UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

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

TESTIMONY OF GEORGE F. MARCUS

Q.1. State your name and employer.

A.1. George F. Marcus. I am employed by Commonwealth Edison Company.

Q.2. Describe your education since high school.

A.2. I graduated from the Illinois Institute of Techonology in 1953 receiving a Bachelor of Science Degree in Electrical Engineering. I also attended the University of Chicago and received a Master's Degree in Business Administration in 1963. I am a Registered Professional Engineer in the State of Illinois.

Q.3. Describe your employment history at Commonwealth Edison Company with emphasis on quality assurance responsibilities, particularly at Byron.

A.3. I have been employed at Commonwealth Edison since June, 1953. My early assignments were primarily in electrical engineering areas, dealing with the planning, design and technical operation of the

Commonwealth Edison electrical distribution system. The distribution system includes all lines and equipment beginning with the 138,000 volt transmission system which interconnects the Commonwealth Edison transmission substations down to the customer utilization voltages. In total, I have about 20 years of engineering experience with the electrical distribution system which includes holding the position of System Distribution Design Engineer for four years and System Distribution Planning Engineer for one year.

In March, 1974 I was assigned to the Quality Assurance Department as Staff Assistant to the Manager of Quality Assurance. The department was new and my key responsibility was to help get the department and quality assurance program established. In February, 1975 I was appointed to my current position, which is Director of Quality Assurance for Engineering and Construction. As part of my duties, I am responsible for the administration of the Commonwealth Edison Quality Requirements and Procedures for the design and construction phases of nuclear power generating stations. This also includes responsiblity for the quality aspects of procurement and pre-operational testing.

The Superintendent of Quality Assurance at the Byron Station reports directly to me. Also, our Independent Testing Contractor, Pittsburgh Testing Laboratory ("PTL") reports to me through our site Quality Assurance organization. In addition, the Quality Assurance Coordinators in the Commonwealth Edison engineering departments report to me.

Q.4. Describe scope of your testimony.

A.4. My testimony describes the extent of PTL source inspection of equipment and components supplied by Systems Control Corporation ("SCC"). Commonwealth Edison Company committed to PTL source inspections in a written response to an NRC Staff item of non-compliance. That response is dated January 26, 1981.

Q.5. Describe the circumstances under which PTL was requested to conduct source inspection of SCC equipment.

A.5. During the period March through May, 1980, NRC Staff conducted an inspection at the Byron Station site. This inspection was directed at the activities of the Systems Control Corporation and the electrical equipment they were supplying to the Byron Station. As a result of this inspection, Commonwealth Edison received one item of non-compliance for failure to take timely and effective corrective action with respect to discrepant SCC equipment. At the time

of the inspection, Commonwealth Edison had most recently received and accepted safety-related local instrument panels which had discrepant welds. On January 26, 1981 Commonwealth Edison responded to the NRC citation stating that "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."

Q.6. What was the nature of the source inspections to which Commonwealth Edison Company committed?

A.6. Although the first part of the sentence uses the words "all equipment shipped," the second part of the sentence refers to "all shipments". It was the Company's intent to commit to source inspection of each shipment as opposed to inspecting each item in every shipment. This commitment is consistent with our receiving inspection practices which have been place for many years. In most instances, our receiving inspections are performed by inspecting a sample of items in each shipment, unless the number of items in a single shipment is sufficiently small so that all items can be inspected. Furthermore, this is consistent with industry practice whereby sampling plans are used in performing receiving inspections.

Q.7. List the specification numbers and equipment

supplied by Systems Control Corporation pursuant to each specification.

A.7. Systems Control Corporation supplied the Byron Site with four types of equipment which were provided under the following three specifications: F/L-2815, Cable Pans and Hangers; F/L-2788, Main Control Boards; F/L-2809, Local Instrument Racks.

Q.8. Describe the source inspection conducted by PTL at SCC after February, 1980.

A.8. Attachment A to my testimony summarizes the source inspection record by PTL at SCC's facility. It shows the four categories of electrical equipment which SCC supplied to the Bryon site, namely, instrument racks, hangers, cable pans and control boards. Also shown, beginning in March, 1980, is the date of each shipment containing safety-related equipment, the number of items contained in each shipment and the number of items which were source inspected by PTL inspectors.

For instrument racks, the data shows there were seven shipments which included a total of 53 components. All of these shipments received a source inspection and, for this type of equipment, all of the 53 components were source inspected. Therefore, for instrument racks our statements to the NRC were correct.

For cable pan hangers, there were three shipments of safety-related equipment since February, 1980 and two of these shipments were source inspected. The March 10, 1980 shipment, which did not receive a source inspection, had only one hanger. The three shipments contained a total of 208 hangers and 91 of these were source inspected. A check of the 117 which were not source inspected showed that 113 used bolted, not welded connections. Welding was the key work activity which was to be inspected by PTL.

For cable pans, there were 10 shipments with safety-related components since February, 1980 and six of these shipments were source inspected. The shipments included a total of approximately 3,600 parts of which approximately 1,900 were inspected.

For main control boards, there were four shipments with safety-related equipment since Rebruary, 1980. These shipments included seven control boards and none received a source inspection.

Q.8. Did Commonwealth Edison Company fully meet its source inspection committment made to the NRC in January, 1981?

A.8. Comparing the data summarized above to the statements made in the January 26, 1981 response to the NRC, it is clear that Commonwealth Edison fully met its commitment to perform source inspection on all shipments of safety-related equipment after that date. However, for the 11 month period from February, 1980 through January, 1981 the statement which was intended to say that each safety-related shipment was were source inspected was not fully accurate. It would have been more accurate to say that in that time period all local instrument panels were source inspected. Except for one hanger, no shipments of hangers took place in that period, but that hanger was not source inspected. Fo cable pans, four shipments made after February 15, 198 were not inspected; six shipments after July, 1980 were source inspected. The seven main control boards shipped in that period were not source inspected.

Q.9. How did you determine that the Company had not fully met its commitment to conduct source inspections of SCC equipment in the time period February 1980 through January, 1981?

A.9. I reviewed documents including shipping documents from SCC and inspection reports from PTL which disclosed the date and extent of the source inspection

I also interviewed knowledgeable individuals in the Commonwealth Edison and PTL organizations.

Q.10. Explain the possible causes for the failure to conduct source inspections of all SCC equipment in the period February, 1980 to January, 1981.

A.10. After conducting the interviews, reviewing documentation and examining the process by which the January 26, 1981 response to the NRC Staff was prepared, I was able to draw certain conclusions as to the reasons why source inspection was not performed on all SCC equipment shipped after February 15, 1980 and prior to January 26, 1981.

A significant source inspection program was initiated in February, 1980 which continued on through 1981 and was actually being performed at the time the Commonwealth Edison Company response was being prepared in January, 1981. During this 11 month period source inspections were performed every month. This included 27 trips by PTL inspectors traveling from Byron to the SCC plant in Iron Mountain, Michigan. The inspection trips lasted from two to five days. As a result, Commonwealth Edison Byron site Quality Assurance and Project Construction Department personnel who were working with electrical equipment were aware that PTL was regularly performing source inspections at SCC.

During the interviews, it appeared that the overall impression with Commonwealth Edison Company site personnel was that PTL was at the SCC plant regularly in order to inspect all shipments.

Second, the January 26, 1981 Commonwealth Edison response to the NRC Staff was prepared and processed in the proper manner. It appears that the Project Construction Department prepared the first draft of the response with possibly some data from Site Quality Assurance. The draft was then reviewed and commented on by General Office Quality Assurance. Therefore, two departments and at least five and possibly six people were involved with preparing, commenting or reviewing the response before it was sent to our Nuclear Licensing Department. It should be noted that on January 5, 1981 the Site Quality Assurance Superintendent Tom McIntire was promoted to a new position which was not at the Byron site. Michael Stanish, who was previously working at our Dresden plant replaced Tom McIntire. It was at this precise time that the response was being prepared at the site. During the transition between Quality Assurance Superintendents the verification of the accuracy of the wording in the response may not have taken place.

Third, it was perceived that the NRC citation 50-454/80-04-01, to which Commonwealth Edison was responding, was issued because Commonwealth Edison Project Construction Department waived final source inspection on 20 safety-related instrument racks in the period December, 1979 to February, 1980. Thus, site personnel may have been preoccupied with the issues associated with local instrument panels. On February 15, 1980, Site Quality Assurance issued a letter to PTL directing them to perform a final source inspection on safety-related instrument racks. There is no comparable letter with respect to other SCC supplied equipment, even though some source inspections of cable pans took place between February 15, 1980 and January 26, 1981.

A combination of these factors most likely resulted in inaccurate wording in the response. But in the final analysis we cannot determine exactly why the response did not accurately reflect what had taken place over the 11 months between February 1980 and January, 1981.

ATTACHMENT A

BYRON STATION

Source Inspection At System Control Corporation
(Safety - Related Shipments)

Equipment	Shipping Date	Number Of Items Shipped	Number Of Items Inspected
Instr. Racks	4/22/80	8	8
F/L - 2809	4/29/80	10	10
	5/14/80	1	1
	6/5/80	10	10
	5/12/80	9	9
	6/23/80	9	9
	7/29/80	6	6
Hangers	3/10/80	1	-
F/L - 2815	5/20/81	39	34
	10/28/81	168	57
Cable Pans	3/10/80	277	-
F/L - 2815	5/30/80	227	-
	6/30/80	328	-
	7/16/80	68	-
	9/26/80	487	100
	1/8/81	23	15
	1/30/81	136	35
	5/20/81	201	113
	8/5/81	1671	1571
	10/28/81	139	99
Control Boards	3/6/80	2	-
F/L - 2802	3/27/80	1	-
	5/14/80	2	-
	6/27/80	2	-