

August 3, 2005

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

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING THE CALVERT
CLIFFS INDEPENDENT SPENT FUEL STORAGE INSTALLATION (ISFSI)
(TAC. NO. L23846)

Dear Mr. Vanderheyden:

By letter dated May 16, 2005, Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) submitted an application for an amendment to the license for the Calvert Cliffs independent spent fuel storage installation (ISFSI), License No. SNM-2505. The amendment proposes to incorporate changes to the updated safety analysis report to alter the design basis limit for the dry shielded canister internal pressure from 50 psig to 100 psig. In my letter to you dated June 7, 2005, I acknowledged receipt of your amendment request and provided a proposed schedule for our review.

In connection with the staff's review, we need the information identified in the enclosure to this letter. We request that you provide this information by August 22, 2005. Inform us at your earliest convenience, but no later than August 12, 2005, if you are not able to provide the information by that date. To assist us in re-scheduling your review, you should include a new proposed submittal date and the reasons for the delay.

Please reference Docket No. 72-8 and TAC No. L23846 in future correspondence related to this request. The staff is available to meet to discuss your proposed responses. If you have any questions regarding this matter, I may be contacted at (301) 415-1132.

Sincerely,

/RA/

Joseph M. Sebrosky, 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

Mr. George Vanderheyden
 Vice President
 Calvert Cliffs Nuclear Power Plant
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Docket No. 72-8

Enclosure: Federal Register Notice

cc: Mailing List

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**REQUEST FOR ADDITIONAL INFORMATION
CALVERT CLIFFS NUCLEAR POWER PLANT, INC. (CCNPP)
DOCKET NUMBER 72-8**

By letter dated May 16, 2005, Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) submitted an application for an amendment to the license for the Calvert Cliffs independent spent fuel storage installation (ISFSI), License No. SNM-2505. The amendment proposes to incorporate changes to the updated safety analysis report to alter the design basis limit for the dry shielded canister internal pressure from 50 psig to 100 psig. This request for additional information (RAI) identifies additional information needed by the U.S. Nuclear Regulatory Commission (NRC) staff in connection with its review of the application.

Each individual RAI describes information needed by the staff for it to complete its review of the application and/or the safety analysis report (SAR) to determine whether the applicant has demonstrated compliance with the regulatory requirements.

RAI - 1

Provide the detailed supporting calculations and ANSYS analyses for the NUHOMS 32-P that would substantiate the stresses listed in Table 2 of Attachment 1 to the May 16, 2005, letter.

The applicant states that, despite the fact that design internal pressure is increased from 50 psig, used for design of NUHOMS 24-P Dry Shielded Canister (DSC), to 100psig, used for the design of NUHOMS 32-P DSC, the resulting stress values in NUHOMS 32-P DSC design are lower than the stress values for the NUHOMS 24-P DSC design, due to "*structural improvement*" for the 32-P design.

The staff notes that, Table 1 on page 3, of Attachment 1, compares the geometries of major confinement components of the 24P, 32PT, and 32P. The shell, bottom cover plate and the top outer cover plate thicknesses are identical for 24-P and 32-P DSCs. The only change is in the composite section of the **top cover plate**. In the 32-P DSC the lead thickness is reduced by 3/8" and the stainless steel plate thickness is increased by 3/8" (for a total overall thickness of 6.25" in both cases).

With this minor change, Table 2 on page 4 of Attachment 1, shows that the calculated maximum ($P_L + P_B$) local membrane plus bending stress in the top cover plate is reduced from 26.5 ksi (for 24-P DSC) to 10.0 ksi (for 32-P DSC), and the DSC shell maximum stress is reduced from 59.6 ksi in the 24-P to 34.7 ksi in the 32-P. The fact that the stresses in the top cover plate decreased when internal pressure increased from 50 psig to 100 psig is plausible, since the thickness of the top cover plate doubled. However, basic cylindrical shell behavior would dictate that an increase in the stiffness of the top cover plate and an increase in internal pressure would both result in an increase in the DSC shell stresses. Therefore the staff finds the decrease in DSC shell stresses to be most unexpected.

This information is needed to satisfy the requirements of 10 CFR 72.236 (b), (c), (d), (h) and (i).

RAI-2

Provide justification for considering the shear load produced by internal pressure acting on the inner cover plate to be the only load acting on the top end pressure boundary weld as described in Section 4.2.4 of Attachment 4 of the May 16, 2005, letter.

Section 4.2.4 of Attachment 4 to the May 16, 2005, letter, provides an analysis of the top end pressure boundary weld for the case of pressure applied to the inner cover plate. However, pressure is also applied to the DSC shell which causes the shell to rotate and displace radially at the location of the top end pressure boundary weld. The top end pressure boundary weld and the top cover plate groove weld form a force couple, which resists the bending moment and the radial shear forces that are developed in the DSC shell at this location due to internal pressure. The radial tension force developed in the top end pressure boundary weld due to internal pressure acting on the DSC shell has not been included in the calculation of the maximum stress in the top end pressure boundary weld. The staff performed an independent calculation and found that when this additional force is included, the ASME code allowable weld stress for Service Level C at the design temperature is exceeded.

This information is needed to satisfy the requirements of 10 CFR 72.236 (b), (c), (d), (h) and (i).

RAI - 3

Regarding Attachment 4 to the May 16, 2005, letter, provide the following references listed on page 32 of 97, and the ANSYS computer files listed on page 34 of 97:

Reference 1: CCNP calculation No. CA04977, Rev. 1, Nutech Horizontal Module System (NUHOMS) 24P ISFSI Dry Shielded Canister (DSC) Structural analysis for DSC Numbers R025 and beyond. (Hopper calc. HABGE-01/99-0745, Rev. 2).

Reference 2: TN Drawings 10950-30-1 (Rev. 3), 10950-30-2 (Rev. 3), 10950-30-3 (Rev. 5), 10950-30-4 (Rev. 6), 10950-30-5 (Rev. 3), 10950-30-10 (Rev. 6).

ANSYS Run No. 8, Files p32_acc_press100.db, rst

ANSYS Run No. 10, Files p32_100psi_outer_bound_inelastic_db, rst

The requested references and the ANSYS analyses are necessary in order for the staff to complete its review.