

Distribution
 Docket File
 NRC PDR
 Local PDR
 ORB#2 Rdg.
 DEisenhut
 ORAB
 SNorris
 RBevan
 OELD
 EJordan
 TBarnhart 4
 ACRS 10
 OPA, CMILES
 NSIC
 JTaylor
 SECY
 RDiggs
 Gray File

Docket No. 50-254
 50-265

APR 22 1983

Mr. Dennis Farrar
 Director of Nuclear Licensing
 Commonwealth Edison Company
 P. O. Box 767
 Chicago, Illinois 60690

Dear Mr. Farrar:

SUBJECT: NUREG-0737, ITEM II.B.2.2, PLANT SHIELDING MODIFICATIONS

Re: Quad Cities Station Units 1 and 2

The review of the subject issue was divided into three parts: design review, plant modifications (corrective actions), and equipment qualification. By letter dated March 5, 1980, we closed out the first part. Our review of the third part has been included under our Multi-Plant Action B-60, "Environmental Qualification of Electrical Equipment for Nuclear Power Plants" and is still in progress.

We have completed our review of the only remaining part, II.B.2.2, corrective actions taken for access to vital areas. Our review was based on your letters dated December 15, 1980, December 31, 1980 and March 31, 1982.

Based on our review, we conclude that the recommendations of NUREG-0737, Item II.B.2.2 have been met, as stated in the enclosed Safety Evaluation.

Sincerely,

Original signed by
 D. B. Vassallo

Domenic B. Vassallo, Chief
 Operating Reactors Branch #2
 Division of Licensing

Enclosure:
 Safety Evaluation

cc w/enclosure
 See next page

8305020597 830422
 PDR ADDCK 05000254
 P PDR

OFFICE	DL:ORB#2	DL:ORB#2	DL:ORB#2				
SURNAME	SNorris	RBevan:pg	DVassallo				
DATE	4/22/83	4/21/83	4/22/83				

Mr. Dennis L. Farrar
Commonwealth Edison Company

cc:

Mr. D. R. Stichnoth
President
Iowa-Illinois Gas and
Electric Company
206 East Second Avenue
Davenport, Iowa 52801

Robert G. Fitzgibbons Jr.
Isham, Lincoln & Beale
Three First National Plaza
Suite 5200
Chicago, IL 60602

Mr. Nick Kalivianakas
Plant Superintendent
Quad Cities Nuclear Power Station
22710 - 206th Avenue - North
Cordova, Illinois 61242

Resident Inspector
U. S. Nuclear Regulatory Commission
22712 206th Avenue N.
Cordova, Illinois 61242

Illinois Department of Nuclear Safety
1035 Outer Park Drive
5th Floor
Springfield, Illinois 62704

Chairman,
Rock Island County Board
of Supervisors
Rock Island County Court House
Rock Island, Illinois 61201

James G. Keppler
Regional Administrator, Region III
U.S. Nuclear Regulatory Commission
799 Roosevelt Road
Glen Ellyn, IL 60137

U.S. Environmental Protection Agency
Region V Office
Regional Radiation Representative
230 South Dearborn Street
Chicago, Illinois 60604

Susan N. Sekuler
Assistant Attorney General
Environmental Control Division
188 W. Randolph Street
Suite 2315
Chicago, Illinois 60601

The Honorable Tom Corcoran
United States House of Representatives
Washington, D.C. 20515



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D. C. 20555

SAFETY EVALUATION OF NUREG-0737, ITEM II.B.2.2
DESIGN REVIEW OF PLANT SHIELDING
ACCESS TO VITAL AREAS
COMMONWEALTH EDISON COMPANY
QUAD-CITIES NUCLEAR POWER STATION, UNITS 1 AND 2
DOCKET NOS. 50-254; 50-265

INTRODUCTION

Following the accident at TMI-2, the NRC staff developed Action Plan NUREG-0660, and "Clarification of TMI Action Plan Requirements" NUREG-0737, to provide for improved safety at nuclear power plants.

NUREG-0737, Item II.B.2, directed all licensees to perform a radiation and shielding design review of the spaces around systems that may, as a result of an accident, contain highly radioactive materials, and to provide for adequate access to vital areas by design changes, increased shielding, or procedural controls. The licensee has not requested technical deviations from the criteria of ITEM II.B.2.

The following evaluation conducted by a Region III inspector, contains the results of the post implementation review regarding Item II.B.2.2 entitled Plant Shielding Modifications for Vital Area Access.

EVALUATION

The inspector examined the conclusions resulting from the licensee's shielding design review. The shielding design review dated December 31, 1979, for the Quad-Cities Nuclear Power Station (conducted by Sargent and Lundy Engineers), was reviewed by the licensee to identify any changes needed to incorporate the shielding design review findings with the Quad-Cities Nuclear Power Station post-accident access requirements. Final conclusions were forwarded to the Quad-Cities Nuclear Power Station by memorandum dated June 29, 1982, from J. L. Woldridge (SNED) to N. J. Kalivianakis.

The licensee concluded that plant areas vital for the purposes of personnel access during post-accident operation were the main control room, the Technical Support Center (TSC), and the reactor and containment sample systems. This determination was based on the fact that no operator action other than those that take place in the control room are critical to bringing the plant to and maintaining a cold shutdown condition. Modifications were undertaken to prevent the sump and drain systems from causing uncontrolled releases from the reactor building.

The shielding evaluation concluded that the control room is adequately shielded to limit the integrated dose to each individual in the control room during the course of the accident to less than five rem. The TSC has been relocated in new separate facilities designed for that purpose, adjoining existing plant buildings. The shielding evaluation concluded that the new TSC is adequately shielded. New High Radiation Sampling Systems (HRSS) have been constructed

in shielded sampling buildings near the reactor buildings to allow collection of post-accident reactor and containment atmosphere samples. The shielding evaluation concluded that each HRSS is shielded as required to limit the integrated dose to individuals collecting samples.

To prevent the sump and drain systems from causing uncontrolled releases from the reactor building, modifications were completed to ensure that the reactor building floor drain sump, the reactor building equipment drain tank, and the HPCI sumps would not be transferred to the radwaste storage and processing area when a group II isolation signal occurs. These modifications, and testing of the completed modifications, were conducted by the licensee under Modification Test M-4-1(2)-80-13. On February 24, 1982, the inspector reviewed the modification test package records, which showed that the modifications of the reactor building equipment drain tank and the reactor building floor drain sump pumps were completed and satisfactorily tested on February 21, 1981, and the HPCI sump pump discharge reroute from the radwaste facility to the reactor building floor drain sump was completed and satisfactorily tested on December 31, 1981. On October 29, 1982, the inspector verified by direct observation that the control room reset buttons (Units 1 and 2) were installed. He also verified that the piping modification for the HPCI sump (Unit 1) included a locked closed valve leading to the radwaste facility and new piping with a locked open valve leading to the reactor building floor drain sump. In conjunction with the above verifications, the inspector reviewed procedure QOP 2040-11, Revision 3, Post-Accident Sump Pumping Operations. No problems were identified.

The inspector selected for review and discussion with licensee personnel, procedure QCP 960-1, "Reactor Water Recirculation Diluted Liquid Sample," which is associated with post-accident sampling, to verify that the sampling and analysis could be accomplished without exceeding the criteria of GDC 19. The inspector traced the planned path from the portable radioanalytical facility in the TSC to the post-accident sample station in order to evaluate the potential post-accident sources of radiation and stay times for personnel involved in implementing the procedures. During this walkdown the inspector discussed potential post-accident sources of radiation with the licensee representative. The inspector did not observe any potential sources of radiation that were not included in the licensee's evaluation. Based on the inspector's reviews and discussions, it appears the licensee can implement procedure QCP 960-1 to obtain and analyze post-accident reactor coolant samples without radiation exposures to any individual exceeding the criteria of GDC 19 (five rems whole body and 75 rems to the extremities).

SUMMARY

The inspector verified by actual observation that selected plant modifications recommended by the shielding design review report were complete. In addition, the inspector verified by selective review and walkdown of procedures that post-accident procedural controls for ensuring adequate access to vital areas were implemented. The inspector observed no potential sources of radiation that were not included in the licensee's evaluation. These verifications were performed on February 24 and October 29, 1982.

CONCLUSION

The licensee has completed the modifications resulting from the plant shielding review for post-accident access to vital areas as outlined in NUREG-0737, Item II.B.2.2.

The following NRC personnel have contributed to this Safety Evaluation.

Loren J. Hueter