, Reactor Projects date
 Section No. 3A

Inspection Summary: Inspection on August 6 - September 16, 1985 (Report No. 50-412/85-19)

Areas Inspected: Routine, unannounced inspection by two resident inspectors (126 hours) of activities pertaining to previously identified unresolved items, Part 21 reports, inspection of pipe supports, rework control on systems turned over to Start-Up Group, eddy-current inspection of steam generator tubes, review of Quality Assurance Audits, and daily site tours.

Results: No violations were identified. Recent inspections have identified numerous problems in the methods used to tighten and lock nuts on pipe clamps and pipe supports. This inspection identified additional concerns in this area. Reinspections are planned by the licensee after all corrective measures are established. Acceptable results were found in the review of eddy-current inspection of steam generator tubes, and Quality Assurance Audits of pressure boundary components.

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DETAILS

1. Persons Attending Exit Interview

Duquesne Light Company

R. Coupland, Director, Quality Control
C. Davis, Director, Quality Assurance
D. Denning, Assistant Director, Quality Control
S. Hall, Senior Compliance Engineer, Regulatory Affairs Department
C. Kirschner, Quality Assurance Engineer, Quality Assurance
T. Noonan, Station Superintendent
D. Price, Construction Engineer
J. Waslousky, Quality Assurance Supervisor

Stone and Webster Engineering

J. Purcell, Assistant Superintendent, Engineering
J. Novak, Superintendent of Construction
R. Wittschen, Licensing Engineer

2. Construction Site Walk-Through Inspections

Daily tours of the construction site were made to observe work activities in progress, completed work, and plant status of the construction site. The presence of Quality Control inspectors and quality records were observed. Except as identified in paragraph 5, no problems were identified.

3. Licensee Action on Previous Inspection Findings

(Open) Unresolved Item (85-13-01), Locking Devices On Pipe Supports. This unresolved item identified that Power Piping Company rigid sway strut supports failed to provide adequate locking features. In addition, the inspector noted that supports which used pipe clamps to connect to the piping failed to achieve intimate contact with the piping. As a result, the clamp moved freely on the piping. The inspector questioned the adequacy of this design. During this inspection, the inspector found additional pipe clamps which were final Quality Control inspected that failed to achieve intimate contact with the piping. Engineering is evaluating the significance of this item to determine the need for corrective actions. If any corrective actions are warranted which require reinspection and/or rework, the licensee plans to perform it in conjunction with the reinspection planned to correct the locking method on rigid sway strut supports. This item will continue open pending evaluation and disposition by Engineering and subsequent review by the inspector.

(Open) Unresolved Item (84-17-01), Procurement of Spare Electrical Equipment. This unresolved item dealt with the licensee's procurement process of new electrical components. Original purchased electrical equipment purchase orders failed to adequately specify the quality criteria when placed with the vendor. As a result, electrical equipment required rework onsite to meet the quality standards. Therefore, the inspector questioned the licensee regarding the need to revise ordering specifications to include the appropriate quality standards for newly purchased material to prevent a repeat of receiving unsatisfactory material as described above.

At present, the licensee plans to revise the purchase specifications to include the workmanship standards no later than ninety days prior to fuel load. Thus, when the Operational QA Program comes into effect, electrical equipment specifications will be revised to include the appropriate quality standards for subsequent purchased material. In the interim, Stone and Webster (Boston) has initiated a "reminder system" to their Purchasing Department that draws attention to the need to incorporate the vendor wiring workmanship standards in each ordering specification. This procurement process appears to adequately address electrical components ordered by Stone and Webster (Boston), and for replacement components ordered during operation. It does not appear to adequately address components ordered by Duquesne Light's Purchasing system or Stone and Webster's onsite purchasing system for the time period between now and fuel load. This item is being reopened (originally closed in Inspection Report 50-412/85-15) to assure these areas are adequately addressed by the licensee.

(Closed) Unresolved Item (85-02-03), Pipe Support Dimensional Tolerances. The inspector questioned the need to perform backfit inspections of pipe supports fabricated and inspected prior to issuance of an E&DCR which revised angular and linear dimensional tolerances.

Background:

The inspector observed that pipe support 2SIS-PSR038A had 3'-2-3/16" installed linear dimension which exceeded the tolerance of ± 1 inch as identified in specification No. 2BVS-920, R.8, page 1-82. The BZ-107A-038-3D shows the linear dimension of 3'-0". Specification No. BV-920 was revised to include the ± 1 inch tolerance criteria per E&DCR No. 2PS-3384, dated March 13, 1984.

DLC-SQC inspected all pipe support installations prior to the issuance of the above E&DCR using the requirements of $\pm 5^\circ$ tolerance on the angular dimension. This is permitted provided the opposite linear dimension or attachment location was not exceeded by 3 inches. DLC-SQC addressed a request through an internal memorandum, DLC-SQCL-0994-Y, dated July 6, 1984, to site Engineering Group-SWEC, regarding backfit inspection program requirements to re-verify those supports which were not inspected to the revised 2BVS-920 criteria. The licensee has to address the compliance of the identified pipe support installation with the revised criteria per 2BVS-920 including other previously installed and signed off pipe supports.

To resolve this issue, Stone and Webster Engineering has evaluated the dimensional data of 56 random reinspected pipe supports from the Component Cooling System pipe supports to determine the possible effects of dimensional discrepancies on design basis adequacy. This review found no adverse effects on the engineering adequacy of any of the 56 pipe support designs. Thus, Engineering has determined that the revised angular and linear dimensional tolerances, revised by E&DCR, has no significant impact on previous inspected and accepted material and therefore, no reinspection in this area is required.

The inspector reviewed the licensee's action on this item and concluded that based on the sample program results, no reinspections are required. The inspector had no further questions on this matter.

4. Review of Part 21 Reports

The inspector reviewed the status of eleven Part 21 reports which potentially affect Beaver Valley Unit 2 to determine if adequate corrective actions were implemented. Of the eleven, two were evaluated and reported under 50.550(e) (CDR 82-00-03 and 85-00-03) by the licensee. Two were identified by NRC Information Notices (85-64 and 85-67) and will be addressed by the licensee in that tracking program. One is identified by the NRC as Unresolved Item 84-18-03 and the licensee is addressing the resolution by their method for resolving unresolved items.

These above noted five Part 21 Reports are being addressed by the licensee under tracking systems different than their original identified Part 21 notification. The licensee has not completed the corrective actions on these five items, therefore, no further inspections were done at this time. The inspector did verify that the licensee has an adequate tracking program for 50.55(e) reports, information notices and unresolved items to assure these Part 21 reports will be corrected.

Of the additional six Part 21 Reports which potentially affect Beaver Valley Unit 2, the licensee could not present documentation which reflects the current status of these items. Discussions held with Duquesne Light's Regulatory Affairs Department revealed that corrective actions were in process or already completed on several of these items; however, no program exists and no documentation was readily available describing the actions taken. Unless Part 21 Reports are identified under a different program, such as 50.55(e), or Information Notices, no specific program exists that identifies corrective actions needed and/or taken. The inspector advised the licensee that either Duquesne Light Company or Stone and Webster Engineering needs to devise a system for identifying, tracking and assuring corrective actions are taken that is auditable, retrievable and gives current status of all Part 21 Reports that effect equipment scheduled for installation at Beaver Valley Unit 2. This is an Unresolved Item (85-19-01).

5. Inspection of Pipe Supports

The inspector performed visual inspections of five final inspected pipe supports to ascertain compliance with Regulatory requirements. The review included verifications that welds were completed as specified, supports were on location, clearances were provided where required, and threaded connections were installed and tightened as specified. The inspector verified these installations using isometric drawings, specifications, field construction procedures, inspection procedures, and applicable sections of the FSAR.

On support 2MSS-PSSH-001C shown on isometric drawing CI-510-207, issue 2, the inspector found the bolted connection, with a lock washer installed, was not tightened sufficient to flatten the lock washer.

The contractor has the option of installing a lock washer, double nuts, or staking the nut. Any method is specified as acceptable to prevent the nut from backing off. It is inferred, however, that the nut must be tightened enough to flatten the lock washer before it will perform its intended function. Discussions with QC revealed that the QC inspector was aware that this particular lock washer was not flattened. The QC inspector stated the connection (pipe clamp to hanger rod eye) could not be tightened sufficient to flatten the lock washer without compressing the clamp ears such that damage would occur to the clamp and also restrict movement of the eye bolts. The design requires freedom of movement in this area to provide for pipe growth during operation. In addition, the QC Inspection Procedure IP 7.3.1, paragraph 4.18.1 states: "Lock washers, where used, shall be flattened with bolted joints being at least finger tight." In this case, the connection was finger tight.

Inspection of a second support, spring hanger 2CCP-PSSH-326, which was final QC accepted and turned over to DLC Start-Up Group, found the support was being reworked because the lock washer was not flattened. This is apparently the same problem as described above. After preliminary review, the licensee advised the inspector that connections requiring freedom of movement should be installed with either double nuts or nut staking and not be compressed tight like lock washers are required to be. In addition, the licensee agreed to clarify Inspection Procedure 7.3.1 to require that bolts be tightened sufficient that lock washers, where used, would be flattened. In addition, the inspector advised the licensee that procedure changes were required which specifies to construction and QC the proper locking requirement needed in lieu of specifying three acceptable locking features. In these cases, where movement is provided for, it appears to the inspector that double nutting or staking the nut is the only acceptable method to prevent the nut from backing off and should be specified as the requirement in the specification. The inspector further advised that this appears to be a generic problem on pipe clamps to eye bolt connections which used the locking washer. This item is unresolved pending evaluation and disposition of these deficiencies and clarification of the applicable inspection procedure (85-19-02).

The review of the other supports were found to be in compliance with the drawings and specifications. No items of noncompliance were identified.

6. Review of Quality Assurance Audits

The inspector reviewed the records of three recent Quality Assurance audits associated with construction and installation of safety-related components and welding activities on safety-related components to ascertain whether applicable requirements were met in the following areas:

- a. Records confirm that the audits performed were of the scope and frequency specified.
- b. Deficiencies identified during the audits were corrected in a timely manner and properly documented. Ascertained, also, whether corrective actions were such that repetitiveness of the deficiency would be precluded.
- c. Sufficient auditors were involved in the audits and qualified to perform audits in the area being audited.

The three audits selected for review were:

- DC-2-85-09, Mechanical Installation, conducted by Duquesne Light Company April 2 thru April 12, 1985.
- DC-2-85-20, Welding Activities conducted by Duquesne Light Company June 17 thru June 21, 1985.
- DC-2-85-24, Post Turnover Equipment conducted by Duquesne Light Company. This audit is still active. Response to findings submitted September 16, 1985. Quality Assurance is evaluating responses.

The inspector found all areas reviewed acceptable. The audits were thorough and performed to an established and approved QA Audit Check List. The findings appeared valid and the contractors response was timely and in a manner consistent to assure the root cause of deficiencies were corrected. The auditors were of sufficient numbers to adequately perform the audit and were adequately qualified in the areas they were auditing. No noncompliances were identified.

7. Eddy-Current Inspection of Steam Generator Tubes

The inspector audited the activities associated with eddy-current examinations being performed on steam generator tubes. The examinations, being performed by Conam Inspection, require one hundred percent scan of all tubes in all three generators to comply with Inservice Examination Requirements (baseline) of ASME Section XI, 1980 Edition thru Winter 1980 Addenda and Regulatory Guide 1.83.

The examinations are being performed remotely from a test van located outside the containment building using a multifrequency eddy-current instrument with probe controller, operating display (remote TV cameras), HP9836 computer, digital recorder, printer, probes with four different frequencies and an analysis system with computer to evaluate the results. The procedure applicable to the test is Conam Inspection Number 42-EC-117, Revision 0, dated August 7, 1985. The inspector reviewed the test procedure, instrument calibration, testing of approximately 50 tubes in "A Steam Generator", reviewed results of several previously inspected tubes, and discussed inspection findings with the test personnel.

All areas reviewed by the inspector were found acceptable. The test results were consistent with the expected results of unoperated steam generators and the tests are establishing acceptable baseline data. Some areas of skip-rolling and incomplete rolling are being found in the tube sheet area which will require analysis and possibly re-rolling by Westinghouse. No noncompliances were identified.

8. Rework Control of Systems Turned over to Start-Up

The inspector audited the licensee procedures and controls for performing rework on components turned over to the Duquesne Light Start-Up Group (SUG) to ascertain compliance with Regulatory requirements. The audit included a review of Field Construction Procedure 81.1 (FCP), Work Authorization Requests (WAR) and visual inspection of components being reworked under this program.

As stated in FCP 81.1, a WAR change form must be generated for SUG approval if the scope of work changes or a time extension is needed on a WAR in progress. One WAR Form (1158) generated April 10, 1985, with a finish date of April 30, 1985, was not completed as of September 5, 1985. A WAR Change Form required by the FCP described above, was required to be generated for SUG approval by April 30, 1985. When reviewed by the inspector on September 5, 1985, no approved WAR Change Form was approved by SUG. One was issued on August 30, 1985, approximately four months late, but was not yet approved.

Upon further review by the licensee and the inspector, it was found that a Duquesne Light Quality Assurance Audit has recently identified this deficiency and the contractor was in the process of performing corrective actions. This WAR was included in their list for requiring corrective actions. Based on the fact that the licensee's audit program had identified this deficiency before the inspector, and corrective actions were in progress, this item is considered acceptable. Other areas reviewed by the inspector were found acceptable and no items of noncompliance were identified.

9. Exit Interview

A meeting was held with the licensee's representatives indicated in paragraph 1 on September 16, 1985, to discuss the inspection scope and findings.