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August 17, 1979

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Subject: Dresden Station Units 2 and 3
Response to Request for Additional Information for Spent Fuel Pool Modification
NRC Docket Nos. 50-237 and 50-249

Reference (a): D. L. Ziemann letter to Cordell Reed dated July 16, 1979

Dear Mr. Denton:

Reference (a) transmitted a request for additional information concerning the Dresden Units 2 and 3 Fuel Pool Modifications. Attachment 1 to this letter provides our response to that request.

Please address any additional 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,

Robert F. Janecek

Robert F. Janecek
Nuclear Licensing Administrator
Boiling Water Reactors

cc: Edward Luton, Esquire
Dr. Linda W. Little
Dr. Forest J. Remick
Susan N. Sekuler

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ATTACHMENT 1

RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

DRESDEN UNITS 2 AND 3 FUEL POOL MODIFICATIONS

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RESPONSE TO REQUEST FOR ADDITIONAL INFORMATION

DRESDEN UNITS 2 AND 3 FUEL POOL MODIFICATIONS

QUESTION NUMBER 1:

Regarding response #5: Indicate why two or three or four hot assemblies stored in the center of a rack would not impose a more severe thermal transient on the rack.

RESPONSE:

If two or three or four hot assemblies are stored in the center of an empty rack, the overall lateral thermal growth of the rack will be larger than that resulting from storing one assembly. But, since the racks will rest freely on the pool floor, such thermal growth does not produce any significant stress. The stresses result mainly from across-the-thickness thermal gradient. If two or more hot assemblies are stored, this across-the-thickness gradient will be reduced and the resulting stresses will not be more severe than those resulting from storing one hot assembly at the center of the rack. It is noted here that the thermal stresses are very small, self-relieving, and, for this type of rack, amy even be ignored in accordance with USNRC Standard Review Plan, Section 3.8.4.

QUESTION NUMBER 2:

Regarding response #6: Indicate whether the loads imposed on a rack by a stuck fuel assembly have been considered.

RESPONSE:

Fuel handling and servicing in the fuel storage pool is carried out with one of several available half-ton hoists or the refueling grapple. The refueling platform is provided with the refueling grapple and two additional hoists. Two additional hoists are provided on jib booms in the fuel servicing area.

The fuel storage racks for Dresden have not been specifically analyzed for possible damage resulting from a stuck fuel assembly. However, the maximum loadings from the available hoist equipment are about 1,000 pounds vertical which in itself will not affect the racks because the imposed stresses are low. Past analyses on other racks have shown that a combined loading of 2,000 pounds vertical and 1,000 pounds horizontal does not exceed elastic limits within the rack.

QUESTION NUMBER 3:

Regarding response #7: What maximum potential energy levels will the various reactor internals have when they are carried over the pool and what would be the effect to the structure or the fuel rack from dropping them.

RESPONSE:

The objects which may be considered to cause potential damage to the fuel storage racks are listed as follows:

Object	Drop Height Over Racks	Potential Energy Levels (1)
1. Fuel and Fuel Channel	12"	8400 (3) in-lbs.
2. Control Blades	12"	3120 in-lbs.
3. Fuel Support Pieces	12"	372 in-lbs.
4. Jet Pump Subassemblies	12"	12000 in-lbs. (2)

(1) Neglects viscous drag forces and immersed weight considerations.

(2) Movement of these pieces is procedurely controlled so that movement is not over new or spent fuel stored in the spent fuel storage pool.

(3) A drop of fuel assembly from this height onto a fuel storage rack has been analyzed and shown to cause only minor damage with no change to k_{eff}.

The above summary indicates that the fuel drop has been analyzed with the result that only minor damage may occur. The energy levels of the control blades and fuel support pieces is less than that of the fuel. Consequently, less damage can be expected. Also, the blades and fuel support pieces will cover larger area of a given rack so that localized damage is further reduced (in effect, these objects are poorer missiles than the fuel).

The jet pump subassemblies will be controlled in movement as indicated above. Consideration is being given to further disassembly in order to reduce the weight of components carried into the pool.

QUESTION NUMBER 4:

Regarding response #9: Indicate whether these are spent fuel pool floor response spectra. If not, provide the spent fuel pool floor response spectra.

RESPONSE:

These are response spectra at an elevation of 589'-0". The pool floor is at elevation 574'-3". Comparing the response spectra values for elevation 589'-0" with those at elevation 612'-0", it was observed that at the frequency range of interest, the amplification factors are higher at higher elevation. Hence, the use of response spectra at elevation 589'-0" for spent fuel pool floor is considered conservative.

QUESTION NUMBER 5:

Regarding response #14: Provide the details of tests that will be conducted on the new spent fuel storage cells prior to spent fuel storage in order to establish the presence of boral and its shielding capability.

RESPONSE:

The tests to verify the presence of the boron containing plates, within 95% confidence limits, containing the required boron content to maintain the K_{eff} 0.95 was identified in the responses to Question 12 transmitted to the NRC on January 12, 1979 and retransmitted on January 24, 1979.

Commonwealth Edison is currently discussing possible methods of performing the neutron poison verification tests with a number of vendors. Procedural details will not be available until a vendor is chosen. As was stated in our earlier response the test will be similar to those conducted by National Nuclear Corporation at Montecello and TVA. These test simply involved lowering a neutron source into the cell with instrumentation to measure neutron absorption in the 4 walls the length of the cell.