

U. S. NUCLEAR REGULATORY COMMISSION

REGION I

Report No. 50-412/85-21

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

Facility Name: Beaver Valley Power Station, Unit 2

Inspection At: Shippingport, Pennsylvania

Inspection Conducted: September 17 - October 22, 1985

Inspectors:

G. A. Walton
G. A. Walton, Senior Resident Inspector

10/30/85
date

L. J. Prividy
L. J. Prividy, Resident Inspector

10/30/85
date

A. Ashers
A. Ashers, Resident Inspector

10/30/85
date

Approved by: L. E. Tripp
L. E. Tripp, Chief, Reactor Projects
Section 3A

11/5/85
date

Inspection Summary: Inspection on September 17 - October 22, 1985 (Report No. 50-412/85-21)

Areas Inspected: Routine, unannounced inspection by three resident inspectors (175 hours) of activities pertaining to previously identified unresolved items and violations, inspection of HVAC supports, flex conduit and conduit installation, weld material control, concrete placement in the reactor containment exterior wall and daily site tours.

Results: One violation was identified during this inspection concerning the failure of a Quality Control Inspector to perform adequate specified inspection on two HVAC supports. Based on previous licensee identified problems regarding QC inspector errors, there is NRC concern that this may represent more widespread problems in the QC inspection program. Additionally, during this inspection, several apparent problems were identified regarding the attachment and use of condulets to devices. It appears that lack of specificity on drawings caused these problems to occur. Acceptable results were found in review of weld material controls and concrete testing and placement.

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DETAILS

1. Persons Attending Exit Interview

Duquesne Light Company

F. A. Arnold, Staff Engineer, Startup Group
C. R. Davis, Director, Quality Assurance
D. W. Denning, Assistant Director, Quality Control
J. A. Hultz, Construction Liaison
D. K. Rohr, Assistant Director, Quality Control
R. Wallauer, Compliance Engineer

Stone and Webster Engineering Corporation

W. Baranowski, APM- Engineer
A. A. Dasenbrock, Resident Manager
P. Eselionis, ASOE - Site Engineering Group
J. G. Novak, Superintendent of Construction

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. During the site tours, the inspector found a violation which is discussed in paragraph 4 and an unresolved item which is discussed in paragraph 5. Other areas observed were found acceptable.

3. Licensee Action on Previous Inspection Findings

(Open) Unresolved Item (85-07-03) Changes in design and/or acceptance standards which could affect previously installed components. This unresolved item identified an omission in the procedure requirements when Engineering made changes to drawings or specifications which were more restrictive and how it might affect previously installed hardware. The licensee committed to revise applicable procedures to require evaluation of existing installed hardware when more restrictive acceptance criteria are established.

To date, only modifications to Document 2BVM-204 has occurred. 2BVM-204 addresses the method used to modify specifications made by on-site engineering. Document 2BVM-203 (on-site drawing changes) and BVMs applicable for engineering changes made in Boston office have not been revised to reflect the above requirements. The Manager of Site Engineering agreed to have the subject documents revised to reflect these commitments.

Document 2BVM-204 was revised to require an evaluation be made when specifications and/or E&DCRs were changed and the change applied more restrictive criteria than previous installed hardware was constructed to. A review performed by the inspector found the requirement was not being totally implemented. For example, E&DCR 2PS-4038A changed the minimum spacing criteria for flex conduit to require a larger access to wrap the conduit with firewrap than previous requirements specified. All previously installed flex conduit was inspected and accepted by QC based on smaller spacing criteria. The E&DCR failed to discuss any planned action on conduit installed to the smaller spacing criteria. Engineering agreed that further implementation of 2BVM-204 requirements were necessary and would be made. Subsequently, this same issue was addressed in E&DCR 2PS-4116 and the problem solution defined by Engineering stated that SQC was to reinspect all previously inspected firewrap conduit and cables in free air to comply with the revised requirements. Engineering stated that they intended to include appropriate statements in the problem solution section of future similar E&DCRs. These statements would provide the necessary direction consistent with the results of their evaluations conducted in accordance with the recent modifications to 2BVM-204.

This item continues unresolved pending completion of the document revisions discussed above and implementation of these changes on all affected documents.

(Open) Unresolved Item 84-14-03, Engineering Confirmation Program.

The inspector reviewed recent efforts and developments concerning the various technical items identified by Duquesne Light Company (DLC) in the Design Bases Endorsement Follow On Program. The main purpose of the DBE Follow On Program was to follow through completion those unresolved issues that DLC had identified during the initial DLC effort of the Engineering Confirmation Program.

The inspector reviewed the minutes of the monthly meetings of the DLC Follow On Committee held in May, June, July and August, 1985. Also, the inspector met with Stone and Webster Engineering Corporation (SWEC) personnel to discuss the effort being devoted to the recheck of various electrical calculations.

DLC considers that in general, the DBE Follow On Program is progressing satisfactorily even though six more electrical calculations recently have been selected for review. These additional calculations are listed below.

- E-72, Rev. 0, 4.16kv Cable Sizing
- E-82, Rev. 0, 6000 Volt Cable Sizing
- E-115, Rev. 0, Diesel Loading
- E-76, Rev. 1, 120 A-C Voltage at Loads
- E-75, Rev. 1, 125 DL Class IE Voltage at Loads
- E-83, Rev. 0, 600 Volt Cable Sizing for Heaters

Originally, DLC had selected 17 electrical calculations to review as part of the DBE Follow On Program. The DLC review of these 17 electrical calculations is complete. Because of various concerns raised by DLC during these reviews, the aforementioned 6 additional electrical calculations have been selected for review.

The inspector had followup discussions with SWEC personnel concerning the extent and nature of the DLC comments on the 17 electrical calculations. SWEC personnel indicate that the DLC comments generated were not a serious concern for several reasons. DLC generated 54 comments in their reviews of the 17 electrical calculations. SWEC classified these 54 comments as 27 technical and 27 editorial and of the 27 technical comments, 22 did not require a revision to the calculation. Of the 5 remaining technical comments, only 2 of these might have had an impact on hardware. Furthermore, SWEC considers that SWEC personnel would have uncovered a majority of these comments when conducting their own calculation update/confirmation program.

The inspector will continue to monitor and report this item in future inspections.

(Open) Unresolved Item (84-16-04) Update, Repairs to the corrosion affected portions of the MSIVs have been completed. After completion a seat leakage test is specified of air or nitrogen. The procedure for performing the seat leakage test requires the injection of air or nitrogen into the valve bonnet between the two seats. During this inspection period, the licensee attempted to perform the seat leakage test to the approved procedure and found it impossible to sufficiently pressurize the seats. This was determined to be due to bonnet seal leakage. The inspector observed efforts to eliminate the bonnet seal leakage on "A" MSIV. Air pressure was applied to the bonnet to raise it, permitting additional torquing of the bolts. Available pressure was insufficient and the bonnet seal leakage persisted.

The licensee now plans to delay this seat leakage testing until the secondary hydrostatic testing is performed. At that time, the hydrostatic pressure will raise the bonnet to allow sufficient torquing of the bolts.

This item will remain open until the seat leakage test is completed.

(Closed) Unresolved Item (83-12-02) Process Control Panels - Welded vs. Bolted Bases - This item pertains to the validity of the seismic qualification for certain process electrical panels that were welded in place versus the tested bolted in place configuration.

The inspector reviewed the seismic analysis and qualification data for the Model 7300 process electrical panels with welded mounting. This work was performed by Stone and Webster Engineering as documented in Calculation No. NM(B) 467-CZC, Revision 0. This calculation evaluates the effect of the type of mounting (welded versus bolted) on the cabinet natural frequency and on the seismic induced loads. The analysis certifies the existing qualification of the process electrical panels and concludes that the changes of mounting configuration does not invalidate the qualification.

This item is now closed.

(Open) Unresolved Item 85-13-02, Pipe Support Dimensional Error. The inspector performed followup inspection of the licensee's corrective actions taken to Violation 50-412/85-13-03 described in the licensee's response letter dated August 19, 1985. The licensee's corrective actions to assure final accepted pipe supports would not be moved off location due to rework in adjacent areas is specified in revisions made to Inspection Procedure 7.2 and Field Construction Procedure (FCP) 504. The revision to FCP-504 requires stronger controls of Construction Revision Notices (CRNs) to assure construction controls the rework such that adjacent QC accepted components are not adversely affected. The inspector reviewed the revised IP 7.2 and FCP 504 and found them acceptable. Selected CRNs were reviewed to assure implementation had been accomplished. This review found some implementation had occurred on CRNs as required by FCP 504. However, the inspector found CRN 101605-13, Issue 2, dated September 23, 1985, was reworked adjacent to support PSSP 316X. This CRN failed to specify the following requirements stated in FCP-504.

Effective September 10, 1985, Engineering personnel responsible for initiating CRN(s), Quick CRN(s) and/or FCRN(s) for the purpose of reworking installed large bore and small bore piping shall add cautionary notes to the CRN in accordance with the following guidelines:

When a PSST or PSSP designated pipe support is located adjacent to or in close proximity to the rework area such that the rework to the piping may cause a deviation in the supports angular tolerances, the following note shall be added to the CRN:

CRN NOTE Rework Precaution: Angular tolerances for pipe support(s) (list) to be verified by construction per FCP-207.

This item remains unresolved pending the licensee's implementation of FCP 504 and CRNs.

4. Quality Control Inspector Error on HVAC Supports

During routine site inspection, the inspector observed supports 2HVZ DSA048K and 2HVZ DSA051K(combined support) which contained 16 concrete expansion anchor bolts connected to concrete that formed a part of the connection for the above supports. Approximately three inches from one anchor bolt was an unused Richmond Insert installed in the concrete. The inspector also noted a "Final QC Accept" tag affixed to the supports. To determine the acceptance of the insert adjacent to an anchor bolt, the inspector obtained a copy of the Quality Control Inspection Report (ME-MI-5031J) dated March 27, 1985, and the current drawing BZ-516D-130-1K for these supports. A review of the Quality Control inspection report revealed a statement on the report which stated "No Concrete Expansion Anchors Used" along with the notation "N/A" (not applicable) in the column where the inspector was required to verify the concrete anchors were properly installed. In addition, the inspector noted the Richmond Insert was not noted on the inspection report as required by Inspection Plan 7.4.1, Revision March 5, 1985.

Based on the gross error the QC inspector apparently made, i.e., stating on record that no concrete expansion anchors were used vs. 16 actually installed, and the omission of recording the Richmond insert, the inspector requested the licensee perform a reinspection of the subject supports. The reinspection found eleven of the sixteen concrete anchors exceeded the allowable 1/4 inch tolerance, ranging in variances from 1/8 inch up to 1 inch. In addition, a reinspection of all additional accessible dimensions (approximately 90 of 138 total), nine additional deficiencies were found which exceeded the 1/8 inch tolerance stated on the drawing. The deficiencies range in size from 1/8 inch to 1-3/4 inch greater than the allowable. These deficiencies are mainly related to the attachment to an embed plate which is at the same elevation as the concrete anchors. The licensee has documented the deficiencies in Nonconformance and Disposition Report 32136 for evaluation and disposition.

The licensee has implemented a program to determine the reasons for the discrepancies. In addition to temporarily suspending the QC inspector, and demoting the lead inspector, reviews of completed inspection reports are in progress as well as reinspection of other supports this inspector had accepted. Preliminary reinspections have found good correlation with the inspection reports and drawings.

Failure of the Quality Control inspector to identify nonconforming conditions in accordance to the approved Quality Control Procedure is a Violation of 10 CFR 50, Appendix B, Criterion X. (85-21-01)

5. Inspection of Condulets Used on Instrumentation Devices

During routine site inspection, the inspector observed a loose condulet attached to a fluid level instrument. The instrument was Quality Control inspected and accepted and the electrical wiring within the condulet was installed and terminated. The instrument is safety-related and seismically qualified. The inspector questioned the adequacy of the as-installed condition of the condulet loosely attached to the instrument. From subsequent discussions with Quality Control and Stone and Webster Engineering personnel, several deficiencies exist with the use of this type (Type BUB) condulet connected to seismic instruments.

- (a) The condulets should be tight when installed.
- (b) There are no apparent locking devices or tightening methods provided for on the condulet.
- (c) Quality Control has no specific inspection requirements to assure tightness.
- (d) Engineering has indicated informally that the installed Type BUB condulet is probably unacceptable for this type application.
- (e) Drawing No. SECO-5-D-69 states condulet fittings "LB", "LL", "LR", "C", (etc) are acceptable. Construction apparently interpreted the "etc" to also approve BUB condulets.
- (f) Engineering revised Drawing SECO-5-D-69 on May 17, 1984, to limit the maximum size acceptable condulet to 3/4 inch. The condulet installed is one inch.

Stone and Webster Engineering is reviewing the above conditions to determine their actions on this item and other similar condulets presently installed. Quality Control issued a Nonconformance and Disposition Report on the above referenced condulet to initiate evaluation.

This item is unresolved pending resolution of the following concerns relating to the use of condulets attached to instrumentation.

- Disposition of loose condulets attached to instruments.
- Quality Control inspection procedure changes which reflect inspection requirements for tightness of condulets, if applicable.
- Acceptability of using condulets greater than 3/4 inches and the use of "BUB" type condulets. Present requirements prohibit their use.

- Removal of the word "etc." from the drawing. Engineering has started action on this item.
- If the installed condition is determined to be unacceptable for this condulet, a determination of the acceptability of other installed condulets to instruments will be required.

This item is unresolved pending resolution of the above items (85-21-02).

6. Weld Material Control

The inspector reviewed weld rod certification data at the weld rod issue station in the turbine building. The particular weld rod material included in this inspection was as follows:

	<u>Lot Number</u> <u>2D525AD01</u>	<u>Lot Number</u> <u>2D524AD02</u>
Material and Quantity	12,500 lbs of E7018 electrode	12,500 lbs. of E7018 electrode
Diameter	3/32"	3/32"
Control Number	LL082	LL081
Heat Number	76448	76448
Manufacturer	Alloy Rods, Inc.	Alloy Rods, Inc.
Purchase Order	2BV60828	2BV60828
ASME Certification	Yes - Section II Part C, SFA5.1	Yes - Section II, Part C, SFA5.1

The review included the following attributes:

- Adequate purchasing procedures were established incorporating applicable ASME requirements.
- ASME required tests were performed on the electrodes.
- Welding materials were clearly marked.
- Adequate procedures existed for receiving, storing, distributing and handling the electrodes.
- The electrodes were stored properly for moisture control.

The inspector visited the issue station in the Turbine Building and verified the following actions were in compliance with the procedure:

- Holding ovens were within the prescribed heating ranges.
- Electrodes were segregated and neatly placed in the ovens.
- Temperature recording devices were of the proper range and certified as properly calibrated.
- Electrode issuance was controlled such that only certified welders could withdraw electrodes. Return of used stubs and unused electrodes is mandatory.
- Adequate control of discarded electrodes exist.

The inspector found all areas reviewed acceptable.

7. Closure of the Construction Opening in the Reactor Containment Exterior Wall

On September 24, 1985, the licensee completed the first of six concrete pours being performed to close the construction opening in the reactor containment wall. The second pour was made on October 1, 1985, and the final pour (6th) is planned for completion on October 29, 1985.

The inspector witnessed the first two placements, identified as 8C and 9C, to ascertain compliance with the licensee's commitments. This review included the concrete vibration techniques, slump test (2-3/4 inches), concrete temperature test (55°F) and air entrainment test (3.5 percent). The inspector also noted Quality Control and Quality Assurance involvement in the pours. The inspector reviewed the preplanning actions, contingencies for rain, etc., made prior to commencement and found excellent controls in this area.

All items reviewed by the inspector were found acceptable.

8. Inprocess Controls for Installation of Pipe Supports

The inspector audited the contractor's controls for the installation activities for pipe supports number 2 MSS-PSSH-002 A and B. The supports being installed are in the Containment Building on the main steam line. The review included verification that the latest issue of the drawing was used, material was properly identified and certified, temporarily installed steel was identified by the appropriate color tape and weld procedure and details were properly identified.

The inspector found all areas reviewed acceptable.

9. Exit Interview

A meeting was held with the licensee's representatives indicated in paragraph 1 on October 22, 1985, to discuss the inspection scope and findings.