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MEMORANDUM FOR: R. Reid, Chief, Operating Reactors Branch #4, DOR
FROM: G. Lainas, Chief, Plant Systems Branch, DOR
SUBJECT: REQUEST FOR ADDITIONAL INFORMATION: FUEL POOL
CAPACITY EXPANSION (TAC 11930 AND 11931)

Plant Name: Calvert Cliffs Nuclear Power Plant
Docket Nos.: 50-317 and 50-318
Responsible Branch: ORB#4
Project Manager: M. Conner

We have reviewed the Baltimore Gas and Electric Company's submittal for license amendments to expand the spent fuel storage capacity at the Calvert Cliffs Nuclear Power Plant. We find we need the additional information requested in the attachment to this memorandum in order to complete our review.

G. Lainas, Chief
Plant Systems Branch
Division of Operating Reactors

NOROSFS

Enclosure:
As stated

Contact:
E. Lantz
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cc w/enclosure:
See next page

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AUG 16 1979

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REQUEST FOR ADDITIONAL INFORMATIONSPENT FUEL POOL CAPACITY EXPANSIONCALVERT CLIFFS NUCLEAR POWER PLANT

The amount of boron that you are proposing to put in the plates in the proposed racks does not appear to be sufficient to keep the k_{eff} in the proposed racks at or below 0.95 for a fuel assembly loading limit of 48.5 grams of uranium-235 per axial centimeter of fuel assembly. In view of this please provide the following additional information:

1. Provide the change in your calculated k_{eff} for the proposed storage lattice when the fuel assembly loading is changed from 48.5 to 43.8 grams of uranium-235 per axial centimeter of fuel assembly.
2. Provide a description of the calculations you made for the above change in fuel loading and also the one for the k_{eff} of the minimum lattice pitch (i.e., 9.625"). Include a statement on whether or not you generated a neutron energy spectrum for each of the above cases to get accurate, effective, neutron reaction cross sections for every case.
3. Since it is our understanding that the 16 group Hansen-Roach cross section set was developed for fast spectrum reactors, provide justification and verification of its use in a primarily thermal neutron energy spectrum.
4. Provide a proof that the effective boron region cross sections you used in the KENO-IV verification calculation are accurate.
5. Provide a copy of NES 81A0567, "Nuclear Design Analysis Report for the Calvert Cliffs Unit #1 Nuclear Plant High Density Spent Fuel Storage Racks," dated March 1979, which is referenced in your submittal.
6. The NRC requires verification that the amount of boron used for the calculations is actually in all of the storage containers which are put into the spent fuel pool. Part of this required verification is an on-site neutron attenuation test for missing plates. Provide a description of the way you will verify that the amount of boron you used in your calculations is actually in the storage containers. Include a description of the on-site neutron attenuation test that you will perform.
7. The NRC requires the licensee to have a method to verify that the amount of boron used for the calculations remains in the plates throughout the life of the racks. Provide a description of this verification method.