Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690 - 0767

DCD

PRIORITY ROUTING

orig+1

FILE

March 26, 1990

Mr. A. Bert Davis
Regional Administrator
U.S. Nuclear Regulatory Commission
Region III
799 S. Roosevelt Road
Glen Ellyn, IL 60137

Subject: Quad Cities Station Units 1 and 2
Response to Request Pursuant to 10CFR50.54(f)
Associated with EA 90-32, Order Modifying
Licenses DPR-29 and 30
Docket Nos. 50-254 and 50-265

Reference: Letter from H.L. Thompson to Cordell Reed
Dated February 23, 1990, Transmitting
Order Modifying License

Dear Mr. Davis:

Enclosed, in reply to the referenced letter from the Nuclear Regulatory Commission (NRC), is Commonwealth Edison Company's (CECo) response to the request for information pursuant to 10CFR50.54(f) regarding Quad Cities controls over refueling activities.

Commonwealth Edison fully understands the significance of the event and has taken aggressive actions to upgrade refueling activity controls at Quad Cities to eliminate recurrence of a similar event and to encourage our Station personnel to strive for professional excellence. Through this event, Commonwealth Edison has better realized the need for more effective management involvement to communicate expectations to our employes and the need to continue to hold employes accountable for their decisions.

IE01

These actions address many refueling activities including the control room command function, communication between the refueling floor and the control room and procedural adherence. Management expectation for these and other refueling activities have been and will continue to be disseminated to the various members of Quad Cities' refueling personnel including the fuel handlers, fuel handling foremen, nuclear engineers, nuclear station operators and supervisors. The actions implemented at Quad Cities are being reviewed for implementation at our other Stations. CECo believes that these actions will ensure the highest level of professionalism in the conduct of refueling activities at Quad Cities.

To the best of my knowledge and belief the statements contained herein and in the attachments are true and correct. In some respects these statements are not based on my personal knowledge but upon information furnished by other Commonwealth Edison employes. Such information has been reviewed in accordance with Company practice and I believe it to be reliable.

Very truly yours,

C. Reed

Cordell Reed
Senior Vice President

Attachment

cc: J. Zwolinski
J. Craig
L. Olshan
W. Shafer
J. Hinds
Senior Resident Inspector, Quad Cities

/lmw/0801T

Leroy R. Ransome

OFFICIAL SEAL
LEROY R. RANSOME
NOTARY PUBLIC STATE OF ILLINOIS
MY COMMISSION EXP. APR. 6,1993

ATTACHMENT A

QUAD CITIES ACTIONS TO ENHANCE REFUELING PERSONNEL COMPLIANCE WITH NRC REQUIREMENTS RELATED TO REFUELING

INTRODUCTION

CECo has initiated aggressive corrective actions and broad programmatic enhancements to assure strict adherence to refueling procedures at Quad Cities. The broad scope of these activities reflects CECo's appreciation of both the connection between refueling and potential criticality and the need to have unquestioned confidence in the integrity of all station employees, especially individuals who carry the particular responsibilities associated with the NRC licenses. Accordingly, these station and corporate activities will ensure that all station personnel clearly understand the importance of strict adherence to refueling procedures and that a willful, unjustified deviation from any procedures is simply unacceptable to CECo and Quad Cities Management.

The activities which either have been completed or are being taken are described below. The activities include both corrective actions for the specific non-adherences involved in the October 17, 1989 event and programmatic enhancements which were identified as a result of Quad Cities intensive review of its refueling program. These actions specifically address management expectations regarding the control room command function, communication between the refueling floor and the control room, procedural adherence and the role of the supervisor. For each of these areas of management expectations, the following discussion explains how CECo management will enhance their dissemination to plant personnel. CECo expects that these actions will significantly improve station personnel understanding of their responsibilities and authorities to implement and adhere to refueling procedures.

EVENT INVESTIGATION

The event occurred on the afternoon of October 17, 1989 near the end of the day shift essentially as described in the NRC's orders. Early on the morning of October 18, 1989, before the Fuel Handling Foreman began work, the Operations Assistance Superintendent interviewed the Fuel Handling Foreman and verified that the earlier suspicions regarding the event were correct. The Station Manager and Station Industrial Relations were immediately briefed on the event and they informed their corporate management. Pending the results of further investigation, the Station Manager suspended all fuel moves, suspended the Fuel Handling Foreman from further fuel handling operations, and restricted the Fuel Handlers involved from moving fuel.

Following the suspension of fuel movement, each member of the fuel handling crew: the Fuel Handling Foreman, two Fuel Handlers, Nuclear Station Operator and Nuclear Engineer were interviewed individually to determine what had

happened. The interviews were conducted by the Operations Assistant Superintendent, Assistant Technical Staff Supervisor, Human Performance Evaluation System (HPES) Coordinator, and an Operating Engineer. The Fuel Handling Foreman cooperated with the Investigation Team and accepted responsibility for the event and clearly indicated his remorse. In particular, the Fuel Handling Foreman acknowledged that the Fuel Handler had requested the filing of a revised Nuclear Component Transfer List before making the moves but that he had overridden that request. Soon thereafter, Station Industrial Relations reviewed the individual's work history. This review showed that the Fuel Handling Foreman had a good record and had been promoted to progressively more responsible positions. Nothing indicated a fitness for duty concern. These facts and the results of all of the interviews were reported to senior corporate management, including the Vice President, BWR Operations.

Overtime records also were reviewed. They showed that the Fuel Handling Foreman had worked the overtime hours typical during refueling outages. Although overtime hours guidelines had been exceeded by no more than two hours in a limited number of instances, the Fuel Handling Foreman told the Operations Assistant Superintendent that he did not recall being overtired. He did state, however, that he was somewhat distracted by an impending Doctor's appointment during subsequent interviews with the HPES Coordinator.

QUAD CITIES IMMEDIATE ACTIONS TO THE EVENT

To determine the appropriate discipline for the Fuel Handling Foreman, the Station Manager and Station Industrial Relations again reviewed the circumstances with senior corporate and industrial relations personnel. The following disciplinary actions were deemed appropriate based on the totality of the Fuel Handling Foreman's 25 year record of work for CECo; including over 15 years at Quad Cities:

- Suspension without pay for three days.
- A minimum six-month suspension from all licensed activities.
- Early demotion by one level.
- Loss of overtime associated with Fuel Handling Foreman duties during suspension period.
- Removed from supervisory role.
- Removed from responsibilities in the Fuel Handling Department.
- Implementation of an action plan providing for close management overview of all work performed during the six-month suspension period.

These actions not only had a significant financial impact but also clearly communicated to the Fuel Handling Foreman that his previously good record has been significantly affected in the eyes of CECo management.

Management action regarding the Fuel Handlers considered the attempt to encourage procedural compliance. Because one of the involved Fuel Handlers had properly questioned the need for a revised Nuclear Component Transfer List but was directly overridden by the Fuel Handling Foreman, the Fuel Handler proceeded to make the moves in accordance with what he believed was station practice on insubordination. To clarify this misunderstanding of station practice, letters were put in the Fuel Handlers' files. Those letters stated that an individual is not to perform an action which is known to be a direct

violation of a procedure or Technical Specification but is to either resolve the matter with his supervisor or bring it to higher management attention if no proper resolution is possible. This clarification will be communicated to all station personnel as described below.

Before permitting the resumption of fuel moves, senior station management, including the Station Manager, met with personnel involved with fuel handling activities, including fuel handlers and fuel handling foremen, reactor operators, shift control room engineers, shift engineers and nuclear engineers. The discussions stressed:

- Procedural adherence
- Need for strict control of reactivity management
- Importance of communications with the control room
- Strict control of fuel movements

Unit One refueling was completed without further incident.

CORRECTIVE ACTIONS TO ENHANCE REFUELING OPERATION

As previously discussed, Commonwealth Edison realizes that the event that occurred on October 17, 1989 clearly did not meet the expectations that we have established and implemented for the conduct of our personnel at our Nuclear Power Stations. Commonwealth Edison has reviewed the facts surrounding the event as well as the overall conduct of our Refueling Operation and has developed corrective actions which will enhance the Refueling Operation at Quad Cities thereby ensuring that management expectations are clearly understood and properly implemented.

During the investigations, our review of various external and internal assessments of these procedures showed that there were no obvious precursors to this event. The review included NRC inspections and Quality Assurance in-process audits which concluded that the refueling operations were effective and procedures were complied with at Quad Cities Station. These perceptions have been clearly challenged by the event. Commonwealth Edison including Station Management were especially concerned by the unacceptable individual decision.

Further investigation of this event concluded that expectations were not met in the following areas:

- Procedural Adherence
- Communications
- Control Room Command Function
- Role of the Supervisor

PROCEDURAL ADHERENCE

Commonwealth Edison is committed to the philosophy of procedure adherence and has communicated the expectations through the directives described in Attachment B. The communication of expectations is also disseminated through Station tailgate meetings, individual counseling on procedural lapses, training and important day-to-day discussions of work between supervisors and subordinates.

Although the communication of expectations appears to have been effective generally, this event clearly indicates that CECo's commitment to procedural adherence must be re-emphasized. In addition to the unusual willful noncompliance, Quad Cities identified additional procedural non-adherences separate from those related to the Fuel Handling Foreman's directions to the Fuel Handlers. For example, the Nuclear Engireer not the Nuclear Station Operator, communicated with the Refueling Floor; however, the Nuclear Engineer kept the Nuclear Station Operator informed of the status of refueling activities. This procedural non-adherence was not indicative of willful behavior but, rather, arose from a generally accepted misinterpretation of a procedural requirement. Taken together, these circumstances indicated that the following additional actions are appropriate for achieving expectations.

1. Upper station management has incorporated this event in the meetings it is conducting with station and contractor personnel to reiterate the importance of procedural adherence.

2. A document will be developed which clearly communicates management expectations for procedure adherence. This document will include a discussion of the consequences of a willful procedure violation, i.e., that disciplinary action will be taken up to and including dismissal. This document will be in place by June 4, 1990.

3. The Training Department will conduct on-the-job overview the next refueling operation to assure that discussions were effective and to correct any deficiencies so that management expectations are achieved.

4. A fuel handling overview program has been initiated at Quad Cities to ensure that management expectations are consistently met. An Operating Engineer will overview activities during each shift at a minimum of once a week. This will be performed during the 1990 Refueling Outages. The program will be reviewed for potential continuation in 1991.

5. The event will be incorporated into licensed operator training to re-emphasize their responsibilities as NRC licensed operators. The event has been incorporated into the licensed requalification program and will be incorporated into the initial license training program by June 4, 1990. Other CECo stations have begun to inform affected personnel of this event.

COMMUNICATION

CECo management recognizes that clear communications are critical to performance and has established policies on communication, including repeat back for positive confirmation. CECo disseminates this management concern for communication by requiring training for fuel handlers and all licensed personnel in such communication techniques. The responsibility for fuel handling communication is contained in QFP 100-1 and includes that a direct communication link be established between the Control Room and Refueling Floor and that the Control Room be informed of fuel moves.

These communication requirements were not met during this event in that the wrong fuel assembly was initially mispositioned and the unauthorized fuel moves were not communicated. The following corrective actions will be implemented:

1. The use of a speaker phone in the Control Room has been re-established. This will allow the Nuclear Station Operator as well as the Nuclear Engineer to monitor the Refuel Bridge communications. All other CECo stations use a speaker phone.

2. The Master Refueling Procedure QFP 100-1 will be revised to require that any intentional break in communication be explained before it occurs. Any unexplained lapse in communication will be investigated immediately by the Nuclear Engineer under the direction of the NSO. The procedure will be revised before the upcoming reactor reload for the current Unit 2 outage.

3. The Fuel Handler reader will be required to alert the manipulator to any changes from what would otherwise be expected sequentially. The Master Refueling Procedure QFP 100-1 will be revised to require this enhanced communication before the upcoming reactor reload for the current Unit 2 outage.

4. Training in the enhanced communication requirements will be conducted during procedure revision training. Training will be completed prior to the reactor reload for the current Unit 2 outage.

5. The Fuel Handler reader will perform a second verification of each fuel move to assure that the proper step was completed. The Master Refueling procedure will be revised to require the second verification prior to the upcoming reactor reload for the current Unit 2 outage.

CONTROL ROOM COMMAND FUNCTION

As discussed in Attachment B, the Nuclear Station Operator is responsible for his/her unit, approving fuel moves and monitoring nuclear instrumentation. The Nuclear Station Operator is enpowered with the authority to stop activities. The Nuclear Engineer provides technical overview.

While expectations for the Control Room function were not compromised, they were not effectively achieved. The Nuclear Station Operator did not directly communicate with the Fuel Handler but remained informed by the Nuclear Engineer. Management expectations for the roles of the various participants in refueling were disseminated principally through turnovers which occur between junior and senior members and to a lesser degree through training on procedures. Therefore, additional steps will be taken to establish a more formalized basis for assuring that all individuals involved with refueling clearly understand the command and control function of both Control Room and Fuel Handling Foreman.

The additional Nuclear Station Operator recently added to the operating crew will also enhance the realization of management's expectation for refueling. The additional Nuclear Station Operator would be available to support refueling activities and thus should relieve any distractions from refueling as a result of competing unit activities.

The following actions will be implemented to achieve excellence in refueling activities.

1. Station procedures will be revised to clearly state the roles of the Shift Control Room Engineer, Nuclear Station Operator, Fuel Handling Foreman, Nuclear Engineer and Fuel Handler during refueling.

2. Individuals involved in refueling will receive specific training on their roles.

3. The Nuclear Engineer will develop a document describing the role of the Nuclear Engineer for orientation of new personnel. Current nuclear group staff will also be trained on this document.

4. The Fuel Handling Department under the supervision of an Operating Engineer will develop a procedure which details management expectations for the conduct of refueling operation.

These actions will be completed before the Unit 1 Refueling Outage scheduled for October, 1990.

FIRST LINE SUPERVISORS AS ROLE MODELS

CECo management expects that supervisors will adhere rigidly to procedures not only as part of their responsibilities as workers at Quad Cities Station but also in partial fulfillment of their additional responsibilities as role models who set examples for their subordinates. These expectations for supervisors have been disseminated principally through coaching and performance assessments by higher management as well as by formal supervisory training. These dissemination methods have usually been successful. Quad Cities management knows of no other instance in which a supervisor consciously failed to set a good example for subordinates by deliberately and unjustifiably directing subordinates to disregard procedural adherence.

Nevertheless, due to the seriousness of this event, CECo will take additional actions to reinforce supervisor's appreciation of their roles as example setters regarding strict adherence to procedures.

(1) Supervisory training will explicitly include a discussion of a supervisor's responsibility for ensuring that his/her actions set examples which clearly demonstrate to subordinates the proper attitude toward strict adherence to procedures. This training program will be developed for all CECo stations by December 31, 1990.

(2) Upper Quad Cities station management has met with supervisors to reinforce management expectations regarding supervisors as role models regarding strict procedural compliance.

(3) Management coaching and performance review of Quad Cities supervisors will include consideration of example setting regarding procedural adherence by subordinates. This will be accomplished during the Personnel Performance Review which is an ongoing process.

ROLE OF STATION MANAGEMENT

CECo senior management expects Quad Cities management to be alert to the major personality characteristics of supervisors and to be aware of unusual situations which could cause those personality characteristics to be manifested in a way which interferes with the proper performance of station activities. These management expectations are disseminated principally through training, including training in behavioral observation. Although these expectations usually are met, they were not in this case.

CECo management will implement the following actions to ensure that management: (1) is alert to special situations which could lead to procedural deviations; and (2) takes steps to ensure strict procedural compliance.

- Management training will include techniques for reviewing supervisors' work records for prior actions which could indicate an incomplete dedication to strict procedural compliance.

- Management behavioral observation training will include techniques for determining whether a supervisor responds to external pressures by generating internal attitudes which could enhance the potential for procedural deviations to get the job done.

- Management training will include techniques for enhancing awareness of unusual situations which could exacerbate supervisors' pre-existing propensities to deviate from strict adherence to procedures.

- Management training will present techniques for coaching supervisors when special circumstances could reasonably be expected to lead to deviations from strict adherence to procedures.

Current CECo management training programs do no encompass the techniques described above and, therefore, the creation of this training program will require a significant lead time. The nature of the training relates to the psychological and behavioral response of the individual to a situation and will require extensive research and development to accomplish the goals of the corrective action. The training program will be developed by December 31, 1990. CECo believes that this additional management training should enhance management's ability to identify the potential for procedural deviations by subordinates and to taken positive steps to prevent such deviations.

CONCLUSION

Commonwealth Edison believes that the actions described will be effective in assuring management refueling operation expectations are disseminated and achieved. To further assure that Quad Cities Station personnel understand the significance of the event and the unacceptability of any willful procedural deviation, no matter how minor, Nuclear Operation Management will conduct meetings at Quad Cities to discuss the event with Station personnel. In addition, an assessment of refueling operations at Quad Cities will be conducted during the Refueling Outage following implementation of the corrective actions to assess the effectiveness of these actions. The assessment is currently scheduled for the Fall, 1991 Refueling Outage.

ATTACHMENT B

OVERVIEW OF FUEL HANDLING ACTIVITIES

Supervision of the fuel handling group is under the direction of the Operations Assistant Superintendent. Direct responsibility for fuel movement is under a Fuel Handling Foreman who holds a Limited Senior Reactor Operator License. During the core alterations, the Fuel Handling Foreman supervises two Fuel Handlers (Fuel Handler), one who actually moves the fuel and the other who communicates the moves to the control room and reads the moves from the Nuclear Component Transfer List to the Fuel Handler performing them.

During refueling, responsibilities for the conduct of the operation is allocated between two licensed operators, the Nuclear Station Operator and the Fuel Handling Foreman. The Nuclear Station Operator, who is supervised by the Shift Control Room Engineer, has the overall responsibility for his/her unit. The Nuclear Station Operator approves each fuel move in accordance with the Nuclear Component Transfer List and monitors the Source Range Monitor for operability and any unusual instrument indications. The Fuel Handling Foreman is responsible for the direct supervision of the operations of fuel handling on the Refuel Floor. These responsibilities are delineated in procedure QFP 100-1, Master Refueling Procedure. The Nuclear Station Operator and the Fuel Handling Foreman have the authority to halt the refuel operations for any reason in each area of responsibility.

The Nuclear Engineer provides a technical overview function to the Refueling Operation. The Nuclear Engineer provides technical advice to the Nuclear Station Operator in the Control Room during fuel moves. The Nuclear Group of the Technical Staff is responsible for the development of the Nuclear Component Transfer List. The Nuclear Engineer in the Control Room and a Licensed Senior Reactor Operator are authorized to revise the Nuclear Component Transfer List. This responsibility is defined in procedure QTP 1103-1, Preparation of Nuclear Component Transfer List.

Beyond these explicit procedural responsibilities, management expects personnel to implement these responsibilities in a professional manner consistent with procedural requirements. CECo expectations for procedural adherence are established generally by NOP-OA.1 "Nuclear Operations Policies, Directives and Controlled Memoranda"; NOP-OP.1 "Company Policy Regarding Safe Operational and Adherence to Nuclear Procedures and Technical Specifications"; and NOD-OP.1 "Conduct of Operations". These policies clearly express CECo's expectations that procedures will be adhered to rigidly. The station adopts and disseminates these corporate expectations as its own through Station Procedures, for example QAP 300-2, "Conduct of Operations". Detailed Station Procedures govern refueling activities including administrative controls which are established by the Master Refueling Procedure, QFP 100-1.

Because refueling entails the movement of fuel assemblies, reactivity control is a prime consideration, especially the avoidance of inadvertent criticality. The station ensures against inadvertent criticality by relying on physical controls, monitoring nuclear instrumentation and operating procedures.

All control rods are fully inserted during core refueling. This configuration is assured through an interlock which prevents the refueling platform from moving over the core if a control rod is withdrawn. The insertion of the control rods assures that inadvertent criticality does not occur. Continuous core monitoring via Source Range Monitors is performed and the Nuclear Component Transfer List is developed to assure effective monitoring by nuclear instruments. Technical Specifications prohibits loading of fuel in a quadrant in which a Source Range Monitor is not operable.

The movement of fuel is governed by QFP 100-1, Master Refueling Procedure. The procedure details the Technical Specification requirements, responsibilities, restrictions and controls. Fuel Handling is accomplished by two Fuel Handlers. One Fuel Handler communicates directly with the Control Room and the other Fuel Handler manipulates the fuel bridge. As indicated previously, the Nuclear Station Operator and Nuclear Engineer are present in the Control Room.

Fuel moves are required to be accomplished in accordance with the approved Nuclear Component Transfer List and copies of the Nuclear Component Transfer List are present in the Control Room and on the Refueling Bridge. Revisions to the Nuclear Component Transfer List may be performed by the Nuclear Engineer with the concurrence of a Senior Reactor Operator.

To perform a fuel move, the fuel handler reads the step on the Nuclear Component Transfer List to the Control Room, receives permission and the move is then accomplished. The Nuclear Station Operator observed the Source Range Monitor response during the fuel move and both the Nuclear Station Operator and Fuel Handler reader sign the Nuclear Component Transfer List to indicate that the step was completed. If the Nuclear Engineer determines that changes are needed to steps in the Nuclear Component Transfer List, those changes must be approved before they can be performed by the Fuel Handler. Following the completion of the core load, an audit of the core is conducted to assure correct bundle location.