October 31, 2012

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

SUBJECT: THIRD REQUEST FOR ADDITIONAL INFORMATION FOR RENEWAL APPLICATION TO SPECIAL NUCLEAR MATERIALS LICENSE NO. 2505 FOR THE CALVERT CLIFFS SITE SPECIFIC INDEPENDENT SPENT FUEL STORAGE INSTALLATION (TAC NO. L24475)

Dear Mr. Gellrich:

By letter dated September 17, 2010, as supplemented February 10, March 9, and June 28, 2011; and July 27, 2012, Calvert Cliffs Nuclear Power Plant (CCNPP), LLC, submitted a license renewal application to the U.S. Nuclear Regulatory Commission (NRC) for the CCNPP site-specific independent spent fuel storage installation. The NRC staff (staff) has reviewed the July 27, 2012, request for additional information (RAI) response and has determined that additional information is required to complete its detailed technical review. The RAI is identified in the enclosure to this letter. We request that you provide the information by November 30, 2012. Please inform us in writing at your earliest convenience, but no later than November 16, 2012, if you are not able to provide the information by the requested date.

To assist us in re-scheduling your review, you should also include a new proposed submittal date and the reasons for the delay. Please reference Docket No. 72-8 and TAC No. L24475 in future correspondence related to this licensing action. If you have any questions, please contact me at (301) 492-3325.

Sincerely,

/RA/
John Goshen, P.E., Project Manager
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No.: 72-8
TAC No.: L24475

Attachment: 3RD RAI

cc: CCNPP Service List

October 31, 2012

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

SUBJECT: THIRD REQUEST FOR ADDITIONAL INFORMATION FOR RENEWAL APPLICATION TO SPECIAL NUCLEAR MATERIALS LICENSE NO. 2505 FOR THE CALVERT CLIFFS SITE SPECIFIC INDEPENDENT SPENT FUEL STORAGE INSTALLATION (TAC NO. L24475)

Dear Mr. Gellrich:

By letter dated September 17, 2010, as supplemented February 10, March 9, and June 28, 2011; and July 27, 2012, Calvert Cliffs Nuclear Power Plant (CCNPP), LLC, submitted a license renewal application to the U.S. Nuclear Regulatory Commission (NRC) for the CCNPP site-specific independent spent fuel storage installation. The NRC staff (staff) has reviewed the July 27, 2012, request for additional information (RAI) response and has determined that additional information is required to complete its detailed technical review. The RAI is identified in the enclosure to this letter. We request that you provide the information by November 30, 2012. Please inform us in writing at your earliest convenience, but no later than November 16, 2012, if you are not able to provide the information by the requested date.

To assist us in re-scheduling your review, you should also include a new proposed submittal date and the reasons for the delay. Please reference Docket No. 72-8 and TAC No. L24475 in future correspondence related to this licensing action. If you have any questions, please contact me at (301) 492-3325.

Sincerely,
/RA/
John Goshen, P.E., Project Manager
Licensing Branch
Division of Spent Fuel Storage and Transportation
Office of Nuclear Material Safety
and Safeguards

Docket No.: 72-8
TAC No.: L24475

Attachment: 3RD RAI

cc: CCNPP Service List
Distribution: SFST r/f

File location: G:\SFST\Calvert Cliffs ISFSI\License Renewal\RAI 3\CC LR RAI 3.docx

OFC:	SFST	SFST	SFST	SFST	SFST	
NAME:	JGoshen	WWheatley	MGordon	DPstrak	MWaters	
DATE:	8/24/2012	8/30 /2012	10/26/2012	10/31 /2012	10/31/2012	

OFFICIAL RECORD COPY

CALVERT CLIFFS NUCLEAR POWER PLANT, LLC

SPECIAL NUCLEAR MATERIALS LICENSE NO. 2505

DOCKET NO. 72-8

LICENSE RENEWAL REQUEST

THIRD REQUEST FOR ADDITIONAL INFORMATION

By letter dated September 17, 2010, as supplemented February 10, March 9, and June 28, 2011; and July 27, 2012, Calvert Cliffs Nuclear Power Plant, LLC (CCNPP) submitted a license renewal application to the U.S. Nuclear Regulatory Commission (NRC) for the CCNPP site-specific independent spent fuel storage installation (ISFSI). The NRC staff has reviewed the July 27, 2012, supplement to your application and has determined that additional information is required to complete its detailed technical review.

REQUEST FOR ADDITIONAL INFORMATION (RAI)

Appendix E: Component Specific Aging Management

E-1 Provide an evaluation that demonstrates that the loaded Dry Storage Canisters (DSCs) in horizontal storage modules at the CCNPP ISFSI currently maintain design-basis confinement integrity in order to satisfy the regulatory requirements of 10 CFR Part 72.

An evaluation should include, but is not limited to: Consideration of current applicable industry experience, along with an analysis of the DSC's condition (e.g., thermal profile, surface salt concentration, etc.). If the evaluation includes commitments to periodic monitoring and inspections in the future, detailed justification should be provided for the acceptability of these processes. As a minimum, a discussion of inspector qualification, inspection techniques, acceptance criteria, along with inspection frequencies should be provided for evaluation.

The report provided to the staff following the examination of the DSC exterior on July 27, 28, 2012, did not provide sufficient information for evaluation. For instance, the methods to examine the DSC may not sensitive enough to identify stress corrosion cracking (SCC) of the DSC. Therefore the staff was unable to perform a technical evaluation of CCNPP's application to determine that the DSCs can safely perform their design basis function for the duration of the requested license renewal period.

NUREG/CR 6860 "An Assessment of Visual Testing," emphasized that "inspection reliability of the various VT systems, calibration standards, and procedures is not well characterized." NUREG/CR 6943, "A Study of Remote Visual Methods to Detect Cracking in Reactor Components," states that detection of cracks that have openings typically associated with intergranular SCC with radiation-hardened video cameras under field conditions are "strongly dependent on the camera magnification, lighting, inspector training, and inspector vigilance."

This information is required to evaluate compliance with 10 CFR 72.128(b), (c), (h) and 10 CFR 72.128(h)(5).

E-2 Provide a revised proposed aging management plan that considers the potential for SSC at the CCNPP ISFSI.

Publicly available research has indicated that SCC may occur in regions of strained, sensitized austenitic stainless steel when atmospheric chlorides are present (ADAMS Accession Number: ML12128A133). The thermal and strain conditions of the canister and internal HSM atmosphere are not completely understood, and it is unclear whether SSC could result in degradation of the confinement integrity during the renewal period without a sufficient monitoring and mitigation program.

The applicant should develop a process for periodically incorporating on-going SSC evaluations and knowledge gained by the industry's generic program to identify designs and conditions susceptible to SSC and associated mitigation recommendations. The aging management program may also need to consider interim measures to verify the DSC time-limited aging analyses and confinement integrity during the requested license renewal period.

This information is required to evaluate compliance with 10 CFR 72.128(b), (c), (h) and 10 CFR 72.128(h)(5).

E-3 Provide justification for the acceptability of the storage of high burnup fuel (HBF) by providing analyses and an aging management program to demonstrate that HBF is protected against possible degradation that may lead to gross ruptures for storage periods beyond 20 years and potential operation safety problems during removal from storage.

The requirements in 10 CFR 72.122(h) state that the spent fuel cladding must be protected during storage against degradation that leads to gross ruptures or the fuel must be otherwise confined such that degradation of the fuel during storage will not pose operational safety problems with respect to removal from storage. The analyses should address reasonable and known physical or degradation phenomena associated with storage periods from 20 to 60 years, such as cladding embrittlement due to precipitation of radial hydrides in HBF.

The aging management program should define specific confirmatory inspection or monitoring of stored HBF to address conflicting information, uncertainities, or indications of the presence of specific potential aging effects on the fuel. The program may specify inspection and monitoring of HBF within the cask system after 20 years of storage and at periodic intervals (e.g., every 10-20 years) during the renewal period; and may define an alternative, optional program to periodically review and use surrogate confirmatory information from other confirmation programs in the U.S. with similar HBF. The applicant may also consider proposing licensing conditions to limit the scope or storage time of HBF during the renewal period to address uncertainties and lack of confirmatory data.

This information is needed to evaluate compliance with 10 CFR 72.122(h).