

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-455/85044(DRS)

Docket No. 50-455

License No. CPPR-131

Licensee: Commonwealth Edison Company
Post Office Box 767
Chicago, IL 60690

Facility Name: Byron Station, Unit 2

Inspection At: Byron Site, Byron, IL

Inspection Conducted: December 2-13, 1985

Inspector: *B. S. Love*
R. S. Love

12/27/85
Date

Approved By: *C. C. Williams*
C. C. Williams, Chief
Plant Systems Section

12/27/85
Date

Inspection Summary

Inspection on December 2-13, 1985 (Report No. 50-455/85044(DRS))

Areas Inspected: Routine, unannounced inspection of licensee activities related to installation of electrical and instrument and control components and associated procedures and records. This inspection involved a total of 76 inspector-hours by one NRC Inspector. During this inspection, Inspection Procedures 51051, 51053, 51054, 51055, 51056, 52051, 52053, and 52055 were covered.

Results: Of the areas inspected, no violations were identified. However, one open item (Paragraph 2.g) was identified and requires additional followup by the Region III inspector.

DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

*V. I. Schlosser, Project Manager
*G. Sorensen, Project Construction Manager
*E. L. Martin, QA Superintendent
*R. B. Klingler, Project QC Supervisor
*J. E. Steinmetz, PCD Field Engineer
*M. V. Dellabetta, QA Supervisor
*J. O. Binder, Project Electrical Supervisor
*J. L. Bergner, QA Supervisor
*S. L. Dresser, EQ Coordinator
*J. Langan, Station Compliance
E. Sager, PCD Field Engineer
E. Briette, QA Engineer
A. Chernick, Station Compliance Supervisor
S. Vovos, PCD Field Engineer
L. Bihlman, QA Engineer
H. Kaczmarek, QA Engineer

Hatfield Electric Company (HECo)

A. Smith, QA/QC Manager
D. Griggs, QA Supervisor
R. Farril, QC Supervisor

Powers-Azco-Pope (PAP)

R. P. Larkin, QA Manager
R. Schulz, Project Manager
D. Nelson, QC Supervisor

The inspector also contacted and interviewed other licensee and contractor personnel during this inspection.

*Denotes those present at the exit interview on December 13, 1985.

2. Procedure Review, Electrical

During this inspection, the Region III inspector reviewed the following HFCo (electrical contractor) procedures and, except as noted, these procedures were found to be adequate.

- a. Procedure 2, "Installation of Class 1 Embedded Conduit," Revision 10 with an implementation date of March 19, 1985.
- b. Procedure 4, "Drawing Control," Revision 14 with an implementation date of October 11, 1985. Procedure Change Notification (PCN) 001 was implemented on November 5, 1985.

- c. Procedure 5, "Class 1 Material and Equipment Receiving and Inspection," Revision 14 with an implementation date of May 8, 1985.
- d. Procedure 6, "Reporting of Damaged or Nonconforming Material or Equipment," Revision 15 with an implementation date of September 27, 1985.
- e. Procedure 7, "Electrical Design Changes," Revision 15 with an implementation date of August 9, 1985.
- f. Procedure 7A, "Rework Control," Revision 1 with an implementation date of October 11, 1985.
- g. Procedure 9A, "Class 1 Cable Pan Hanger Installation," Revision 13 with an implementation date of April 2, 1985. Paragraph 5.3.3 of this procedure states, "Unacceptable items noted on inspection forms shall be reported on Discrepancy Reports per Procedure No. 6." Procedure 6 was revised to allow the reporting, tracking, and reinspection of deficiencies on inspection reports. Pending a revision of this paragraph so that it is compatible with Procedure 6, this item is open (455/85044-01).
- h. Procedure 9B, "Class 1 Cable Pan Cover Installation," Revision 16 with an implementation date of November 22, 1985.
- i. Procedure 9C, "Class 1 Cable Pan Cover Installation," Revision 2 with an implementation date of June 29, 1984.
- j. Procedure 9E, "Class 1 Cable Pan Identification," Revision 10 with an implementation date of November 13, 1982.
- k. Procedure 12, "Installation of Class 1E Equipment," Revision 8 with an implementation date of August 30, 1984.

No violations or deviations were identified, however, one open item requiring NRC followup was identified (Paragraph 2.g).

3. Review of Electrical Work Activities

- a. During this inspection, the Region III inspector selected motor control centers (MCC) 231X5 and 232X5 for review. This review entailed the verification of circuit breaker size, type, and ampere rating and the overload type, size, and setting (where applicable). The installations were found acceptable. Following are the details of this review:

(1) MCC 231X5 (2AP30E)

- ° Location - Auxiliary Building, 426' elevation, column Q/20.
- ° Vendor - Westinghouse Electric Corporation.

- ° Drawings - 6E-2-4008U, Revision F and 6E-2-4008V, Revision H.
- ° Circuit Breaker Type - HFB, Frame Size - 150A.
- ° Cubicle A-2, 70 amp rating, thermal and magnetic overloads (OL).
- ° Cubicle B-2, Battery Room 211 Exhaust Fan 2VE03C, 10 amp rating, 35-110 Magnetic OL set at L0.
- ° Cubicle C-4, RCFC 2A and 2C Service Water Inlet Valve 2SX016A, 5 amp rating, 15-45 magnetic OL set at 3.
- ° Cubicle D-4, RCFC Chill Water Containment Isolation Valve 2W0006A, 3 amp rating, 7-22 magnetic OL set at 2.
- ° Cubicle D-5, RCFC Chill Water Containment Isolation Valve 2W0020A, 3 amp rating, 7-22 magnetic OL set at 2.
- ° Cubicle A-4, Containment Spray PV-2A-HDR Isolation Valve 2CS007A, 10 amp rating, 35-110 magnetic OL set at 6.

(2) MCC 232X5 (2AP32E)

- ° Location - Auxiliary Building, 426' elevation, column Q/18
- ° Vendor - Westinghouse Electric Corporation
- ° Drawing - 6E-2-4008AD, Revision M.
- ° Circuit Breaker Type - HFB, Frame Size - 150A.
- ° Cubicle B-2, H Recombiner Outboard Containment Isolation Valve 20G082, 3 amp rating, 7-22 magnetic OL set at L0.
- ° Cubicle C-2B, Main Steam Atmospheric Relief Valve 2MS018C, 20 amp rating, with pre-fixed thermal and magnetic OLs.
- ° Cubicle D-5, H Recombiner Outboard Containment Isolation Valve 20G084, 3 amp rating, 7-22 magnetic OL set at L0.
- ° Cubicle E-2, Misc. Electric Equipment Room Exhaust Fan 2VE05C, 25 amp rating, 66-190 magnetic OL set at L0.
- ° Cubicle D-3, Diesel Generator 2B Starting Air Compressor 2B-2DG01SB-B, 40 amp rating, with pre-fixed thermal and magnetic OLs.
- ° Cubicle B-3, Component Cooling to RC Pumps Isolation Valve 2CC9413B, 5 amp rating, 15-45 magnetic OL set at 6.

- ° Cubicle A-4, Boron Injection Tank Discharge Isolation Valve 2B-2SI8801B, 10 amp rating, 35-110 magnetic OL set at 1.

- b. During this inspection, the Region III inspector performed a general inspection of the Auxiliary Building and the Unit 2 Containment. This inspection consisted of reviewing cable tray and conduit for separation, support, proper bolting practices, and proper training of cables within the cable tray. Approximately 2,000 feet of cable tray and 800 feet of conduit were inspected. During this general inspection, non-safety-related cable 2AS-132-C2B was observed in safety-related riser (vertical run cable tray) 2R257-C2E and non-safety-related cables 2AS-127-C2B, 2AS-128-C2B, and 2AS-129-C2B were observed in safety-related riser 2R253-C2E. Further investigation revealed that these four cables are associated with the "Steam Generator Blowdown Isolation Valves" and are classified as "Quasi-Safety-Related Cables."

Quasi-Safety-Related Cables are cables which are part of a Class 1E circuit (serve a safety-related function) and have a portion of their routing in a Category II structure (Turbine Building). For that portion of the cables routed in the Turbine Building, the cables are routed in conduits dedicated to Quasi-Safety-Related cables. When these cables enter the Auxiliary Building, they are routed in safety-related raceway of the same division. Quasi-Safety-Related cables are associated with: (1) Turbine Stop Valves; (2) Turbine Pressure Switches; (3) Feedwater Regulating and Bypass Regulating Valves; (4) Turbine Impulse Pressure; (5) Condenser Steam Dump Valves; and (6) Steam Generator Blowdown Isolation Valves.

No violations or deviations were identified during the inspection of MCCs 231X5 and MCC 232X5 or during the general inspection of Unit 2 Containment and the Auxiliary Building.

4. Review of Electrical Records

- a. During this inspection, the Region III inspector reviewed the Material Receiving/Inspection Reports (MRR), vendor documentation packages, and installation documentation for MCCs 231X5 and 232X5.

- (1) MCC 231X5 was received from Westinghouse on MRR 7691, dated October 8, 1979. Interim acceptance was given on November 2, 1979 (quality documents accepted) and final acceptance was given on August 18, 1980 (engineering documents accepted). S&L's documentation acceptance letter was on file.

HECo installation records included: Weld Record Cards 11470, dated May 27, 1982 and 41414, dated December 13, 1982; weld inspection reports dated June 16, 1982 and December 14, 1982; QC inspection checklist dated December 8, 1982. DR1798 documented that one of the panel doors was sprung. The door

was repaired and DR1798 and the open inspection report was closed on September 2, 1983. Documentation for this MCC was found acceptable by the inspector.

- (2) MCC 232X5 was received from Westinghouse on MRR 7870, dated November 15, 1979. Interim acceptance was given on December 6, 1979 with final acceptance on July 23, 1980. S&L's documentation acceptance letter was on file.

HECo installation records included: Weld Record Card 11474, dated June 3, 1982; weld inspection report dated June 15, 1982; QC inspection checklist dated December 8, 1982. DR1825 was prepared to document missing bolts. The bolts were replaced and DR1825 and the open inspection report was closed on July 28, 1983. Documentation for this MCC was found acceptable by the inspector.

- b. During this inspection the inspector reviewed the trend analysis of electrical work activities. A trend analysis is performed quarterly by HECo and annually by Pittsburgh Testing Laboratory (PTL) for the licensee. The inspector reviewed the HECo third quarter trend and the PTL annual trend report dated May 22, 1985. No adverse trends were identified in the electrical area.

No violations or deviations were identified in the area of electrical records.

5. Procedure Review, Instrumentation and Control (I&C)

During this inspection, the Region III inspector reviewed the following PAP (I&C contractor) procedure and found them to be adequate.

- a. FP-1, "Document and Drawing Control," Revision 6, dated August 29, 1984.
- b. FP-3, "Material Receiving Inspection Control," Revision 13, dated February 18, 1985.
- c. FP-4, "Material Storage," Revision 8, July 17, 1984.
- d. FP-5, "Weld Filler Material Control," Revision 11, dated August 31, 1983.
- e. FP-10, "Hydrostatic Test Procedure," Revision 9, dated October 4, 1985.
- f. FP-11, "Calibration and Control of Measuring and Test Equipment," Revision 11, dated May 9, 1984.
- g. FP-13, "Hanger Installation and Control," Revision 15, dated August 5, 1985.
- h. FP-14, "Pneumatic Test Procedure," Revision 5, dated October 8, 1984.

- i. FP-15, "Concrete Expansion Anchor Installation," Revision 14, dated February 18, 1985.
- j. FP-16, "Identification and Marking of Pipe and Components," Revision 12, dated February 15, 1985.

No violations or deviations were identified.

6. Review of I&C Work Activities and Records

- a. During this inspection, the Region III inspector selected six safety-related instruments for review. This review entailed the verification of sensing line size, slope, support and that the high and low sensing lines are properly terminated at the instrument and process line. In that the traveler package was used for the walkdown, the installation records were reviewed in conjunction with the walkdown. Except as noted, the installations and records were found acceptable. Following are the details of this review:
 - (1) Instrument - 2FT-CS016, located on instrument rack 2PL81JB. This panel is located in the Auxiliary Building, 346' elevation, column V/21. Drawing T549-2FT-CS016, Revision 5, was used to perform the walkdown. The following records were a part of the traveler package: FCR No. F-36383, dated October 16, 1985. Revised instrument mounting details; hanger calculation sheet; hanger travelers; flexible hose data sheets; weld traveler; bill of material; instrument attachment record that verifies: instrument identification, fastener size, torque verification, mounting details and proper termination of the high and low pressure sensing lines; pipe bend inspection record; and NCR 361, dated October 22, 1985. This NCR was prepared to document that the vendor tubing on 2PL81JB was modified without engineering (S&L) approval. As of December 12, 1985, NCR 361 is still open and the final walkdown of this instrument system has not been completed.
 - (2) Instrument - 2FIS-611, located on instrument rack 2PL81JB. Drawings T548-2FIS-611, sheet 1, Revision 5 and sheet 2, Revision 3, were used to perform the walkdown. The following records were a part of the traveler package: FCR No. F-35830, dated May 21, 1985, added instrument mounting plates; FCR No. F-36408, dated October 16, 1985, provide a hanger modification; bill of material; hanger calculation sheet; flexible hose data sheet; weld traveler; pipe bend inspection record; final walkdown record; open NCR 361; and field work request (FWR) 5188, dated November 22, 1985, was issued to rework sensing line welds per the disposition on NCR 361.
 - (3) Instrument - 2FT-CS014, located on instrument rack 2PL81JB. Drawings T546-2FT-CS014, sheet 1, Revision 7, sheet 2, Revision 3, and sheet 3, Revision 1, were used to perform the walkdown. The following records were a part of the traveler

package: FCR No. F-36383; instrument attachment record; weld traveler; bill of material; flexible hose data sheet; hanger calculation sheet; hanger travelers; pipe bend inspection record; and open NCR 361. As of December 12, 1985, the final walkdown of this system has not been completed.

- (4) Instrument - 2FT-AF013, located on instrument rack 2PL84JA. This panel is located in the Auxiliary Building, 364' elevation at column M/24. Drawings T447-2FT-AF013, sheet 1, Revision 4, and sheet 2, Revision 5, were used to perform the walkdown. The following records were part of the traveler package: FCR No. F-36242, dated September 20, 1985, revised the instrument mounting details; weld traveler; bill of material; instrument attachment record; pipe bend inspection record; and final walkdown inspection record.
- (5) Instrument - 2FT-AF015, located on instrument rack 2PL84JA. Drawings T448-2FT-AF015, sheet 1, Revision 4, and sheet 2, Revision 5 were used to perform the walkdown. The following records were part of the traveler package: FCR No. F-36242; instrument attachment record; weld traveler; bill of material; pipe bend inspection record; and final walkdown inspection record. During the walkdown of this system, it was observed that four hanger clips had not been installed. This deficiency was corrected on FRR 5254 prior to the inspector leaving the site on December 13, 1985.
- (6) Instrument 2FIS-610, located on instrument rack 2PL81JA. This panel is located in the Auxiliary Building, 346' elevation at column W/19. Drawings T541-2FIS-610, sheet 1, Revision 10, sheet 2, Revision 5, and sheet 3, Revision 2, were used to perform the walkdown. The following records were part of the traveler package: pipe bend inspection record; open NCR 360; FWR 5189, dated November 22, 1985, was issued to rework the sensing line welds per the disposition on NCR 360; FCR No. F-36387, dated October 18, 1985, was issued to revise the sensing line hangers on 2PL81JA; instrument rack installation traveler; FCR No. F-35830; hanger calculation sheets; hanger travelers; weld records; instrument attachment record; bill of material; and the flexible hose data sheets. Two instances of reverse sensing line slope had been documented on Fabrication/Installation Surveillance Report (FIS) dated October 8, 1985. FWR 5123, dated November 4, 1985, was issued to correct the reverse deficiencies identified on the ISR.
- (7) During the walkdown of the containment spray (CS) sensing lines, it was observed that one U-bolt or hanger 2FT-CS012-H127-3 was not double-nutted in accordance with the drawings and specifications. A research of the records indicated that PAP had previously identified this deficiency during their final walkdown on October 21, 1985, and appropriate action was being taken to have the deficiency corrected.

b. During a general tour of Unit 2 Containment and the Auxiliary Building, the following observations were made:

- (1) The cable trough hanger was damaged on instrument rack 2PL50J. This instrument rack is located in Unit 2 Containment, 377' elevation, azimuth R342°. PAP prepared FIS 3060 to document the observed damage. This report is forwarded to CECo for corrective action by HECo.
- (2) At instrument rack 2PL84JB, observed the set-up and hydrostatic test of sensing lines associated with instrument 2FT-AF016 (auxiliary feed to steam generator 2C). The test was conducted in accordance with PAP procedure FP-10.

No violations or deviations in the area of I&C work activities and records.

7. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involves some action on the part of the NRC or licensee or both.

8. Exit Interview

The Region III inspector met with the licensee representatives (denoted under Paragraph 1) at the conclusion of the inspection on December 13, 1985. The inspector summarized the scope and findings of the inspection. The inspector also discussed the likely informational content of the inspection report with regard to documents or processes reviewed during the inspection. The licensee acknowledged this information and did not identify any such documents or processes as proprietary.