

U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-412/84-08

Docket No. 50-412

License No. CPPR-105

Priority -

Category B

Licensee: Duquesne Light Company
435 Sixth Avenue
Pittsburgh, Pennsylvania 15219

Facility Name: Beaver Valley Power Station, Unit 2

Inspection At: Shippingport, Pennsylvania

Inspection Conducted: July 16-20, 1984

Inspectors: op In R Paolino
R. Paolino, Lead Reactor Engineer

9/11/84
date

Leonard S. Cheung
L. Cheung, Reactor Engineer

8/31/84
date

J. Hodson
J. Hodson, Reactor Engineer

8-30-84
date

Approved by: Clifford J. Anderson
C. Anderson, Chief, Plant
Systems Section, EPB

9/11/84
date

Inspection Summary: Inspection on July 16-20, 1984 (Report No. 50-412/84-08)

Areas Inspected: A routine unannounced inspection consisting of work observation, work in progress and completed work activities and documentation relative to the installation of instrument cables and termination, to ascertain whether these activities are being accomplished in accordance with NRC requirements and licensee SAR commitments. The inspection involved 96 inspection-hours on site by three region based inspectors and one observer for IAEC.

Results: One violation was identified (failure to follow installation procedure - 10 CFR 50, Appendix B, Criterion V).

DETAILS

1.0 Persons Contacted

1.1 Duquesne Light Company

- *L. Arch, Senior Project Engineer
- *J. Bajusik, Director of Construction
- N. Crooks, Assistant Director of Quality Control
- *R. Coupland, Director of Quality Control
- *C. Davis, Director of Quality Assurance
- J. Dusenberry, Director of Start-up/Testing
- *E. Horvath, Senior Project Engineer
- G. Kaloz, Quality Control Engineer
- *C. Kirschner, Senior Quality Assurance Engineer
- *J. Konkus, Project Engineer
- D. Mahandra, Quality Control Engineer
- *C. Majumdar, Assistant Director of Quality Control
- D. Rohm, Assistant Director of Quality Control
- *J. Stabb, Compliance Engineer
- R. Swiderski, Manager of Start-up
- R. Timko, Quality Control Supervisor (HVAC)
- P. Verman, Supervisor, Balance of Plant-Testing
- *J. Waslousky, Senior Quality Assurance Engineer

1.2 Stone and Webster Engineering Corporation

- *E. Andre, Engineer
- *P. Bienick, Assistant Superintendent of Engineering
- *C. Bishop, Construction Manager
- E. Farino, Principal Electrical Engineer
- D. Kwong, Site Engineer
- J. Lucas, Supervisor Instrumentation
- *A. McIntyre, Superintendent of Engineering
- *J. Novak, Superintendent of Construction
- G. Orr, Senior Training Supervisor
- J. Rosen, Principal Instrumentation & Control Engineer
- *R. Wittschen, Licensing Engineer

1.3 Schneider Power Corporation

- R. Deiter, Quality Control Supervisor
- J. Fulkerson, System Release Coordinator
- R. Keiper, Superintendent of Instrumentation
- R. McCoy, Quality Control Engineer

1.4 Energy Consultant

- M. Hartman, Training Coordinator
- D. Vukich, Assistant Training Administrator

1.5 U. S. Nuclear Regulatory Commission

G. Walton, Senior Resident Inspector

*Denotes personnel present at exit meeting.

2.0 Facility Tour

- 2.1 The inspectors observed work activities in progress, completed work and plant status in several areas of the plant during a general inspection of Unit 2. The inspectors examined work items for obvious defects or noncompliance with NRC requirements or licensee commitments. Particular note was taken regarding the presence of quality control personnel and indications of quality control activities through visual evidence such as inspection records, nonconformance and acceptance tags.

Specific work activities and completed work observed by the inspectors included installation of instruments, routing of instrument cables and instrument tubing and installation of Heating, Ventilation, and Air Conditioning (HVAC) components.

- 2.2 During this tour, the inspectors noted that hardware used to fasten cable tray sections and splice plates varied in length. For example, cable trays 2TK0020 and 2TL0110 were fastened together with hardware in which the threaded stud was not long enough to provide full thread engagement of the nut. Other trays in the same area were fastened with hardware in which the threaded stud extended 1-5 threads beyond the surface of the nut. Specification 2BVS-931, pages 3-5, lines 24-28, requires evidence of complete threading through the nut and at least one full thread projecting beyond the nut. The licensee indicated all cable tray hardware was supplied by the cable tray manufacturer and was assumed to be adequate.

The licensee has agreed to perform an analysis to determine adequacy of hardware used in situations where full thread engagement has not been achieved. This item is unresolved pending NRC review of licensee evaluation and corrective action. (412/84-08-01)

- 2.3 During the inspection of the cable tunnel area (elevation 712'-0') the inspectors noted that the only means of support being used for coiled cables was the 3/8" wide nylon tie wraps. The inspectors concern here is the contact pressure of the total cable weight at the support point. For example, one coiled cable (No. NKA-64, 4C/12 awg) consisting of forty-four loops and weighing approximately 164 lbs. was supported by two 3/8 inch nylon tie wraps. The cable bend radius (3 inch) at the point of support is approaching the minimum requirement of 2.5 inches. Continued storage of this cable in this manner could result in damage to the cable insulation and the conductor. Specification 2BVS-931, pages 3-25C, lines 7-10, requires protection of cable against mechanical damage during temporary storage. This

item is unresolved pending NRC review of licensee determination of potential damage and corrective action. (412/84-08-02)

3.0 Instrumentation (Components/System--Work Observations)

- 3.1 The inspector examined work performance, partially completed work and completed work pertaining to the installation of safety related pressure transmitters and associated tubing and electrical circuits to determine whether the requirements of applicable specifications, NRC requirements and licensee commitments were met in the area of receipt inspection, material qualification, procurement, installation and quality control inspections.

Items examined for this determination include:

- Safety Related Pressure Transmitter Nos. 2SWS*PT113A, B, C and D located in underground valves pit Nos. ME-MR-0214 and ME-MR-0182, area 2SR-30.
- Safety Related Pressure Transmitter Nos. 2SWS*PT117A and B located in the primary intake structure shared with Beaver Valley Unit 1.
- Drawing No. RK-335AT-1
- Specification Nos. 2BVS-920 and 2BVS-977
- Inspection Plan (I.P.)-7.2.9 dated February 6, 1984.

- 3.2 The inspector observed that instrument tubing runs had been disconnected from the 2SWS*PT113D transmitter. The transmitter had been removed from its permanent mount and left hanging from a flexible conduit containing electrical wires that were terminated in the instrument. Instrument tube connections and disconnected instrument tubing were not capped or plugged to prevent intrusion of moisture and dust.

The licensee was informed that this was a violation of 10 CFR 50, Appendix B, Criterion V, which states, in part, that: "Activities affecting quality shall be prescribed by documented instructions ... and shall be accomplished in accordance with these instructions" Specification 2BVS-977, Addendum 4, pages 1-35, lines 14-20, requires that unconnected tubing runs and instrument tube connections be capped or plugged to prevent intrusion of moisture/dust. (412/84-08-03)

- 3.3 In addition to the above, the inspector noted that the wire terminations routed through the flex conduit and terminated in the transmitter housing were not sealed against the external environment as required by the instrument manufacturer.

The licensee indicated that the sealing problem is undergoing engineering evaluations to determine an appropriate material that can be used to provide an effective seal against the external environment. The licensee provided the inspector with a copy of the transmittal (2DLS-16904) from the architect engineer as evidence that the sealing problem has been identified and is being addressed.

This item is unresolved pending NRC review of licensee evaluation and corrective action to be taken to ensure environmental qualification of transmitters. (412/84-08-04).

4.0 Instrument (Cable Installation/Termination)--Work Observation

The inspector observed work performance, partially completed work and completed work pertaining to the installation of instrument cable to determine whether the requirements of the applicable specifications, instructions and procedures are being met in areas relating to material qualification, type, size, routing termination and separation.

Items examined for this determination include:

- Flow Diagram No. 10080-RM-47B, Rev. 15A and No. 10080-RM-47C, Rev. 12.
- Loop Diagrams for 2SWS*PT113A and B, Rev. 6.
- Loop Diagrams for 2SWS*PT113C and D dated 11/22/82.
- Test Loop Diagram No. 30-C12, sheets 1 and 2 dated 3/4/84 and 1/19/84 respectively.
- Electrical Installation Specification No. 2BVS-931, Addendum 2.
- Cable routing and termination from transmitters 2SWS*PT113A, B, C and D to termination cabinets and to Motor Control Center (MCC).

No violations were identified.

5.0 Heating, Ventilation, and Air Conditioning System (HVAC)

The inspector performed an inspection of the HVAC installation activities, reviewed several HVAC-related Nonconformance and Disposition (N&D) and Engineering and Design reports (E&DCRs), audited the licensee's HVAC QA audit program, and inspected the HVAC storage areas.

5.1 HVAC Installation Activities

The inspector observed work performance, partially completed work and completed work for adherence to the applicable specifications and procedures and to NRC commitments. Areas reviewed included the control building, auxiliary building and intake structure.

Items examined for this determination were:

- Installation of Ventilation and Air Conditioning Systems, No. 2BVS-935, dated 1/31/84, Addendum 4
- Field Fabrication and Erection of Piping - ASME Section III, Classes 1, 2, and 3, and ANSI B31.1.0, Class 4, No. 2BVS-92J, dated 6/1/84, Addendum 5
- BZ-545C-192-OC, Duct Support
- BZ-539C-35-1A, Duct Support
- SM-39-5, Air Conditioning Unit

No violations were identified.

5.2 Review of N&Ds and E&DCRs

The inspector reviewed N&D procedure SQC 4.4, "Nonconformance and Disposition Reports", dated 4/26/84 and the following N&Ds related to safety related HVAC systems:

N&D 18,454
 N&D 18,455
 N&D 18,456
 N&D 18,459
 N&D 4001
 N&D 4027A

The N&Ds properly reflected procedural requirements.

The inspector also reviewed advance change E&DCR procedure, FCP-36, "Advance Change E&DCRs", dated 7/3/84, and the following E&DCRs for adherence to procedure and good engineering practice:

2PA-3901
 2PA-4817
 2PA-4994
 2PA-4337
 2PA-5190
 2PA-4416

No violations were identified.

5.3 HVAC Audit Program

The inspector reviewed the Quality Assurance Department Instruction Manual. Specifically, the following sections related to QA audits:

- 18.1.1 Audit Schedules
- 18.2.1 Planning of Audits
- 18.2.2 Conduct of Audits
- 18.2.3 Reporting of Audits

The inspector then reviewed the following audits of the HVAC contractor for adequacy of audit plan, adherence to procedure, and timeliness of corrective action:

Audit No. DC-2-84-10

Audit No. DC-2-83-08

No violations were identified.

5.4 HVAC Storage

The inspector examined the level B and level D storage areas. Level B storage is indoors with a temperature range of 40-140°F but no humidity or other environmental controls. Level D storage is outdoors.

No violations were identified.

6.0 Personnel Qualification

The inspector reviewed quality control personnel qualification records for six individuals to ascertain whether the personnel selection and qualification were in accordance with established procedures. The inspector reviewed personnel experience, training and test results used in qualifying the selected personnel.

No violations were identified.

7.0 Status of Cable Separation Program

The inspector met with cognizant licensee and Architect Engineer personnel to discuss the progress and status of the cable separation program.

The licensee indicated that the engineering walkdown to identify nonconforming cable/cable tray installations has been completed. Deficiencies have been categorized and are documented in the computer programs. Licensee Quality Control Personnel are in the process of verifying this data. Based on available information, the licensee stated that nonconformances identified can be reworked to meet the requirements of Regulatory Guide 1.75 and the IEEE-384-74 Standard by rerouting and/or barriers and tray covers. No items that would require testing or analysis were identified.

The training coordinator has been selected. Training has been started and is continuing.

Licensee procedures 2BVS-931 and 2BVM-41 have been revised to incorporate the requirements of the Regulatory Guide 1.75 and the IEEE-384-74 Standard. Where these requirements cannot be met, barriers/covers will be installed and so noted on the drawing.

The inspector had no further questions at this time.

8.0 Unresolved Items

Unresolved items are matters about which more information is needed to determine whether it is acceptable or a violation. Unresolved items are discussed in detail in paragraphs 2 and 3.

9.0 Exit Meeting

The inspector met with licensee and construction representatives (denoted in Details, paragraph 1.0) at the conclusion of the inspection on July 20, 1984 at the construction site. The inspector summarized the scope and inspection findings. At no time during this inspection was written material provided to the licensee.