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50-320

June 22, 1979

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

Subject: Zion Station Units 1 and 2
Additional Responses to IE Bulletin
Nos. 79-06A and 79-06A (Revision No. 1)
NRC Docket Nos. 50-295 and 50-304

- References (a): April 18, 1979 letter from James G. Keppler to Byron Lee, Jr. transmitting IE Bulletin No. 79-06A (Revision No. 1)
- (b): April 27, 1979 letter from Cordell Reed to James G. Keppler responding to IE Bulletin No. 79-06A (Revision No. 1)

Dear Mr. Keppler:

Reference (a) transmitted IE Bulletin No. 79-06A (Revision No. 1) regarding a review of operational errors and system misalignments identified during the Three Mile Island Incident. Reference (b) contained Commonwealth Edison Company's responses to that Bulletin. As a result of NRC Staff review of Commonwealth Edison's responses of Reference (b), the NRC Staff requested additional information with regard to Bulletin Items No. 2, 6, 7, 8, 10.c, 11 and 12. Commonwealth Edison's response to the Staff request is contained in Attachment 1 to this letter.

Please address any additional questions that you might have regarding this matter to this office.

Very truly yours,

C. Reed

Cordell Reed
 Assistant Vice-President

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attachment

cc: Director, Office of Inspection
 and Enforcement

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ATTACHMENT 1

COMMONWEALTH EDISON COMPANY RESPONSES TO
NRC REQUEST FOR ADDITIONAL INFORMATION WITH
REGARD TO RESPONSE TO BULLETINS 79-06A AND 79-06A (REVISION 1)

ZION STATION UNITS 1 AND 2
NRC DOCKET NOS. 50-295 AND 50-304

The requests and responses below are numbered to correspond to the Bulletin action items.

2. Revise your response based on a thorough review of all transient and accident conditions based on insight gained from TMI-2 to (a) assure that action steps specifically warn of potential for voiding with a description of all instrumentation which might provide indication of potential or actual voiding, (b) specifically address operator actions, based on operational modes and instrument indications discussed above, for terminating conditions tending to lead to void formation and (c) provide operators with guidance for enhancing core cooling given the unexpected condition of actual voiding in the primary system. Summarize the results of this review including revisions to procedures. Identify all instrumentation which might be utilized in void recognition; summarize the review results and actions taken with regard to the natural circulation mode of operation and identify any aids provided to the operators to aid in recognition of voiding conditions.

RESPONSE:

Commonwealth Edison Company has joined an owners group of utilities with Westinghouse plants to evaluate the events of the Three Mile Island accident and to take corrective actions to prevent similar events. The owners group has contracted with Westinghouse to perform numerous computer analyses in order to identify the conditions so as to allow a detailed evaluation and revision of actions during the course of a small LOCA. The results of these analyses will be incorporated into Emergency Operating Procedures and all applicable training instructions. Included will be necessary conditions for identifying and terminating voiding in the reactor vessel.

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It is expected that the results of the Westinghouse analyses will be available by mid-July and that the required procedural changes will be completed by September 1, unless further required analyses are identified.

6. Provide the date on which procedural revisions will incorporate the requirements of Action No. 6.

RESPONSE:

Procedural revisions identified in Reference (b) have been implemented.

- 7.a Provide assurance that operating procedures and training instructions have been reviewed to ensure that operators will not override automatic actions of engineered safety features, unless continued operation of engineered safety features will result in unsafe plant conditions. If they have not been reviewed, provide a schedule for completion of the review of operating procedures and training instructions, incorporating such modifications as are necessary to comply with Item 7.a of the Bulletin.
- 7.b Your response to Item 7.b appears to be inadequate with regard to the requirements of Item 7.b of the Bulletin. Provide assurance that operating procedures will be modified to keep high pressure injection and charging pumps in operation in accordance with the criteria specified in Item 7.b of the Bulletin. Provide a schedule for completion of the review of operating procedures incorporating such modifications as are necessary to comply with Item 7.b of the Bulletin.
- 7.c Your criteria for tripping reactor coolant pumps is inconsistent with the provisions of Item 7.c of the Bulletin. Provide assurance that operating procedures will be modified to keep reactor coolant pumps in operation in accordance with Item 7.c of the Bulletin. Provide a schedule for completion of the review of operating procedures incorporating such modifications as are necessary to comply with Item 7.c of the Bulletin.

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7.d Identify those specific parameters other than pressurizer level identified for operator use in evaluating plant conditions and verify that these parameters have been included in appropriate operating procedures.

RESPONSE:

a) Response to Items 7.a, 7.b and 7.c

Commonwealth Edison Company has joined an owners group of Westinghouse plants to evaluate the events of the Three Mile Island Accident and to take corrective actions to prevent similar such events. The owners group has contracted with Westinghouse to perform numerous computer analyses in order to identify accident conditions so as to allow a detailed evaluation and revision of actions during the course of a small LOCA. The results of these analyses will be incorporated into Emergency Operating Procedures and all applicable training instructions. Included will be necessary conditions for terminating Safety Injection and for turning off reactor coolant pumps during the course of a LOCA transient.

It is expected that the results of the Westinghouse analyses will be available by mid-July and that the required procedural changes will be completed by September 1, unless further required analyses are identified.

b) Response to Item 7.d

With respect to pressurizer level, operators were instructed that a steam bubble could be formed in the reactor pressure vessel while water level in the pressurizer was still indicated. A caution statement is being added to the Emergency Operating Procedures for a LOCA instructing the reactor operators to assess the existence of subcooling in the reactor vessel by comparing all hot and cold leg temperatures and core exit thermocouple temperatures to steam table saturation temperatures. A control board indication providing the operators a reading of degrees of subcooling is being developed. These actions are expected to be implemented by August 1. The above items will be covered in the periodic training received by all operators.

8. Please provide your schedule for completing review of alignment requirements and procedures controlling manipulation of safety-related valves. Submit a summary of the results of the reviews and any revisions necessary within two weeks after completion of the reviews.

[LPM: Determine whether the Technical Specifications require periodic surveillance of locked valves. If not, add the following request for information.]

Also, review plant procedures and revise them as necessary to ensure that locked safety-related valves are subjected to periodic surveillance. Submit a summary of the results of the review.

RESPONSE:

A complete review of the Engineering Safety Systems valve lineups is conducted at the conclusion of each unit refueling outage. All safety-related valves were verified by an operator and a management person to be in the correct position. System operating procedures and periodic surveillance testing procedures have been reviewed to ensure that proper controls are used when manipulating safety-related valves. As a result of this review, no significant procedural deficiencies were found.

In addition, the station worked hand-to-hand with the resident NRC inspector to review actual and procedure valve alignments. This inspection took place during the period April 30 to May 18. Accessible valves along the main flow paths for the auxiliary feedwater, safety injection and residual heat removal systems were again physically checked during this inspection and verified to be in their correct position. Procedure reviews performed showed that there were no discrepancies. Other safety-related systems were verified to be procedurally correct.

The Zion Technical Specification does not require periodic surveillance of locked valves. Therefore, a complete review of safety-related systems was performed to identify the need for placing locking devices on manually operated valves. Manual valves to be locked have been identified in the charging, safety injection, residual heat removal, condensate and auxiliary feedwater systems and the affected valves have been locked. Other ESF systems are being reviewed at the present time. Procedural changes are being initiated and full compliance with station procedures will be effective by August 1, 1979.

- 10.c Please describe the method used for transferring information about the status of safety-related systems at shift change.

RESPONSE:

Shift relief is accomplished in accordance with ZAP 10-52-3, Shift and Relief Turnover. The oncoming Shift Engineer and Shift Foreman review the Shift Engineer's log (a record of all significant actions and events), outstanding surveillance for out-of-service and failed safety-related equipment, and discuss plant conditions and evolutions planned or in progress prior to relieving the off-going shift. With the use of both written and verbal information, the Shift Engineer/Shift Foreman has complete knowledge of the status of safety-related equipment at time of relief. In addition, a check list which identifies safety-related equipment status is used by the reactor operators to ensure proper shift turnover. The control room supervisor (Shift Foreman) has the responsibility to review the turnover checklists and review the control boards for verification of equipment status.

11. Provide assurances that notification of the NRC occurs within one hour and that an open continuous communication channel is established and maintained with the NRC.

RESPONSE:

In the event that the reactor is not in a controlled or expected condition of operation, the NRC will be notified within one hour. In addition, the NRC recently

had a dedicated phone line installed at Zion Station for use in emergency situations. This phone which may be used for immediate notification of the NRC will have an extension in the Station Command Center which will be used to set up the continuous communications required by the NRC in an unusual event. The person assigned to communicate messages over this telephone normally will be the Zion Station NRC Resident Inspector. However, prior to his arrival during an unusual event, the Engineering Assistant for Operations or another management person on shift may be assigned by the Shift Engineer to maintain this communication link until the NRC Inspector arrives. All information given over this telephone will be designated as unofficial and preliminary until it is reviewed and approved by the Command Center.

12. Your response concerning methods and procedures for dealing with hydrogen gas in the primary system is too general. Please provide more specific information concerning methods for removing hydrogen from the primary system and indicate what documentation will be developed to incorporate these methods.

RESPONSE:

The methods available for removing hydrogen from the primary system are:

1. Hydrogen can be stripped from the reactor coolant to the pressurizer vapor space by pressurizer spray operation if the necessary reactor coolant pump is operating;
2. Hydrogen in the pressurizer vapor space can be vented by power-operated relief valves to the pressurizer relief tank and then to the containment atmosphere via the rupture discs or pumped to the gas decay tanks; and
3. Hydrogen can be removed from the reactor coolant system by the letdown line and stripped in the volume control tank where it enters the waste gas system.

Procedures currently exist for removing hydrogen through the pressurizer or the volume control tank during normal operation. These procedures are being reviewed as to their applicability during accident conditions and will be modified or new procedures written if required. Additional methods for removal of hydrogen that may be identified by the Westinghouse Owners Group will be thoroughly investigated and implemented if applicable to Zion Station. The procedural reviews and any applicable changes will be made by September 1, 1979.