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October 18, 1982

Mr. Darrell G. Eisenhut, Director
Division of Licensing
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Quad Cities Station Units 1 and 2
Fire Protection Safe Shutdown
Reports
NRC Docket Nos. 50-254/265

Dear Mr. Eisenhut:

On September 17, 1982, a telephone conference was held to discuss the Quad Cities Units 1 and 2 Fire Protection Safe Shutdown Report (see Attachment A for the list of attendees). During this call, Commonwealth Edison agreed to respond to six items of interest to your staff. Our response to these items is provided in Attachment B to this letter. Please note that the analytical results presented in items 2 and 3 are preliminary, and subject to revision following an engineering review.

Please address any questions you may have concerning this matter to this office.

One (1) signed original and thirty-nine (39) copies of this transmittal are provided for your use.

Very truly yours,

Thomas J. Rausch
Nuclear Licensing Administrator

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Attachments

cc: Region III Inspector - Quad Cities

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Attachment A

Individuals participating in the September 17, 1982 telephone conferense call.

H.K. Stolt	SNED
R.E. Stachniak	SNED
T.J. Rausch	(Licensing)
M.W. Kluge	(S&L)
P.W. Harrar	(S&L)
J. Wermiel	(NRC)
J. Lettieri	(NRC)

ATTACHMENT B

Quad-Cities 1&2

1. Address the concerns of whether HVAC Is necessary in the control room for normal operation of safe shutdown equipment in the area and whether operators can work in the area if HVAC is lost.

RESPONSE

As stated in the September 17, 1982 conference call, control room HVAC was not explicitly analyzed in the July 1, 1982 submittal. Commonwealth Edison's opinion is that the proposed local instrumentation and controls will provide alternate shutdown capability for any fire which could affect the control room HVAC. However, CECO recognizes that continuous manning and use of the control room whenever possible in a fire situation is desirable.

CECo is modifying the control room HVAC system in response to the control room habitability requirements of NUREG-0737. The proposed modification includes the addition of a new train to be lcoated in a new HVAC equipment room. This redundant train will be powered from a bus which can receive deisel generator power. Due to the separation already incorporated between the existing HVAC train and the proposed redundant train, complete separation including cable runs in compliance with Section III.G of Appendix R is feasible. However, it should be emphasized that these mdofications are proceeding on a schedule independent of any Appendix R commitments.

2. Provide an analysis stating the maximum time in which the core can safely sustain itself without the need for RCIC and state how long it will take for an operator to start RCIC locally.

RESPONSE

The preliminary results of the analysis show that the core can maintain a water level above the top of the active fuel without the initiation of the RCIC Flow for a maximum of fourteen minutes.

The time it takes to locally start the RCIC system is estimated to be well within this time limit.

3. Provide an anlysis showing torus temperature vs. time during extended RCIC operation to show that temperature indication of the torus water is not necessary.

RESPONSE

The preliminary analysis on torus temperature vs. time during an extended RCIC operation shows that torus cooling must be initiated within four and one half (4 1/2) hours. This time frame suggests that torus temperature indication would not be an important consideration in the first four hours of an event requiring RCIC operation.

4. Verify that torus water level indication and CST water level indication is available in fire areas whwere it is not shown on equipment lists.

RESPONSE

The affected fire zones are 1.1.1.1, 1.1.2.1, 8.2.1 (Unit 1 and 2), 8.2.2, 8.2.3, 11.2.3, and 11.2.4. As a minimum, the local mechanical indicators LI 1/2-3341-77A&B (CST level) and LI-1(2)-1602-10 (torus level) will be available for fires in these zones. Although the torus level sight glass is located in Zone 1.1.1.1 (1.1.2.1), due to the negligible fire loading in the torus bay, this mechanical instrument will be unaffected as discussed in the September 17, 1982 conference call.

5. Provide a P&ID of the HPCI system to verify that a check valve is on the HPCI discharge.

RESPONSE

A print of Quad-Cities drawing M-46 is included with this letter.

6. Address whether or not fuse pulling is necessary to achieve hot shutdown at Quad Cities.

RESPONSE

At present the isolation methods for the various essential circuits are conceptual. It is not anticipated that fuse removal will be necessary to achieve hot shutdown. However, Commonwealth Edison remains convinced that fuse pulling is a technically sound method for isolating appropriate control circuits. Where fuse removal may possibly be utilized, the effects on the circuits would be individually analyzed; the circuit schematics would be sent to the NRC for their review; and administrative controls would be utilized to ensure that fuses are properly handled, including specific procedural references and clear labeling of any fuse compartments involved.

7. Verify that there is sufficient 8 hour capacity of water in the CST, and that 8 hours are enough to achieve cold shutdown under normal circumstances.

RESPONSE

A hand calculation was performed utilizing the formulae in Branch Technical Position ASB 9-2. The water requirements to remove 8 hours of decay heat are 89,500 gallons. CST Level is maintained above 90,000 gallons by administrative control, including low level alarms in the control room, and by placing nonessential suction piping above the 90,000 gallon level.

Cold shutdown can be achieved within 8 hours under normal circumstances. However, once the RHR shutdown cooling is initiated, the decay heat removal mechanism is the RHR Heat exchanger rather than boiloff; therefore, the total 89,500 gallons are not required, since RHR Initiation conditions (340^{0}F) can be reached in well under 8 hours.

In addition, it should be pointed out that only one unit requires CST water for reactor makeup. The unit with RCIC available can recycle torus water to the vessel, and both CST's, which are crosstied, would be available to the Safe Shutdown Makeup Pump. Conservatively assuming that both tanks are at the 90,000 gallon level, the resulting 180,000 gallons of condensate is sufficient to remove approximately 22 hours of decay heat. Therefore, ample margin exists in the proposed design. As was emphasized in the September 17, 1982 conference call, the locked connection to service water is intended only to establish the appendix R mandated 72-hour hot shutdown capacity, and is definitely <u>not</u> meant to be used on routine basis. Every effort would be made to use any available source of processed water for reactor makeup.

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