

April 06, 2004

Mr. George Vanderheyden
Vice President
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION ON CALVERT CLIFFS
INDEPENDENT SPENT FUEL STORAGE INSTALLATION AMENDMENT
APPLICATION

Dear Mr. Vanderheyden:

By application dated December 12, 2003, Calvert Cliffs Nuclear Power Plant, Inc., (CCNPP) requested approval of an amendment, under the provisions of 10 CFR Part 72, to Special Nuclear Material (SNM) License No. 2501 for the CCNPP independent spent fuel storage installation. Enclosed is the staff's request for additional information (RAI) for the continued review of the amendment request.

Your complete and timely response to the enclosed RAI is necessary for the staff to complete its review. Please provide your responses to the RAI within 60 days or let me know if you cannot meet that date.

If you have any comments or questions concerning this request, you may contact me at 301-415-2169. Please refer to Docket No. 72-8 and TAC No. L23677 in future correspondence related to this request.

Sincerely,

/RA/

Stephen C. O'Connor, Senior Project Manager
Spent Fuel Project Office
Office of Nuclear Material Safety
and Safeguards

Docket No.: 72-8

Enclosure:
Request for Additional Information

cc: Mailing List

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* - see previous concurrence

**CALVERT CLIFFS NUCLEAR POWER PLANT
INDEPENDENT SPENT FUEL STORAGE INSTALLATION
DOCKET NO. 72-8**

REQUEST FOR ADDITIONAL INFORMATION

This document titled Request for Additional Information (RAI), contains a compilation of additional information requirements, identified to-date by the U.S. Nuclear Regulatory Commission (NRC) staff, during its review of Calvert Cliffs Nuclear Power Plant's (CCNPP's) application for approval of Special Nuclear Material License No. SNM-2501 for the CCNPP independent spent fuel storage installation (ISFSI) under 10 CFR Part 72.

Each individual RAI describes information needed by the staff for it to complete its review of the application and to determine whether CCNPP has demonstrated compliance with the regulatory requirements. Where an individual RAI relates to CCNPP's apparent failure to meet one or more regulatory requirements or where an RAI specifically focuses on compliance issues associated with one or more specific regulatory requirements (e.g., specific design criteria or accident conditions), such requirements will be specified in the individual RAI.

THERMAL

1. Explain why the maximum allowable decay heat generation rate can be held constant even when the neutron source term is increased by about 50%.

Revisions to Calvert Cliffs Technical Specifications includes an increase of the neutron source per assembly from a maximum of 2.23E8 for the NUHOMS-24P to a maximum of 3.3E8 n/sec for the NUHOMS-32P. This information is needed to assure compliance with 10 CFR 72.122 and 72.128.

2. Explain the impact on the calculated total decay heat per assembly with respect to the increase in the maximum fuel assembly weight from 1300 lbs to 1450 lbs. Clarify how this increase in maximum fuel weight will not violate Limiting Condition for Operation (LCO) 3.1.1(5) for maximum allowed heat generation rates per fuel assembly.

Page 6 of Attachment (9) of the application, "ISFSI 24P Assembly Insertion Requirements," states that an assembly loading of 0.386 MTU was assumed in the decay heat calculations. Increasing the fuel assembly weight would likely be directly related to an increased assembly loading of greater than 0.386 MTU. This appears to invalidate the decay heat calculations. This information is needed to assure compliance with 10 CFR 72.122 and 72.128.

3. Clarify whether the assumed assembly loading of 0.386 MTU used in decay heat calculations has been verified for the intended fuel to be stored at the ISFSI in both the NUHOMS-24P and NUHOMS-32P storage designs.

The use of unverified assembly loading could potentially invalidate the decay heat calculated values and therefore LCO 3.1.1(5) could be violated. This information is needed to assure compliance with 10 CFR 72.122 and 72.128.

4. Clarify whether the calculation of decay heat provided in Attachment (9) of the application, "ISFSI 24P Assembly Insertion Requirements," considers the uncertainties of calculated values.

Uncertainty values as low as 5% could result in fuel assemblies not meeting the maximum allowed heat generation rates per fuel assembly as it has been established by LCO 3.1.1(5). This information is needed to assure compliance with 10 CFR 72.122 and 72.128.

RADIATION SAFETY

Explain why Technical Specification (TS) 2.1, "Fuel to be Stored at ISFSI," is not being revised to address changes in the gamma source term. The application requests only a change in the neutron source term.

The table on page 3 of Attachment 4 of the application, "Assembly Fuel Region Photon Source Term For 32P Shielding Analysis," shows the total photon source term as $4.31E15$ photon/sec-assembly. Converting photon/sec-assembly into MeV/sec-assembly yields approximately 1.57 MeV/sec-assembly. In TS 2.1, the gamma source per assembly must be ≤ 1.53 MeV/sec-assembly. The gamma source term from the NUHOMS-32P appears to exceed the TS limit. This information is needed to assure compliance with 10 CFR 72.122 and 72.128.

CRITICALITY SAFETY

Revise the Technical Specifications to include the minimum required ^{10}B areal density for the borated aluminum canister neutron absorber plates. Additionally, revise the SAR to include the acceptance tests and criteria for the canister neutron absorber plates.

Minimum required ^{10}B areal density of the borated aluminum neutron absorber plates should be included in the Technical Specifications since any modification to this value could have a significant impact on criticality control of the storage system. The neutron absorber acceptance tests, for verifying the presence and uniformity of the minimum required absorber, are required if a percentage of poison material greater than 75% is considered in the criticality analysis.

This information is needed to ensure that the facility meets the criteria for nuclear criticality safety identified in 10 CFR 72.124.

Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2

cc:

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