

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-454/84-69; 59-455/84-47(DRS)

Docket No. 50-454; 50-455

License No. CPPR-130; CPPR-131

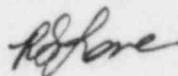
Licensee: Commonwealth Edison Company
Post Office Box 767
Chicago, IL 60690

Facility Name: Byron Station, Units 1 and 2

Inspection At: Byron Site, Byron, Illinois

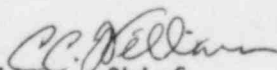
Inspection Conducted: September 17-21, 1984

Inspector(s): R. S. Love



10/10/84
Date

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



10/10/84
Date

Inspection Summary

Inspection on September 17-21, 1984 (Report No. 50-454/84-69; 50-455/84-47(DRS))

Areas Inspected: Routine, unannounced inspection of licensee actions on previous inspection findings, 10 CFR 50.55(e) reports and IE Bulletins. This inspection involved a total of 37 inspection-hours on-site by one NRC inspector, including 2 inspection-hours during off-shifts.

Results: Of the areas inspected, no items of noncompliance or deviations were identified.

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DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

- *K. J. Hansing, Quality Assurance Superintendent
- *D. L. Vandgrift, Project Quality Control Engineer
- *J. W. Rappeport, Quality Assurance Engineer
- *J. L. Bergner, Quality Assurance Supervisor
- *E. T. Sager, Electrical Field Engineer
- *M. V. Dellabetta, Quality Assurance Engineer
- *J. O. Binder, Project Electrical Supervisor
- R. B. Klinger, Project Quality Control Supervisor

Hatfield Electric Company (HECo)

- A. Smith, QA/QC Manager
- S. Bindenagel, Assistant QC Supervisor
- T. Ahlquist, Lead QC Inspector

Sargent and Lundy (S&L)

- T. B. Thorsell, Senior Electrical Project Engineer

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

*Denotes those persons present at the exit interview on September 21, 1984.

2. Licensee Action on Previously Identified Items

- a. (Closed) Noncompliance (454/84-27-01; 455/84-19-01): During a previous inspection it was identified that the licensee failed to identify and control nonconforming cable tray hangers during the hanger reinspection required by HECo nonconformance report (NCR) 407R. As a result of the inspector's concerns, 295 hangers were reinspected. This reinspection resulted in 2 HECo NCRs, 1 CECo NCR, and 44 HECo deficiency reports (DR) being prepared to document potential discrepancies. During a previous inspection (454/84-47; 455/84-41), the inspector reviewed 19 of the closed DRs and found the corrective action to be adequate. During this inspection, the inspector reviewed the following closed NCRs and DRs:
 - (1) DR 5419, dated July 17, 1984. Only 1 tube steel section installed and the drawing indicated that 2 tube steel sections should be installed. Field Change Report (FCR) 25193 was issued to correct the drawing. The DR was closed on August 16, 1984.
 - (2) DR 4925, dated May 10, 1984. Tube steel thickness was 1/16" undersized. FCR 25116 was issued to accept the tube steel as installed. The DR was closed on July 27, 1984.

- (3) DR 4929, dated May 10, 1984. Tube steel length was shorter than specified on the drawing. FCR 25075 was issued to correct the drawing. The DR was closed on July 27, 1984.
- (4) DR 4921, dated May 10, 1984. Oversized tube steel was installed. FCR 25085 was issued to accept the tube steel as installed. The DR was closed on July 27, 1984.
- (5) DR 4945, dated May 15, 1984. Wrong connection detail was utilized. FCR 25086 was issued to accept the connection detail as installed. The DR was closed on July 27, 1984.
- (6) DR 4946, dated May 11, 1984. One tube steel section installed and the drawing indicated that 2 sections should be installed. FCR 4946 was issued to correct the drawing. The DR was closed on July 27, 1984.
- (7) DR 4944, dated May 14, 1984. Tube steel length was shorter than specified on the drawing. FCR 25087 was issued to correct the drawing. The DR was closed on July 27, 1984.
- (8) DR 4941, dated May 11, 1984. Wrong connection detail was utilized. FCR 25072 was issued to accept the connection detail as installed. The DR was closed on July 27, 1984.
- (9) DR 5028, dated May 10, 1984. East vertical tube steel added, was not shown on the drawing. FCR 25089 was issued to correct the drawing. The DR was closed on July 27, 1984.
- (10) DR 4942, dated May 11, 1984. Oversized tube steel was installed. FCR 25088 was issued to accept the tube steel as installed. The DR was closed on July 27, 1984.
- (11) DR 4927, dated May 10, 1984. Wrong connection detail utilized and tube steel length was shorter than specified. FCR 25112 was issued to accept the detail as installed and to correct the tube steel length on the drawing. The DR was closed on July 27, 1984.
- (12) DR 5013, dated May 10, 1984. Wrong connection detail utilized. FCR 25112 was issued to accept the detail as installed. The DR was closed on July 27, 1984.
- (13) DR 5027, dated May 14, 1984. DV-85 connection detail plate size reduced. FCR 25076 was issued to accept the plate as is. The DR was closed on July 27, 1984.
- (14) DR 5018, dated May 11, 1984. Welds were rusty. Welds were cleaned and painted, and the DR was closed on August 16, 1984.
- (15) DR 4923, dated May 10, 1984. Wrong connection detail utilized, plate size was increased. FCR 24867 was issued to accept the plate as installed. The DR was closed on July 14, 1984.

- (16) DR 4933, dated May 10, 1984. Wrong connection detail utilized and welds rusty. FCR 25113 was issued to accept the detail as installed and the welds were cleaned and painted. The DR was closed on August 6, 1984.
- (17) DR 5003, dated May 10, 1984. Eight one inch return welds missing. FCR 25126 was issued to accept the welds as installed. The DR was closed on July 28, 1984.
- (18) DR 4934, dated May 10, 1984. Wrong size tube steel was installed. FCR 25130 was issued to accept the hanger as installed. The DR was closed on July 27, 1984.
- (19) DR 5026, dated May 11, 1984. DV-84 connection was not installed per detail. FCR 25084 was issued to accept the hanger as installed. The DR was closed on July 27, 1984.
- (20) DR 4932, dated May 10, 1984. DV-84A connection was not installed per detail, clearance violation. FCR 25074 was issued to accept the hanger as installed. The DR was closed on July 27, 1984.
- (21) DR 5025, dated May 14, 1984. Clip angle length was reduced 1/4". FCR 25119 was issued to accept the hanger clips as installed. The DR was closed on July 27, 1984.
- (22) DR5023, dated May 14, 1984. Auxiliary steel connection was not per drawing. FCR 25121 was issued to accept the auxiliary steel as installed. The DR was closed on July 27, 1984.
- (23) DR5022, dated May 14, 1984. DV-84A connection was not installed per detail, clearance violation. FCR 25083 was issued to accept the hanger as installed. The DR was closed on July 27, 1984.
- (24) DR5017, dated May 11, 1984. Auxiliary steel alignment, off-center, violates tolerance for DV-84A connection. FCR 25082 was issued to accept the hanger as installed. The DR was closed on July 27, 1984.
- (25) DR5007, dated May 11, 1984. Hanger weld was rejected for lack of penetration. Weld was repaired and the DR was closed on September 6, 1984.
- (26) HECO NCR 989, dated May 14, 1984. Ninety one hangers were found with excessive gap on the DV-84 connection details. ECR 7824 was issued to increase the allowable gap to 3/4". FCR 25115 was issued to accept the hangers as installed. The NCR was closed on September 20, 1984.
- (27) HECO NCR 990, dated May 14, 1984. During verification of pan hanger attachment (NCR 407R), 19 hangers were identified as being inaccessible due to concrete or block walls covering the

hanger attachments. CECO NCR F923 was prepared to transmit the HECO NCR to S&L for disposition. The disposition on these NCRs, 990 and F923, was to accept the hangers without reinspection based on the results of the total reinspection effort, (4000 + hangers). Both NCRs were closed September 20, 1984.

The corrective action on the above listed DRs and NCRs appears to be adequate. This item is closed.

- b. (Closed) Noncompliance (454/84-27-02; 455/84-19-02): During a previous inspection it was observed that the HECO procedures failed to address the inspection of cable trays to verify the minimum separation requirements. As a result of the inspector's concerns, reinspection of cable tray installed since February 1983 was initiated by HECO. Cable tray installed prior to February 1983 had been 100% reinspected for minimum separation requirements under a previous reinspection program. To supplement HECO's reinspection effort, the licensee directed S&L to perform a reinspection of all safety-related trays to verify separation requirements between safety-related and non-safety-related cable trays. On September 26, 1984, Mr. E. T. Sager (CECO) telephonically informed Mr. R. S. Love (Region III) that S&L had completed their reinspection effort on September 19, 1984. Mr. Sager also stated that an ECN would be issued to direct HECO to install cable tray covers as required. The installation of covers reduces the minimum separation required to one inch. Based on the HECO and S&L reinspections and the program in place to verify installation of tray covers, this item is closed.
- c. (Closed) Noncompliance (454/83-49-04; 455/83-35-04): During a previous inspection it was identified that electrical cable grips were not being properly installed in cable tray risers. It was also identified that HECO Procedure 10, "Class I Cable Installation", did not address the requirement for QC to verify the proper installation of cable grips. During a previous inspection (454/84-47; 455/84-41), the inspector was able to satisfy all concerns in this area except, procedure revision and the proper installation of the last cable grip prior to termination. When cables enter a panel from the bottom, a cable grip failure could cause excessive stress on the terminations.

During this inspection, it was observed that the licensee had reworked the cable grips in the control room panels where cable entry is from the bottom. The cable grips inspected appeared to be providing adequate support to the cables so as not to stress the terminations during a seismic event. The inspector also reviewed draft Revision 22 to Procedure 10. This procedure now requires QC to inspect cable grip for proper installation and document this inspection on Form HP-105. Based on the above observations, this item is closed.

3. Licensee Action on 10 CFR 50.55(e) Reports

- a. (Closed) 50.55(e) Report (454/83-14-EE; 455/83-14-EE): As a result of Region III inspector's concerns (454/83-49-04; 455/83-35-04) and

CECo NCRs F-852 and F-869 in the area of electrical cable grip installations, the licensee filed a potential 50.55(e) report. Based on the information contained in Paragraph 2.c above, this item is closed.

4. Licensee Action on IE Bulletins

- a. (Closed) Bulletin (454/80-20-BB): "Failure of Westinghouse Type W-2 Spring Return to Neutral Control Switches." This bulletin was issued when discrepancies (intermittent contact of neutral contacts) were observed in the W-2 spring-return-to-neutral control switches. In the licensee's response of April 30, 1981 (T. R. Tramm, CECo, to James G. Keppler, Region III), it was indicated that all safety-related W-2 switches would be replaced at the Byron Station. Based on this information, personnel interviews, and review of records, the Region III inspector closed this item in Inspection Report 454/84-23 and 455/84-16. On August 29, 1984, the licensee amended his response of April 30, 1981 to indicate that 118 W-2 switches were not replaced for one or more of the following reasons:
- (1) The switch is of the maintaining contact type, not the spring-return-to-normal type described in IE Bulletin 80-20.
 - (2) A failure of the neutral position contact will not affect the operation of safety-related equipment because the contact is not used in a control circuit.
 - (3) The switch does not perform a safety-related control function.
 - (4) The switch is used for testing purposes only.
 - (5) The switch is located on a switchgear cubicle and is functional only when the breaker is in the test position.

Based on a review of the amended response by Region III Operations and Engineering personnel, this response was found acceptable and this item is closed.

- b. (Closed) Bulletin (455/82-04-BB): Deficiencies in Primary Containment Electrical Penetration Assemblies. The purpose of this bulletin was to inform licensees about findings concerning electrical penetrations supplied by the Bunker Ramo Company. For Byron Station, Bunker Ramo electrical penetrations are only installed in Unit No. 2. Based on CECo's analysis and inspections of the Bunker Ramo penetrations, the following corrective actions were taken:
- (1) Penetrations 2SI01E-2P1E and 2SI02E-2P2E were replaced with Conax Adapter Modules.
 - (2) Replaced a total of 8 conductor termination lugs that failed the pull test in the following penetrations:

- . 2SI08E-2K4R, replaced 4 lugs
- . 2SI04E-2C2E, replaced 1 lug
- . 2SI03E-2C1E, replaced 2 lugs
- . 2SI07E-2K3R, replaced 1 lug

- (3) Prepared NCR F-788, dated February 23, 1983. This NCR documents that ring torque termination lugs on instrumentation penetrations are not crimped tightly on the conductor insulation. Based on the pull test of 6,454 connectors these lugs were accepted as installed. There were 8 safety-related and 2 non-safety-related failures. The NCR was closed on June 2, 1983.

Complete details of CECo's inspection effort at Byron Station is contained in NUREG/CR-3795.

During this inspection, the following observations were made by the Region III inspector:

- (a) During a review of records, it was determined that inspection reports were not prepared for the initial inspections required by the subject bulletin. During interviews with CECo personnel, the inspector was informed that the inspections were performed by a CECo field engineer. The inspector was unable to verify that the subject field engineer was in fact certified to perform the penetration inspections.
- (b) During a review of nonconformance reports, it was observed that NCR F-788 was prepared to document that improper terminations were made on instrumentation penetrations *2SI03E, *2SI04E, *2LV01E, 2LV02E, 2LV03E, 2LV04E, *2SI05E, *2SI06E, *2SI07E, *2SI08E, 2LV05E, 2LV06E, 2LV07E, and 2LV08E (Ref. Paragraph 4.b.(3) above). The asterisk denotes safety-related penetrations.

It was also observed that NCRs had not been prepared on the 4 penetrations where one or more of the manufacturer's terminations failed the pull test and had to be replaced (Ref. Paragraph 4.b.(2) above). Also, NCRs had not been prepared on the two Bunker Ramo penetrations that were replaced with Conax adapter modules (Ref. Paragraph 4.b.(1) above). Because the licensee tracked this matter in the context of an open Bulletin item and took all of the appropriate corrective actions (also see CECo QA Surveillance Report 6503) over a long period of time, the omission of a nonconformance report is not, in this instance, considered an enforcement matter.

- (c) During the inspection of terminations per Bulletin 82-04, the licensee observed that the terminal block screws on the vendor terminations could not be retorqued to 18 + 3 inch-pounds per the vendor drawings without damaging and deforming the screw heads. This was documented on CECo NCR F-789, dated February 23, 1984. The resolution was to torque the screws to 10 inch-pounds. The NCR was closed September 23, 1983.

- (d) Reviewed HECO inspection reports on the replacement of faulty vendor terminations and found them to be adequate (Ref. Paragraph 4.b.(2) above).
- (e) Reviewed records for the replacement of Bunker Ramo penetration 2SI01E-2P1E with Conax adapter modules. Following is the sequence of events as determined by the records reviewed and personnel interviews:
- . CECO to HECO "Speed letter dated March 7, 1984, informed HECO of the penetration modules to be replaced.
 - . March 22, 1984, Bunker Ramo penetration feed throughs were replaced with Conax feedthroughs.
 - . CECO to HECO "Speed Letter" dated April 5, 1984, directed HECO to remove Port A on this penetration and return it to Conax for repair because of excessive leakage. No NCR was prepared to document this, however, these issues were being tracked as an open Bulletin item as described in sub-paragraph (b) above and in open inspection reports.
 - . April 12, 1984, Port A was removed per HECO Work Request No. 1922.
 - . July 12, 1984, Port A was reinstalled per HECO Work Request No. 1922 and QC inspected as documented on HECO Supplemental Report No. 48. The manifold was pressurized to 20 pounds, however, no leak rate test was performed at this time.
 - . On September 21, 1984, a satisfactory leak rate test was performed on this penetration and inspection reports No. 48 and No. 48 Supplement were sign-off as complete.
- (f) Reviewed records for the replacement of Bunker Ramo penetration 2SI02E-2P2E with Conax adapter modules. The sequence of events were basically the same as for penetration 2SI01E-2P1E discussed in paragraph (e) above. The differences being: (1) this penetration was replaced on March 16, 1984, and (2) Port D had to be returned to Conax for repair.
- (g) On July 23, 1984, CECO prepared NCR F-926 to document the fact that polysulfone bushing portion of Conax support bushing subassembly Adapter Modules have cracks in the polysulfone material. Penetrations affected are: 1AP85EA; 2AP84EB; 2AP85EC; 2AP85ED; 2RD12E; 2RD13E; 2RD15E; 2RD16E; 2RD17E; 2RY04E; 2RY05E; 2RY06E; 2RY07E; *2SI01E; and *2SI02E (* indicates safety-related). Conax telex dated June 27, 1984, states that stainless steel replacement support bushings will be manufactured and shipped to both Byron and Braidwood Stations which will be used in place of the existing polysulfone bushings which have experienced cracking. The Construction Deficiency Evaluation (by CECO Project Engineering Department-off-site) attached to this NCR indicates that this item is not reportable per the requirements of 10 CFR 50.55(e). The date of this evaluation is August 2, 1984. Note: The Conax telex appears to be in response to Braidwood NCR L-626, dated June 14, 1984, as

referenced in S&L to CECo letter dated July 18, 1984. As of September 21, 1984, this NCR is still open.

(h) September 20, 1984, the inspector visually inspected the following safety-related penetrations and no discrepancies were identified:

- . 2SI04E-2C2E, #14 AWG, observed that the termination lug for the wire landed on TB34, termination 12 had been replaced.
- . 2SI02E-2P2E, #2 AWG, Conax Adapter Module installed.
- . 2SI07E-2K3R, #16 AWG.
- . 2SI03E-2C1E, #14 AWG, observed that the termination lugs on wires landed on TB6, terminations 3 and 9 had been replaced.
- . 2SI01E-2P1E, #2 AWG, Conax Adapter Module installed.
- . 2SI05E-2K1R, #16 AWG

This inspection resulted in the review of 2 of 4 penetrations with #16 wire, 2 of 2 with #14 wire, and 2 of 2 with #2 wire.

(i) September 21, 1984, CECo prepared QA Surveillance Report 6503 to document the Region III inspectors concerns associated with the IE Bulletin 82-04 review. Pending a review of this surveillance report for adequate corrective action and corrective action to prevent recurrence, this item is open (455/84-47-01).

5. Open Items

Open items are matters which have been discussed with the licensee, which will be reviewed further by the inspector, and which involve some action on the part of the NRC or licensee or both. An open item identified during this inspection is discussed in Paragraph 4.6.

6. Exit Interview

The Region III inspector met with the licensee representatives (denoted under Paragraph 1) at the conclusion of the inspection on September 21, 1984. The inspector summarized the purpose and findings of the inspection. The licensee acknowledged this information.