

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

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BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of)
COMMONWEALTH EDISON COMPANY) Docket Nos. 50-454
(Byron Station, Units 1 and 2)) 50-455

SUMMARY OF "TESTIMONY OF NRC STAFF
ON NEWLY ACQUIRED INFORMATION ABOUT
THE EXTENT OF CORRECTIVE ACTIONS TAKEN WITH
RESPECT TO SYSTEMS CONTROL CORPORATION EQUIPMENT"

This testimony discusses newly acquired information about corrective action taken with respect to equipment supplied by Systems Control Corporation (SCC). It makes the following principal points.

1. In the course of recent inspections, Region III inspectors became aware of numerous uncorrected weld deficiencies on equipment supplied by SCC. In view of statements made in a letter from Cordell Reed to James Keppler, dated January 26, 1981, the inspectors would not have expected the uncorrected weld deficiencies to be present.

2. In its January 26, 1981 letter, the Applicant stated PTL had been and was continuing to source inspect SCC equipment. However, the extent of those source inspections was less than what was stated in the January 26, 1981 letter.

3. The scope of the PTL source inspections was as directed by the Applicant. Accordingly, PTL was not responsible for the scope of the source inspections being narrower than as described in the January 26, 1981 letter.

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4. All local instruments panels, main control boards and vertical panels have been inspected by someone other than SCC personnel, as have a number of cable pans, fittings and hangers. However, an undetermined number of cable pans, fittings and hangers have been inspected by no one other than SCC inspectors.

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TESTIMONY OF NRC STAFF ON NEWLY ACQUIRED
INFORMATION ABOUT THE EXTENT OF CORRECTIVE ACTIONS
TAKEN WITH RESPECT TO SYSTEMS CONTROL CORPORATION EQUIPMENT

Q1. Please state your names and positions with the NRC.

A1. (Mr. Hayes) My name is D. W. Hayes. I am Chief of Reactor Projects Section in Region III.

(Mr. Connaughton) My name is K. A. Connaughton. I am the Resident Inspector (reporting to the Senior Resident Inspector) at the Byron Station.

Q2. Have your professional qualifications previously been submitted in this proceeding?

A2. (Mr. Hayes) Yes. A copy of my professional qualifications is attached to the "Testimony of NRC Staff on Allegations Resolved Based (In Part or In Whole) on the Reinspection Program or Otherwise Relevant to the Reinspection Program," filed on July 2, 1984.

(Mr. Connaughton) Yes. A copy of my professional qualifications is attached to the "Testimony of NRC Staff on Remanded Issues With Respect to the Reinspection Program," filed on July 2, 1984.

Q3. What is the purpose of this testimony?

A3. (Panel) This testimony discusses newly acquired information about the extent of corrective actions taken relating to Systems Control Corporation (SCC) equipment. During inspections conducted since the close of the licensing hearings in August 1983, the staff became aware of numerous uncorrected weld deficiencies on equipment, primarily cable tray hangers, supplied by SCC. In Attachment A to its letter from Cordell Reed to James G. Keppler dated January 26, 1981 (enclosed), the Applicant stated that (1) for SCC, source inspections had been conducted for all safety related equipment shipped since February 1980 and that source inspections would be conducted on all future shipments of SCC work and (2) with respect to SCC work shipped from May 1977 to February 1980, in each case of deviation, items of nonconformance had been identified and documented on nonconformance reports. In view of these statements, the Staff did not expect to find uncorrected weld deficiencies. Because of these findings, the staff initiated a special inspection which is still in progress that focuses on CECO's corrective actions relating to all identified deficiencies with SCC equipment, including those corrective actions described in the January 26, 1981 response. The Applicant has recently initiated further efforts to determine the acceptability of equipment supplied by SCC and is continuing to report to the Staff the results of those efforts. The Applicant's recent efforts have identified possible weld deficiencies on equipment types in addition to cable tray hangers. At the time of this filing we do not have sufficient information to assess the extent and significance of whatever deficiencies exist.

Q4. Please describe the scope-of-work/equipment supplied by Systems Control Corporation?

A4. (Panel) SCC was a supplier of both safety-related and non safety-related electrical, instrumentation, and control components. More specifically, SCC supplied electrical cable trays and associated fittings, cable tray hangers (supports), local instrument panels (racks), portions of the main control boards, and certain vertical panels in the Byron main control room. SCC procured materials for cable trays, fittings and hangers and fabricated these items. For local instrument panels, main control boards and vertical panels, SCC procured materials, designed and/or fabricated the structures and installed appurtenant electrical, mechanical, instrument, and control components manufactured by others (e.g., valve manufacturers, instrument manufacturers). The scope of SCC work was defined by Sargent and Lundy engineering specifications F/L 2815 for cable trays, fittings and cable tray hangers, F/L 2809 for local instrument panels (racks), and F/L 2788 for the main control boards and vertical panels.

Q5. Did the Applicant establish, in February 1980, an independent inspection program for equipment supplied by SCC.

A5. (Panel) Yes.

Q6. Why was it necessary to establish that program?

A6. (Panel) SCC began shipping safety-related local instrument panels to Byron in December 1979. On February 11, 1980, Region III received an anonymous allegation that welding on local instrument panels supplied by SCC did not conform to engineering specifications. As

a result of discussions between Region III and the Applicant concerning this matter, the Applicant's Byron site QA organization conducted surveillance inspections of local instrument panels on February 14, 1980 and determined that the majority of welds inspected were deficient. On February 15, 1980 the Applicant issued CECo Nonconformance Report (NCR) No. F-474 which identified a generic problem with welds on local instrument panels supplied by SCC. Therefore, to resolve this generic problem the Applicant established a program of independent inspection of local instrument panels.

- Q7. What was involved in the independent inspection program, in terms of (1) the equipment shipped prior to initiation of the program, and (2) the equipment shipped subsequent to initiation of the program?
- A7. (Panel) The independent inspection program which began on February 15, 1980 was limited to the inspection of all safety-related local instrument panels supplied to Byron by SCC. Local instrument panels shipped prior to that date were inspected at Byron by Pittsburgh Testing Laboratory (PTL) and either repaired and reinspected onsite or sent back to SCC for repairs. Local instrument panels initially shipped from SCC after February 15, 1980 were inspected by PTL prior to shipment. Panels being reshipped from SCC (following repair) after February 15, 1980 were also inspected by PTL prior to shipment. Ultimately, all safety-related local instrument panels were independently inspected by PTL and accepted.

- Q8. Was this independent inspection program as described in the Applicant's January 26, 1981 response to item of noncompliance (50-454/80-04-01; 50-455/80-04-01).
- A8. (Panel) No. The response letter stated that all safety-related equipment shipped from SCC since February 1980 had been inspected by PTL inspectors at SCC prior to shipment (i.e., source inspected). During the special ongoing inspection referred to previously, the staff learned that the only items subject to 100% source inspection from February 1980 to January 26, 1981 were local instrument panels. Other safety related equipment shipped to Byron during that period (i.e., one hanger, numerous cable pans and fittings, two sections of the Byron Unit 2 Main Control Board (MCB) and four DC fuse panels) were not source inspected. However, the MCB sections and DC fuse panels were inspected at the Byron site.

The Applicant's January 26, 1981 response letter also stated that all future shipments of safety-related equipment would be subject to source inspection. Source inspections were performed on at least a sample of each SCC shipment subsequent to January 26, 1981.

- Q9. Was PTL responsible for the failure to conduct inspections in accordance with the January 26, 1981 response letter?
- A9. (Panel) No. PTL did as directed by the Applicant.
- Q10. (Panel) Please summarize which safety related equipment supplied by SCC was subject to inspections by anyone other than SCC personnel and which equipment was not subject to such inspections?

A10. (Panel) All local instrument panels were inspected by PTL.

All main control boards and vertical panels were inspected by Sargent and Lundy and partially inspected by Westinghouse. The results of these inspections were analyzed by Westinghouse.

A number of cable pans, fittings and hangers were inspected by Peabody Testing Services, Industrial Contract Services, the applicant's quality assurance personnel, Hatfield Electric Company, Sargent and Lundy and PTL.

An undetermined number of cable pans, fittings and hangers have not been inspected by personnel other than SCC inspectors.



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ATTACHMENT 1

January 26, 1981

Mr. James G. Keppler, Director
Directorate of Inspection and
Enforcement - Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

Subject: Byron Station Units 1 and 2
Response to IE Inspection Reports
No. 50-454/80-04 and 50-455/80-05

Reference (a): December 30, 1980 letter from J. G. Keppler
to B. Lee

Dear Mr. Keppler:

Reference (a) contained the report of an investigation conducted by Messrs. J. B. McCarten and J. E. Konklin of your office and Mr. L. E. Ellershaw of Region IV regarding activities at Systems Control Corporation and at Byron Station. During that investigation it was determined that certain activities were in noncompliance with NRC requirements. Attachment A to this letter contains Commonwealth Edison Company's response to the Notice of Violation which was appended to Reference (a). The corrective action discussed in Attachment A also addresses your request for discussion of contributing management factors relative to the violation.

Attachment B to this letter contains the requested additional information regarding resolution of the item from Commonwealth Edison Audit No. 6-80-238.

Attachment C to this letter contains the results of the requested inspection of instrument lines.

Please address further questions regarding matters to this office.

Very truly yours,

C. Reed

C. Reed
Vice President

Attachment
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ATTACHMENT A
Response to Notice of Violation

INFRACTION

Criterion XVI of 10 CFR 50, Appendix B, states, in part, that "Measures shall be established to assure that conditions adverse to quality are promptly identified and corrected...and corrective action taken to preclude repetition."

The Commonwealth Edison Company Quality Assurance Manual in Quality Requirement QR No. 16.D, Section 16.1, states, in part, that "A corrective action system will be used to assure that such items as ...defective material and equipment...are promptly identified and corrected...this system will provide follow up to assure that corrective measures are effectively implemented."

Contrary to the above, during the period from May 1977 to February 1980, the licensee failed to take effective and timely actions to assure that deficiencies in the System Control Corporation (SCC) Quality Assurance Program and equipment fabrication activities were corrected, as evidenced by continued receipt and acceptance on site of defective safety-related equipment from SCC.

CORRECTIVE ACTION TAKEN AND RESULTS ACHIEVED

During the period in question, May 1977 to February 1980, Systems Control Corporation supplied various components under the scope of the following procurement specifications:

Main Control Boards	- Specification F/L-2788
Local Instrument Panels		- Specification F/L-2809
Cable Pans and Hanger Assemblies		- Specification F/L-2815

Systems Control Corporation in the course of fabricating components assemblies under the scope of each specification has deviated from certain specified technical requirements. In each case of deviation, the items of nonconformance have been identified and documented on a Nonconformance Report (NCR).

Corrective action has been completed for the Local Instrument Panels. Nonconformance Reports F-474 and F-484 covering this were closed on 10/21/80.

For the Main Control Boards, engineering analysis to determine disposition has been initiated under NCR F-544 dated 8/8/80.

For cable pan stiffener problems, NRC F-529 was issued on 7/9/80 and Sargent & Lundy has determined the stiffeners satisfied specification requirements. However, final disposition of this NCR is dependent on a re-survey of equipment in the field which is currently under way.

The waiver of inspection points without QA concurrence resulted from failure to recognize that QA approval of waivers was mandatory. Also, the site receipt inspection performed by the Project Construction Department was primarily an inspection for shipping damage. Subsequently, as identified in the NRC inspection report, detailed inspections were performed by Commonwealth Edison which identified deviations on components supplied by Systems Control. The deficiencies identified have been controlled via NCR's. In addition, the Commonwealth Edison Site Quality Assurance Department has established requirements for performing significantly more detailed inspections for all equipment received on site generally using the independent testing contractor. These inspections are in addition to those performed by Project Construction.

MANAGEMENT FACTORS WHICH LED TO CONTINUED RECEIPT OF NONCONFORMING MATERIAL AND ACTION TAKEN TO PREVENT RECURRENCE

With regard to the management factors contributing to the continued receipt and acceptance of defective equipment shipped by Systems Control, the previously established method of handling notification of inspection points was not sufficiently controlled to assure that all established mandatory inspection points were properly executed or properly waived. As a result, processing the notification of inspection points has been revised to ensure that all notifications are processed through a designated Project Construction coordinator who is responsible for: (1) assigning a Project Construction engineer to conduct the inspection point or, (2) obtaining documented waiver from Quality Assurance for all mandatory inspection points which are not to be conducted. Project Construction and Quality Assurance personnel who are involved in the processing of vendor inspection points have been retrained. In addition, all project specifications for the Byron Site have been reviewed to assure that mandatory inspection points are established.

As described in the preceding corrective actions, receiving inspections will be upgraded to provide significantly more detailed inspections for all safety related equipment.

For Systems Control Corporation, source inspection has been conducted for all safety-related equipment shipped since February 1980 and source inspection will be conducted on all future shipments involving Systems Control. These inspections have been conducted by

the Pittsburgh Testing Laboratory under the direction of the Byron Quality Assurance Department. The inspections cover welding, equipment identification, sealing of instrumentation lines and other specification requirements.

Furthermore, since January 1978 Commonwealth Edison has not made any purchases from Systems Control. As a result of the NRC verification of allegations against Systems Control, as reported to Commonwealth Edison on December 30, 1980, Systems Control has been barred from procurement activity involving safety-related purchases for an indefinite period.

DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

We are in full compliance at this time.

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ATTACHMENT B

RESPONSE TO REQUEST FOR STATUS OF
UNRESOLVED ITEM ON Commonwealth Edison AUDIT No. 6-80-238

As of 8/4/80, finding #3 of Commonwealth Edison Audit No. 6-80-238 has been closed. This was based on a comparison of Mr. Pezzullo's education, experience and training to ANSI N45.2.6-1978 recommendations.

ATTACHMENT C

RESULTS OF INSPECTION OF INSTRUMENT
LINES ON LOCAL INSTRUMENT PANELS PROVIDED
BY SYSTEMS CONTROL CORPORATION

Through a combination of direct visual examination on two 12 inch sections of instrument lines removed from two panels of the suspect population, and by examination of flush cloths drawn through the instrument lines of other panels of the suspect population, we have found no evidence of corrosion products contained within the lines in question. Additional samples are being taken. These examinations are being conducted at this time to ascertain if rust particles were introduced into the lines during the course of the manufacturing process. Regardless of the foregoing findings, the lines will be flushed prior to being placed into an operating status.

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