

U.S. NUCLEAR REGULATORY COMMISSION

REGION III

Report No. 50-454/84-47(DRS); 50-455/84-41(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: July 9-13, 25-27, August 1-3, 9-11, 1984

Inspectors: *C. C. Williams for:*
R. S. Love

8-27-84
Date

C. C. Williams for:
E. Christnot (July 11-13, 1984 Only)

8-27-84
Date

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

8-27-84
Date

Inspection Summary

Inspection on July 9-13, 25-27, August 1-3, 9-11, 1984 (Report No. 50-454/84-47;
50-455/84-41(DRS))

Areas Inspected: Routine, unannounced inspection of licensee actions on previous inspection findings; SER open items; 10 CFR 50.55(e) reports; IDI findings; and supplemental reinspection program. The inspection involved a total of 122 inspection-hours onsite by 2 NRC inspectors including 24 inspection-hours during off-shifts.

Results: No items of noncompliance or deviations were identified.

DETAILS

1. Persons Contacted

Commonwealth Edison Company (CECo)

- *K. Hansing, Quality Assurance Superintendent
- *R. Tuetken, Startup Coordinator
- *M. E. Lohmann, Assistant Construction Superintendent
- #*J. O. Binder, Project Electrical Supervisor
- *R. B. Klinger, Project Quality Control Supervisor
- *J. W. Rappeport, Quality Assurance Engineer
- *E. T. Sager, PCD Electrical Engineer
- #*J. L. Bergner, Quality Assurance Supervisor
- *M. V. Dellabetta, Quality Assurance Engineer
- J. W. Zid, Quality Assurance Engineer
- L. Simon, Quality Assurance Engineer
- D. Kruger, Systems Test Engineer
- R. Campbell, Group Leader
- J. Richter, Observer
- R. Dorsey, Observer
- R. Hull, Observer

Hatfield Electric Company (HECO)

- J. T. Hill, QA/QC Manager
- S. Bindenagel, Assistant QC Supervisor
- T. Ahlquist, Lead QC Inspector
- S. Hubler, Lead QC Inspector

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

*Denotes those persons present at the exit interview on July 13, 1984.

#*Denotes those persons present at the exit interview on August 2, 1984.

2. Licensee Action on Previously Identified Items

- a. (Closed) Unresolved item (454/82-17-04; 455/82-12-04): This item pertained to the reinspection of cable tray hangers as required by HECO NCR 407. This item was upgraded to an item of noncompliance and is being tracked for proper closure as (454/84-27-01; 455/84-19-01).
- b. (Closed) Noncompliance (454/82-17-05; 455/82-12-05): During a previous inspection, it was identified that the licensee was not identifying, controlling, and correcting cable tray separation violations. As part of the corrective action, a concerted effort was made by CECo, HECO, and Sargent and Lundy (S&L) to identify and control all cable tray separation violations throughout the power block. This information was compiled and analyzed by S&L. The

corrective actions were: (1) relocate one or more trays to correct the violations; or (2) install cable tray covers; or (3) based on analysis, accept the installation as installed; and (4) place a distinctive mark on the applicable drawing to indicate that a separation violation had been identified and analyzed. The above listed corrective action was verified in Inspection Reports 454/84-27; 455/84-19.

- c. (Closed) Noncompliance (454/83-60-03): During a previous inspection, it was identified that the instrument sensing lines for a safety-related level transmitter were not installed per drawing in that the high and low taps were reversed. As a result of this finding, the licensee performed a 100% reinspection of all flow and level transmitters to verify proper sensing line connections. A review of records indicates that the inspections were conducted, and that additional deficiencies were identified and corrected. During a tour of the power block during this reporting period, no deficiencies were identified in this area.
- d. (Open) 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 reinspection required by HECO NCR 407R. As a result of the inspector's concerns, 295 hangers were reinspected. This reinspection resulted in 1 NCR and 44 DRs being prepared to document potential discrepancies. During this reporting period, the inspector reviewed the closed DRs. Following are the results of this review:
- (1) DR 5019, dated May 11, 1984. Wrong connection detail was utilized. Detail was accepted as is per FER 24973, dated June 8, 1984. The DR was closed on June 23, 1984.
 - (2) DR 5014, dated May 11, 1984. Wrong connection detail was utilized. Detail was accepted as is per FER 24860. DR was closed on June 28, 1984.
 - (3) DR 4947, dated May 15, 1984. Prepared in error, HDRF 3144 was still outstanding. DR was closed on June 6, 1984.
 - (4) DR 4948, dated May 15, 1984. Prepared in error, HDRF 3144 was still outstanding. DR was closed on June 6, 1984.
 - (5) DR 5030, dated May 11, 1984. Z dimension on DV-87 detail was out of elevation tolerance. ECN 7824, dated May 31, 1984 was issued to increase the allowable tolerance. DR was closed on June 30, 1984.
 - (6) DR 5029, dated May 11, 1984. Wrong connection detail utilized. Detail was accepted as is per FCR 25071. Dr was closed on July 21, 1984.
 - (7) DR 4943, dated May 11, 1984. Inspector error, read HL drawing wrong. DR was closed on June 30, 1984.

- (8) DR 4928, dated May 10, 1984. Inspector error, auxiliary steel size increased, was within tolerance. DR was closed on July 19, 1984.
- (9) DR 4930, dated May 10, 1984. Damaged horizontal hanger member was replaced. DR was closed on July 23, 1984.
- (10) DR 4922, dated May 10, 1984. Z dimension was out of elevation tolerance. ECN 7824 was issued to increase the allowable tolerance. DR was closed on June 30, 1984.
- (11) DR 4924, dated May 10, 1984. Bolts missing on pan to hanger connection. Bolts replaced and DR was closed on July 19, 1984.
- (12) DR 4935, dated May 11, 1984. Auxiliary steel connection clearance was out of tolerance. Accepted as is per FCR 25111. DR was closed on July 21, 1984.
- (13) DR 5024, dated May 14, 1984. DV84A clearance tolerance violation. Accepted as is per FCR 25121. DR was closed on July 21, 1984.
- (14) DR 4931, dated May 10, 1984. Fit-up gap exceeded tolerance. Accepted as is per FCR 24876. DR was closed on June 15, 1984.
- (15) DR 4938, dated May 10, 1984. Inspector error, hanger was being reworked per HDRF 2102. DR was closed on June 15, 1984.
- (16) DR 4936, dated May 10, 1984. Inspector error, tube-steel oversize was within tolerance. DR was closed on June 30, 1984.
- (17) DR 4937, dated May 10, 1984. Tube steel length was incorrect on HL drawing. Corrected by FCR 25058. DR was closed on July 17, 1984.
- (18) DR 5016, dated May 11, 1984. Weld rejected for length. Weld was repaired and DR was closed on June 12, 1984.
- (19) DR 4926, dated May 10, 1984. Wrong plate size on DV-89 connection. Memo 732 provided clarification to drawing 0-3051 tolerances. Plate was acceptable and DR was closed on June 8, 1984.

The corrective action on the above listed DRs appears to be adequate. This item remains open pending a review of the remaining DRS and NCR 989 for proper closure.

- e. (Open) Noncompliance (454/84-27-02; 455/84-19-02): During a previous inspection it was observed that the Hatfield procedures failed to address the inspection of cable trays to verify the minimum separation requirements. As a result of the inspector's concerns, a reinspection of safety-related cable tray installed since February 1983 was initiated. Cable tray installed prior to February 1983 had

been 100% reinspected for minimum separation requirements under a previous reinspection program. Pending a review of completed reinspection program and corrective action, if required, this item remains open.

- f. (Open) SER item (454/83-00-01): As required by BTPPSB-1, "Adequacy of Station Electric Distribution System Voltages," and SER paragraph 8.2.4, Test Procedure AP-11 was prepared to verify the voltage levels of the ESF busses. During this reporting period, the Region III inspector reviewed the test procedure (2.05.11) for the 30% load test portion of AP-11. The test objectives for this test were:

- (1) Demonstrate proper operation of the Station Auxiliary Transformers (SAT) loaded nominally to 30% of the start-up load.
- (2) Record the voltage transient on the ESF busses due to starting a large ESF and non-ESF motor, not concurrently, while the SAT is loaded nominally to 30% of the plant start-up load.

The test procedure (2.05.11) appeared to be adequate. During this reporting period, the Region III inspector witnessed the 30% load test. The inspector observed the CECo Systems Test Engineer verifying the prerequisites, initial system conditions, and recording test data. The test was conducted in three parts as follows:

- (1) With SAT 142-1 under load (x-winding, 6.9 KV, @ 14 MW (41.2% load), Y-winding, 4 KV, 10.5 MW (46.1% load)), 1250 HP ESF Motor 1SX01PA was started and data recorded. Motor 1SX01PA was then stopped, and 4 KV non-ESF motor OWS01PA, 2250HP, motor was started and data recorded. Motor OWS01PA was stopped. This concluded this portion of the test.
- (2) With SAT 142-1 under load as described in paragraph (1) above, circulating water pump 1CW01PC, 7000 HP, was started and data recorded. Motor 1CW01PC was stopped. This concluded this portion of the test.
- (3) With SAT 142-2 under load (X-winding, 6.9 KV, @ 8.5 MW (37.3% load); Y-winding, 4KV, @ 9.5 MW (45.0% load)), ESF motor 1SX01PB, 1250 HP, was started and data recorded. Motor 1SX01PB was stopped and 4 KV non-ESF motor OWS01PB, 2250 HP was started and data recorded. Motor OWS01PB was stopped and systems returned to normal. This completed the 30% load test portion of procedure AP-11.

NOTE: To obtain the voltage transients when the above listed motors were started, strip chart recorders were connected at panel 1PM01J and at MCC 1AP27E. During the transients, the recorders were operating at 50mm/sec.

The acceptance criteria for this test is that the measured ESF buss voltage be within 3% of the computer model and within the rated operating voltage of the equipment supplied by the bus. Pending a review of this analysis, this item remains open.

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

- a. (Closed) 50.55(e) Report (454/83-06-EE): The reactor trip breakers and reactor trip bypass breakers are Westinghouse Model DS-416. Due to a discrepancy in design, there is a potential for misoperation of the undervoltage (UV) attachment in the breakers. The width of the retaining ring on the two pivot shafts of the UV trip is not compatible with the width of the groove on the pivot shafts that receives the retaining ring. This deficiency would increase the potential for misoperation of the DS-416 UV attachment, thereby creating a condition wherein the reactor trip breakers might not open on automatic demand from the reactor protection system. Westinghouse supplied replacement UV attachments for the DV-416 breakers. These replacement attachments have widened grooves to accommodate the new retaining rings. These new UV attachments were installed and tested in accordance with Westinghouse Field Change Notice (FCN) CAEM-10749. Equipment requiring new attachments are identified as 1RD05E-RTA, 1RD05E-RTB, 1RD05E-RYA, and 1RD05E-RYB.
- b. (Open) 50.55(e) Report (454/83-14-EE; 455/83-14-EE): As a result of Region III inspector's concerns 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 with Region III. Examples of deficiencies identified were:
 - (1) Cable grips appear to be supporting the cables only at the point of installation of the upper ty-wrap.
 - (2) Installations were found with one size larger cable grip installed than that specified for the installation.
 - (3) Installations were found with two sizes larger cable grip installed than that specified for the installation.
 - (4) Installations were found with one size smaller cable grip installed than that specified for the installation.
 - (5) Installations were found with an excessive number of cables being supported by one cable grip, (S&L STD-EB-200 specifies a maximum number of cables per grip).
 - (6) Installations were found without cable grips being installed.

On April 24-25, 1984, CECo performed tests using several cable grip/ty-wrap configurations. The configurations tested were selected as the worst case installations that may exist in the plant and to address concerns regarding ty-wrap installations on cable grips. The tests consisted of placing the cables and cable grip/ty-wrap assemblies on a stand and subjecting the cables to tension. The amount of tension applied was equivalent to the maximum tension which would be seen in a seismic event.

During this reporting period the inspector reviewed the test procedure, test results, and a video tape of the test. The tests conducted indicate that the cable grips will adequately support the cables as installed in vertical conduit runs and cable tray risers. It appeared that the tests conducted did not adequately address the last cable grip installed prior to termination. This situation would only be applicable where cables enter a panel, cabinet, etc. from the bottom. The largest concentration of this type installation (cables entering a panel from the bottom) is in the control room and electrical equipment room. During a tour of these areas, it was observed that there were several instances where cable grips were not installed or improperly installed. There was one instance where it appeared that the cable was in fact being supported by the terminations. Subsequent to the inspectors findings, the licensee agreed to evaluate this type of installation and take appropriate corrective action. Pending a review of the licensee's evaluation and corrective action, this item remains open.

4. Review of Supplemental Reinspection Program

As part of the corrective action for an item of noncompliance (454/82-05-19; 455/82-04-19), the licensee instituted a reinspection of selected HECO work activities. Where the sample size was not statistically significant, the licensee committed to perform additional inspections on: (1) Equipment Setting, (2) Equipment Modifications, (3) A325 Bolting, and (4) Conduit Support Bolting. During this reporting period, the inspector reviewed all of the inspection reports generated as a result of this supplemental reinspection. A summary of this reinspection and the evaluation as to the safety significance of the discrepancies identified is documented in CECO's report to Region III, dated June 1984. The title of this report is "Supplement to Report on the Byron QC Inspector Reinspection Program". The inspector reviewed the corrective action for the identified discrepancies and found it to be adequate.

In the reinspection of equipment setting and equipment modifications, the inspector had problems correlating the number of reported discrepancies with the number of discrepancies identified on the inspection reports reviewed. During interviews with CECO and S&L personnel, it was learned that one or more weld deficiencies on a given panel would only count as one discrepancy. For example, the inspection report for panel 1A06EQ identified two slot welds that were not welded, four slot welds that were only welded on two sides (slot welds required welding on all four sides), and one weld that was rejected for slag inclusions; however, this was identified as one discrepancy in the supplemental reinspection report. On August 16, 1984, Mr. R. S. Love (Region III) telephonically contacted Mr. R. Tuetken (CECO) and expressed the above noted concern regarding the accounting of discrepancies identified during the supplemental reinspection program. On August 22, 1984, CECO submitted a letter to Region III which satisfactorily clarified CECO's method of arriving at the number of deficiencies reported and resolved the inspector's concern.

5. Independent Inspection Effort

- a. During the deposition of Mr. R. S. Love (Region III) by counsel for the Applicant and counsel for the Intervenor on June 20, 1984, HECO QA/QC Memorandum No. 216 was introduced as Exhibit 10 to the Love deposition. This memorandum discusses missing weld travelers for cable tray/conduit hangers and provides guidance for recreating the missing weld travelers. Subsequent to the Love deposition, it was observed that paragraph 4 of the memorandum directs a given welder to affix his weld symbol stamp to another welders' work. This practice if implemented is contrary to the requirements of the Project Electrical Specifications, F2790, and American Welding Society (AWS) Code D1.1.

On June 21, 1984, Mr. J. Streeter (Region III) telephonically contacted Mr. T. R. Tramm (CECo) and discussed HECO Memorandum No. 216. Mr. Streeter requested that CECo investigate this matter and be prepared to discuss it in detail with Region III Staff during a subsequent inspection. Pending a review of the results of CECo's investigation, this item is unresolved (454/84-47-01; 455/84-41-01).

- b. During the Byron IDI review, it was observed that the present equipment qualification plan for the auxiliary feedwater pumps pressure switches, IPSL-AF051 and IPSL-AF055, employs a United Electric model J302-S156 pressure switch having a range from 0 to 100 psig. This range is different from the range of the pressure switches actually used which is 30 inches Hg vacuum to +20 psi. The low suction setpoint is at 1.22 inches Hg vacuum and the low-low suction setpoint is at 4.48 inches Hg vacuum. Since the qualification report had not been prepared, no justification for comparability was available for the IDI team review.

The licensee provided the following information:

"The qualification program for pressure switches IPSL-AF051 and IPSL-AF055 is described in the following discussion.

The original pressure switch specified for this application was United Electric Model J-302-S156, which is a metal bellows type sensor. Later, due to operating requirements, this switch was changed to Model J-302-552, which is a teflon diaphragm type sensor. Since the test program for Model J-302-S156 was in progress, it was decided to continue the test and evaluate the acceptability of the report upon receipt.

Since the time of the IDI, the report has been received, reviewed, and found to be unacceptable for qualification of Model J-302-552. Due to internal mechanism differences between the two switch models, seismic testing of Model J-302-552 is required and in progress.

Since the switches are located in a mild environment, the environmental qualification will be by a combination of similarity between the tested and supplied switch models for parts that are identical, and a material analysis for parts that are different."

Pending a review of the final environmental qualification report for the subject pressure switches, this item is unresolved (454/84-47-02).

6. Unresolved Items

Unresolved items are matters about which more information is required in order to ascertain whether they are acceptable items, items of noncompliance, or deviations. Unresolved items disclosed during the inspection are discussed in Paragraphs 5.a and 5.b.

7. Exit Interview

The inspectors met with licensee representatives (denoted in Paragraph 1) on July 13 and August 2, 1984. The inspectors summarized the scope and findings of the inspection. The licensee acknowledged this information.