U.S. NUCLEAR REGULATORY COMMISSION
REGION I

Report No. 50-412/86-30

Docket No. 50-412

License No. CPPR-105 Category B

Licensee: Duquesne Light Company

Facility Name: Beaver Valley Power Station, Unit 2

Inspection At: Shippingport, Pennsylvania

Inspection Conducted: September 29 - October 3, 1986

Inspectors: Leonard S. Cheung 10/30/86
L. Cheung, Reactor Engineer date

Approved by: C J Anderson 10/30/86
C. Anderson, Chief, Plant System Section, Engineering Branch, DRS date

Inspection Summary: Inspection on September 29 - October 3, 1986(50-412/86-30)

Areas Inspected: A routine unannounced inspection consisting of work observation, work in progress, completed work activities, and documentation relative to the installation of instruments and instrument cables to ascertain whether these activities are being accomplished in accordance with NRC requirements and licensee FSAR commitments.

Results: No violations were identified.

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DETAILS

1.0 Persons Contacted

1.1 Duquesne Light Company

*R. Coupland, Director, Quality Control
*D. Denning, Assistant Director Quality Control
*E. Horvath, Lead Electrical Engineer
*C. Kirschner, QA Supervisor
*C. Majumdar, Assistant Director Quality Control
*T. Noonan, Station Superintendent
*S. Moore, Start-Up-I&C
*M. Ziemba, SUG Electrical Supervisor
*L. Rabenau, Compliance Engineer
*C. Trasndi, I&C Supervisor
*G. Wargo, Supervisor SQC Structural
*S. C. Fenner, Director Operations QC
*J. Godleski, Senior Test Engineer
*C. Schultz, PRC Chairman
W. Huysman, Supervisor, Receipt Inspection and Storage Maintenance
L. Stotka, Supervisor, Document Review Group

1.2 Stone and Webster Engineering Corporation

*P. Bienich, Assistant Superintendent of Engineering
*A. Dasenbrook, Senior Construction Manager
*D. Lamson, Assistant Resident Engineer
*R. Wittschen, Licensing Engineer

1.3 United States Nuclear Regulatory Commission

*J. Beall, Senior Resident Inspection
*A. Asars, Resident Inspector

*Denotes those personnel present at exit meeting.

2.0 Instrumentation Component/System-Work Observations

2.1 The inspector examined work performance, partially completed work and completed work pertaining to the installation of safety-related level, flow and pressure instruments in the Reactor Coolant System and Steam Generator System, and the associated tubing to determine whether the requirements of applicable specifications, NRC requirements and licensee commitments were met in the areas of design drawings, material qualification, installation and quality control inspection.

2.2 Items examined for this determination include:

a. Safety related pressurizer level transmitters 2RCS*LT460 and LT461 and pressure transmitters 2RCS*PT456, all located inside reactor containment at elevation 721.

b. Safety related steam generator level transmitters 2FWS*LT474 and 477, located inside reactor containment at elevation 790; and flow transmitters 2RCS*FT474 and FT 477 for reactor coolant flow to steam generators, also located inside reactor containment at elevation 718.

c. Safety related containment sump level element 2RCS*LE151 A,B located inside reactor containment at elevation 761 and level transmitters 2RCS*LT151 A,B located outside reactor containment in the auxiliary building.

d. Stone & Webster Instrument installation specification 2BVS-977, Revision 4 dated March 24, 1986.

e. Stone & Webster Specification No. 2BVS-635A "Level Transmitter Assemblies" dated March 26, 1985 (for containment sump level measurements).

The following Westinghouse specifications for the transmitters supplied by Westinghouse (NSSS Vendor) were also reviewed to ascertain that adequate design requirements were included in these specifications:

a) Westinghouse design Spec. 953328 "Qualification of Pressure & Differential Pressure Transmitters Qualification Group A & B, Safety Class 1E" Revision 4, dated April 1, 1982.

b) Westinghouse Spec. Sheet No. 01411 for transmitter 2FWS*FT414, Revision 29, dated February 14, 1986.

c) Westinghouse Spec. Sheet No. 02210 for transmitters 2RCS*LT460 and 461, Revision 19, dated January 24, 1986.

d) Westinghouse Spec. Sheet No. 01410 for transmitters 2FWS*474 and 477, Revision 40, dated February 6, 1986.

e) Westinghouse Spec. Sheet No. 01010 for transmitter 2RCS*PT456, Revision 20, dated January 24, 1986.

f) Westinghouse Dwg No. 8765D64 for ITT Barton Model 752 Differential Pressure transmitters, Revision 9, dated February 6, 1986.

2.3 Findings

The inspector observed that one out of the eight transmitters inspected (2FWS*LT474) was tagged as 2FWS-LT474, which designates non-safety related equipment. The inspector discussed this finding with the licensee's QC inspector, who subsequently generated a Construction Deficiency Report (No.6884 dated October 2, 1986) to correct this problem. On October 3, 1986, just before the exit meeting, the licensee management requested additional time for them to investigate the cause of this "deficiency". The inspector agreed to allow the licensee to respond to this problem before the end of the following Monday (October 6, 1986).

On October 6, 1986, the licensee set up a conference call with the presence of the licensee management personnel and the NRC senior resident inspector. The licensee stated that most instruments had been handed over from Construction to Operations. The operations group was in the process of changing all "Construction" tags to "Operation" tags, and the asterisks(*) were to be eliminated from all "Operation" tags. They claimed this was the case for the instrument tag 2FWS-LT474, and voided Construction Deficiency Report No.6884 on October 6, 1986. The inspector accepted the licensee's explanation.

Within the scope of this inspection, no other deficiencies were identified.

3.0 Instrument Cable and Termination-Work Observation

3.1 The inspector observed work performance, partially completed work and completed work pertaining to the installation of instrument cables and terminations to determine whether the requirements of the applicable specification, instruction and procedure are being met in areas relating cable type and size, routing, raceway identification and cable terminations.

3.2 Items examined for this determination include:

a) Stone and Webster Specification 2BVS-931 "Specification for Electrical Installation" Revision 5, July 18, 1985.

b) Stone and Webster test loop diagrams (TLD)

No. 06-105 for 2RCS*L-460 dated December 8, 1985
No. 06-101 for 2RCS*P-456 dated October 29, 1985
No. 06-045 for 2RCS*F-414 dated October 23, 1985
No. 13A-003 for 2RSS*L-151A dated May 6, 1986
No. 13A-004 for 2RSS*L-151B dated May 6, 1986
No. 06-106 for 2RCS*L-461 dated December 6, 1985
No. 24A-051 for 2FWS*F-477 dated June 19, 1985
No. 24A-047 for 2FWS*F-474 dated June 19, 1985

c) A selected sample of safety-related instruments (other than the transmitters and level elements) as shown in the diagrams identified in 3.2.b above, e.g. 2RCS*LI461, 2RSS*LI151 A&B, 2RSS*LT151 A&B, etc, that belong to the same loops as the transmitters or level elements.

d) Cable pull records for Cable No. 2RCS2WX005, 006, 013, 014; 2RCS1RX021, 022; 2RCS3BX011, 012; 2FWS1RX001 through 004.

e) Termination acceptance inspection reports T2FWS1RX001, 002, 003, 004; T2RCS1RX021, 022, T2RCSWX005, 006, 014; T2RCS3BX001

3.3 The inspector verified the correctness of cable connections, and the condition of the terminations, traced sections of the raceway and verified the raceway numbers. Within the scope of this inspection, no unacceptable conditions were identified.

4.0 Nonconformance and Disposition (N&DR) Report Reviews

The inspector reviewed a selected sample of eight nonconformance reports to determine whether 1) the records were legible, complete and properly reviewed by qualified personnel; 2) the records were properly identified, stored, and can be retrieved in a reasonable time; and 3) the reports included proper resolution and adequate justification for accept-as-is disposition.

The following N&DR's were reviewed:

a) N&DR No.16365 "Cable termination color separation" dated October 2, 1985.

b) N&DR No.35180 "Warehouse F damaged flex hoses" dated March 3, 1986.

c) N&DR No.33949 "Control valve inspection, 2VRS*SOV109A1" dated July 31, 1986.

d) N&DR No.35232 "Tubing length between bends too short" dated July 31, 1986.

e) N&DR No.35232 "Tubing lengths shorter than as indicated "dated July 26, 1986.

f) NDR No.33950 "SOV data plate not attached" dated July 31, 1986.

g) N&DR No.33953 "E&DCR with incorrect information" dated July 31, 1986.

h) N&DR No.35219 "Root valve off-location" dated June 5, 1986.

In N&DR 16365, the licensee's QC inspector identified that the separation between cable 2RCS3BX011 (blue colored) and cable 2IHC3NX902 (non-colored) at terminal block TB-C inside Westinghouse Cabinet RK*2PRI-PROC-3 was less than 1 inch. The disposition of this N&DR was "Accept as is. Due to physical restraints the 1" criteria is not achievable at the termination points. Cables 2RCS3BX011 and 2IHC3NX902 have been trained to maximize separation and maintain a separation >0." and the technical justification was "engineering has reviewed the Westinghouse WCAP No.8892-A, SWEC file No.2707.570-723-001 and the conditions noted above will be listed as exceptions in the FSAR, BVM-41, and 2BVS-931....."

The inspector was concerned about the generic implication of this disposition and asked the licensee for the technical basis for a separation of greater than zero was acceptable. Since these cables were field installed, the inspector questioned the ability of the Westinghouse test to resolved this separation problem.

Subsequent to this finding, the inspector observed the wiring condition in cabinet RK*2PRI-PROC-3 and identified another instance where the separation was less than 1 inch. Field installed cable 2IHC3N*902 entered the cabinet from the top, passed through the proximity of a blue colored cable within a distance of about ½".

The inspector also reviewed 4 additional N&DR's (Nos.15517A, 15518A, 15519A, 4337) which contained the same problem as N&DR 16365.

The licensee stated that SWEC might have conducted a test with colored cable and non-colored cable touching each other. However no records or other test documents were provided by the licensee during this inspection to show that such a test had been conducted and that the test was successful.

This item is unresolved pending NRC review of licensee documents to show that a separation distance of less than one inch between colored cables and non-colored cables can meet the separation requirements (50-412/86-30-01)

5.0 Receipt Inspection Record Reviews

The inspector selected six receipt inspection records for review to determine whether 1) receiving inspection documents properly and uniquely identified received instrument components and associated items; 2) applicable engineering and functional specifications (regarding size, type, material, etc.,) of received items were met or otherwise noted; and 3) the required instrument component characteristics, material, performance tests, environmental and seismic qualification tests, and other specification requirements were met or otherwise noted.

The following receipt inspection reports were reviewed:

1) RIR No.E-5-7298 for P.O. No.2BV-635A
Date inspected: April 10, 1985,
Items inspected: 16FCI level elements and 16 level transmitters (Model 8-66MA).

2) RIR No.W-4-0415 for P.O. 2BV-1
Date inspected: March 13, 1984,
Items inspected: 10 ITT Barton flow transmitters (Model 752).

3) RIR No.W-4-0418 for P.O. 2BV-1
Date inspected: March 29, 1984
Items inspected: 3 ITT Barton level transmitters (Model 764).

4) RIR No.W-4-0494 for P.O. 2BV-1
Date inspected: November 7, 1986
Items inspected: 3 ITT Barton level transmitters (Model 764)

5) RIR No.W-4-0495 for P.O. 2BV-1
Date inspected: November 7, 1984
Items inspected: 3 ITT Barton pressure transmitters (Model 763)

6) RIR No.W-5-0623 for P.O. 2BV-1
Date inspected: November 20, 1985
Items inspected: 9 ITT Barton level transmitters (Model 764)

Within the scope of this inspection, no unacceptable conditions were identified.

6.0 Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, or violations. Unresolved items identified during this inspection are discussed in Details, paragraph 4.0.

7.0 Exit Meeting

The inspector met with licensee and construction representatives (denoted in paragraph 1.0) at the conclusion of the inspection on October 3, 1986 at the construction site.

The inspector summarized the scope of the inspection, the inspection findings and confirmed with the licensee that the documents reviewed by the team did not contain any proprietary information. The licensee agreed that the inspection report may be placed in the Public Document Room without prior licensee review for proprietary information (10 CFR 2.790).

At no time during this inspection was written material provided to the licensee.