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May 25, 1984

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Dr. A. Dixon Callihan
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P. O. Box Y
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Re: In the Matter of Commonwealth Edison Company
(Byron Nuclear Power Station, Units 1 and 2)
Docket Nos. 50-454 and 50-455 OL

Dear Administrative Judges:

This letter is being sent to you to present further information regarding Commonwealth Edison Company's ("CECo") quality oversight of equipment and components purchased from Systems Control Corporation ("SCC") and in accordance with the requirements of the McGuire decision. Duke Power Company (William B. McGuire Nuclear Station, Units 1 & 2) ALAB-143, 6 AEC 623 (1973). I previously corresponded with the Appeal Board on this subject on March 14, 1984. That correspondence and a board notification from the NRC Staff on April 17, 1984 apparently led the Appeal Board to specify that the Licensing Board receive further evidence regarding SCC (See ALAB-770, slip op. at pp. 29-32).

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While the Initial Decision of the Licensing Board accurately summarizes certain of the key events involving the quality of SCC components shipped to the Byron station, further investigation by CECo has determined that certain statements in evidence before the Board and in the Initial Decision itself should be corrected.

CECo's response to NRC inspection report 80-04 is a part of Intervenors' Ex. 8. That response, dated January 26, 1981, states that PTL has conducted a source inspection for all safety-related equipment supplied by SCC since February, 1980 and that such a source inspection will be conducted for all future shipments. Source inspection of SCC equipment by PTL is referred to in two places in the Licensing Board's Initial Decision dated January 13, 1984. At ¶D-104, the Licensing Board refers to Mr. Shewski's testimony that all local instrument panels were inspected by PTL. At ¶D-442, a more general statement is found to the effect that all SCC equipment was reinspected. As indicated below, the representations in CECo's January 26, 1981 letter and the Licensing Board's finding at ¶D-442 are erroneous. Of the SCC equipment supplied to Byron after February 15, 1980, all of the local instrument panels, all but four of the cable pan hangers, a sample of 6 of 10 shipments of cable pans (4 shipments received no PTL inspection) and none of the main control panels were source inspected by PTL.

SCC supplied four categories of equipment and components to CECo under purchase orders which were issued for both the Byron and Braidwood stations. These are: main control boards and appurtenant DC control panels (Spec. F/L 2788); local instrument panels (Spec. F/L 2809); cable pan hangers (Spec. F/L 2815); and cable pans (Spec. F/L 2815). While the NRC inspection report regarding SCC (Intervenors Ex. 8) dealt with all of these components and equipment, each has had a very different history with respect to inspections and analysis by organizations other than SCC. The following portions of this letter will describe those activities for each component.

A. Local Instrument Panels

On February 15, 1980, J. T. McIntire, then CECo site Quality Assurance Supervisor directed Pittsburgh Testing Laboratory ("PTL") in its capacity as CECo's independent testing laboratory to conduct source inspections of each SCC local instrument panel. Instrument panels at the Byron site, but not installed, were returned to SCC for repairs and the source inspections were then conducted. The source inspections comprised identification markings, protective covers and seals on instrumentation lines, dimensions, workmanship and welding. Welding on local instrument panels installed at Byron were inspected by PTL using the same techniques as were applicable to the source inspections at SCC. All 53 local instrument panels shipped after February 15, 1980 were subjected to PTL source inspections.

B. Cable pan hangers

After February 15, 1980 three shipments of SCC cable pan hangers were sent to Byron. One of the shipments consisted of only one hanger which was included in a shipment of cable pans. That single hanger was not subjected to a PTL source inspection. The other two shipments included 89 hangers having SCC shop welds. All but three of those hangers have been inspected by PTL for, inter alia, shop weld quality. Of the four hangers for which source inspections were not conducted, one has no SCC shop weld. The other three have discrepant welds.

The bulk of the SCC cable pan hangers installed at the Byron site were shipped prior to February, 1980. Workmanship problems involving weld quality on SCC cable pan hangers had been observed by CECo at Byron beginning in 1977. CECo NCR #105 documented deficiencies in SCC welding procedures. An independent inspection agency, Industrial Contract Services, Ltd.("ICS") inspected 694 hangers having SCC shop welds and determined that there were 24 discrepant welds. Sargent and Lundy ("S&L") recommended repair of the hangers because the number of hangers on site was small as was the number of discrepant welds. In addition, SCC procedures for welder qualification and weld quality were upgraded. Also in 1977, SCC requested S&L to evaluate the necessity for a weld on a horizontal member found on some hangers. S&L concluded that the weld was required. ICS was then asked to reinspect 769 hangers to determine the status of this weld. 177 discrepant welds were identified and repaired.

Thereafter, CECo construction occasionally observed discrepant welds on SCC hangers and notified SCC. On October 14, 1980 CECo QA at Braidwood issued NCR 250 documenting a shop weld which was nonconforming as to length and size. S&L performed an evaluation which selected 9 out of 500 cable pan hangers at Braidwood for review. The result of this evaluation was to accept this condition as is. Braidwood NCR 250 was closed on April 5, 1982. Braidwood NCR 250 was never sent to Byron. On December 23, 1982 CECo NCR 451 was issued at Braidwood with respect to further discrepant welds on SCC cable pan hangers. S&L's evaluation of the discrepant welds identified in NCR 451 rested on a sample of 80 SCC hangers, selected on a random statistical basis. All of the hangers had some type of weld discrepancy identified, but none had design significance, i.e. in no instance did the discrepant weld result in a reduction of design margin below that required for the hanger to carry design loads. On September 16, 1983 a corresponding NCR (#850) was issued at Byron. A random sample of 80 hangers was selected for S&L engineering evaluations. 38 of the 80 hangers were found to have discrepant welds, none with design significance. In January and April, 1983 CECo NCRs 772 and 813 were issued regarding weld quality on 3 specific connections on SCC hangers. In each instance, an S&L evaluation determined that each connection was satisfactory in its as-built condition. Inspectors employed by Hatfield observed discrepant SCC shop welds on cable pan hangers while inspecting work performed by Hatfield in installing the

hangers. These inspectors issued Hatfield Deviation Reports and nonconformance reports as appropriate for about 60 welds which together with the discrepant SCC shop welds discovered at Braidwood led to the issuance of CECo NCR 850. In order to better track these discrepancies as additional information was received, CECo issued NCR #885. The disposition of NCR 885 is pending.

As a result of allegations received by the NRC, discrepant welds in a specific SCC shop welded hanger connection, known as DV-162, were identified and CECo NCR #893 was issued. These welds have been evaluated by S&L and the discrepancies determined to lack design significance.

CECo has not yet been able to determine which, if any, of the discrepant welds identified in NCRs 850, 885 and 893 were previously inspected by ICS or PTL.

C. Cable pans

In July, 1980, PTL was directed to conduct a source inspection of SCC cable pans. These inspections were undertaken as corrective action for CECo NCR #529 which had identified discrepant welds on cable pan stiffeners. Thereafter, six shipments of cable pans to the Byron site took place. Each shipment was source inspected by PTL on a sample basis. Between February 15, 1980 and July, 1980 there were four shipments of SCC cable pans. None of these shipments received any PTL source inspection.

CECo NCR #105 issued in 1977 encompassed procedures for welds on cable pans as well as cable pan hangers. These welds

comprised stiffener to cable pan and to cable pan fittings welds. The discrepant welds relating to cable pans were evaluated by S&L and it was determined that they lacked design significance.

D. Main Control Boards

There are fourteen safety-related main control boards and four associated DC panels which were supplied by SCC for Byron. In July, 1980, PTL inspected 2 SCC safety-related main control boards installed in the Byron control room and determined that each had discrepant welds. Thereafter CECo NCR #544 was issued regarding discrepant welds in main control boards supplied by SCC. S&L mapped the welds in each safety-related main control board. These weld maps were turned over to Westinghouse for use in that company's analysis of the structural adequacy of the main control boards. These weld maps were not relied on by Westinghouse in its analysis, however. Rather, Westinghouse used an assumed weld quality for a computer-modeled finite element analysis. The finite element analysis identified high stress areas in the main control boards. The welds in those areas were then visually checked by Westinghouse for general weld quality using the weld maps prepared by S&L so that there would be confidence that the finite element analysis was reliable. Westinghouse's analysis of Unit I main control boards was completed by October 14, 1983. As a result, NCR 544 was closed on that date and NCR 857 was issued to track the remaining analysis to be done on the Unit II main control boards. NCR 857 remains open. Additionally, four main

control boards and one DC panel were subjected to seismic shaker table tests which demonstrated seismic design adequacy. The main control boards and DC panel subjected for these tests are representative of all such equipment installed at Byron.

Seven safety related main control boards were shipped by SCC to Byron after February, 1980. No source inspections of these boards were conducted by PTL. Two main control boards which were not then classified as safety-related, but have since been so classified, were subjected to source inspections by PTL after that date.

CECo continues to investigate this matter and the information in this letter is subject to correction as additional records are reviewed.

Very truly yours,

Michael I. Miller (BSB)

Michael I. Miller
One of the Attorneys for
Commonwealth Edison Company

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