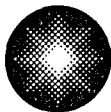


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Constellation Energy

December 1, 2005

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant; Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318
Independent Spent Fuel Storage Installation; Docket No. 72-8
Reply to a Notice of Violation -- NRC Inspection Report No. 072-00008/2005-001

REFERENCE: (a) Letter from Ms. M. Miller (NRC) to Mr. G. Vanderheyden (CCNPP), dated November 3, 2005, Calvert Cliffs Nuclear Power Plant - NRC Inspection Report No. 072-00008/2005-001 and Notice of Violation

This letter provides Calvert Cliffs Nuclear Power Plant's responses to the Notice of Violation issued by Reference (a) containing two violations of Nuclear Regulatory Commission (NRC) requirements. The first cited violation (Violation A) concerns NRC regulation 10 CFR 72.48(d)(1), which requires a written evaluation which provides the basis for the determination that a proposed change did not require a license amendment. The second cited violation (Violation B) concerns NRC regulation 10 CFR 72.48(c)(2)(viii), which requires that a specific licensee shall obtain a license amendment pursuant to 10 CFR 72.56 prior to implementing a proposed change if the change would result in a departure from a method of evaluation described in the Final Safety Analysis Report.

The details of Violations A and B, followed by Calvert Cliffs Nuclear Power Plant's responses, are provided in Attachments (1) and (2), respectively.

Should you have questions regarding this matter, please contact Mr. L. S. Larragoite at (410) 495-4922.

Very truly yours,

GV/GT/bjd

Attachments: (1) NRC Inspection Report No. 072-00008/2005-001, Violation A
(2) NRC Inspection Report No. 072-00008/2005-001, Violation B

cc: P. D. Milano, NRC
S. J. Collins, NRC

Resident Inspector, NRC
R. I. McLean, DNR

IE08

ATTACHMENT (1)

NRC INSPECTION REPORT NO. 072-00008/2005-001,
VIOLATION A

Calvert Cliffs Nuclear Power Plant, Inc.
December 1, 2005

ATTACHMENT (1)

NRC INSPECTION REPORT NO. 072-00008/2005-001, VIOLATION A

ALLEGED VIOLATION

10 CFR 72.48(d)(1) requires, in part, that a licensee shall maintain records of a change in the spent fuel storage cask design, including a written evaluation which provides the basis for the determination that the change does not require a license amendment.

Contrary to the above, the licensee provided insufficient evaluations to support the determinations in the licensee's 10 CFR 50.59/10 CFR 72.48 Evaluation Form, 72.48 Log No. SE00163, "Use of NUHOMS-32P Dry Shielded Canister," that the change did not require a license amendment when the licensee:

- (1) performed structural evaluations of the NUHOMS-32P DSC [dry shielded canister] system using the same methodology as that of the NUHOMS-24P DSC system,*
- (2) used insufficient methodologies for thermal evaluations of the NUHOMS-32P DSC system; and*
- (3) failed to bound the consequences of a fire accident with a NUHOMS-32P DSC installed in the HSM [horizontal storage module] by the consequences of a fire accident with a NUHOMS-24P DSC installed in the HSM.*

This is a Severity Level IV violation (Supplement VI).

I. ADMISSION OR DENIAL OF THE ALLEGED VIOLATION

Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) accepts the violation as stated.

II. REASON FOR THE VIOLATION

The primary reason for the violation is lack of technical rigor by the Independent Spent Fuel Storage Installation (ISFSI) vendor and CCNPP engineers. There were errors identified with calculations and other documents associated with this project. However, these errors were not identified during the owner acceptance review because there was an over reliance on the completeness and accuracy of the documents provided by the vendor based on the expertise of the vendor. In addition, the 72.48 evaluation did not provide sufficient information to support the conclusions. The provisions outlined in Nuclear Energy Institute (NEI) 96-07, Appendix B (Reference 1) were not rigorously followed when discussing changes in methodology or elements of a methodology, leading to difficulty in the understanding of the bases for some of the 72.48 evaluation conclusions. A lack of technical rigor in clearly documenting the bases for the evaluation led to discrepancies and did not support the 72.48 evaluation as a stand-alone product.

Safety Significance:

The safety significance of the specific technical issues is low. Although there were discrepancies discovered in some of the supporting calculations and the bases for conclusions reached in the 72.48 evaluation, at no time was the suitability of the design of the NUHOMS-32P canister called into question. The analyses show that American Society of Mechanical Engineers Code allowables, module temperatures, and dose assessments remain acceptable.

III. CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND RESULTS ACHIEVED

Following the NRC inspection, the entire 72.48 evaluation and all the supporting calculations were reviewed to ensure completeness and accuracy of the design basis documentation. All errors and inconsistencies identified were corrected. The 72.48 evaluation (Log No. SE00163-0000) was revised to

ATTACHMENT (1)

NRC INSPECTION REPORT NO. 072-00008/2005-001, VIOLATION A

fully comply with the NRC approved guidance document, NEI 96-07, Appendix B. The following results were achieved:

Structural

The revised evaluation identified two more changes that required NRC prior approval. The first change involved alteration of a design basis limit for a fission product barrier due to a change in the allowable weld stress from Level C for the NUHOMS-24P canisters to Level D for the NUHOMS-32P canisters. The second change identified that required NRC prior approval was a change in methodology for the structural evaluation of the DSC. The methodology employed for the NUHOMS-32P analysis uses elastic/plastic material behavior for the DSC shell, whereas the NUHOMS-24P analysis assumed elastic material behavior. Although the NUHOMS-24P analysis did use elastic/plastic material behavior for the basket material, which is a plate structure, NRC prior approval of this methodology for a shell material was still required. By letter dated, October 28, 2005 (Reference 2), CCNPP submitted these changes to the NRC and received approval on November 2, 2005 (Reference 3).

Thermal

The revised 72.48 evaluation determined that the primary portion of the thermal analysis of the NUHOMS[®]-32P system uses a methodology that differs from the thermal methodology utilized for the NUHOMS[®]-24P. Consequently, the NUHOMS[®]-32P methodology was compared in detail with the methodology used for the thermal analysis of the NRC-approved NUHOMS[®]-32PT system (Reference 4). The 72.48 evaluation concluded that the use of the new methodology was appropriate since it met the NEI 96-07, Appendix B criteria for a methodology previously approved by the NRC for a similar application.

Fire Accident

The revised 72.48 evaluation discussed the results of a reanalyzed forest fire accident. The analyses predicted an increase in the spalling of HSM concrete from 4.5 inches for the NUHOMS-24P to 6 inches for the case of the HSM loaded with the NUHOMS-32P. This translated to an increase in dose by a factor of 4.5 for a 6 inch reduction in concrete thickness. The radiological effects of the accident were evaluated for the site boundary dose and were determined to be less than ten percent of the difference between the regulatory limit and the current bounding calculated dose value; thus meeting the NEI 96-07, Appendix B criterion for being considered not more than a minimal increase.

IV. CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

All actions listed below that have not been completed yet will be completed by February 27, 2006.

1. We have ensured that vendor is aware of all technical issues associated with specific NRC findings and observations from this inspection. This information has been provided to the vendor for incorporation into the vendor's corrective action program to correct specific products and improve future performance. This action has been completed.
2. We have included preliminary lessons-learned into the Fall 2005 10 CFR 72.48 training lesson plan. The October/November training for the CCNPP Technical Staff population was revised to incorporate this issue. This action has been completed.
3. Training was included on engineering human performance tools in the 2005 Industry Operating Experience (OE) lesson plan. This training covered the use of human performance tools in an engineering setting with emphasis on technical rigor as described in Fleet Administrative Procedure CNG-HU-1.01-1003, Human Performance Tools for Non-Field Technical Activities. This action has been completed.

ATTACHMENT (1)

NRC INSPECTION REPORT NO. 072-00008/2005-001, VIOLATION A

4. We have reviewed previous OE and determined that additional actions could have been taken for OE 13605, "Collective Significance Review of Design Modification Premature Failures." We will implement actions documented in OE 13605 that are applicable to the CCNPP vendor oversight and owner acceptance review processes.
5. We will provide training to the engineering population on lessons-learned regarding vendor oversight and 72.48 issues.
6. We will document the inadequate rigor and reviews associated with this 72.48 evaluation in a Technical Alert per ES-033, Nuclear Engineering Department Self Assessment.
7. We will revise Procedure ES-053, 10CFR72.48 Reviews, to provide guidance that will require all 8 criteria to be applied to each individual change in calculation methodology and code application during a 72.48 evaluation.

V. DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved on October 28, 2005, following the completion of the revised 10 CFR 72.48 evaluation.

VI. REFERENCES

- 1) NEI 96-07, Appendix B Nuclear Energy Institute Guidelines for 10 CFR 72.48 Implementation March 5, 2001
- 2) Letter from Mr. J. E. Pollock (CCNPP) to Document Control Desk (NRC), dated October 28, 2005, Supplement to License Amendment Request: Change to the Dry Shielded Canister Design Basis Limit Requiring NRC Prior Approval Pursuant to 10 CFR 72.48 to Support the ISFSI NUHOMS®-32P Upgrade
- 3) Letter from Mr. R. A. Nelson (NRC) to Mr. G. Vanderheyden (CCNPP), dated November 2, 2005, Amendment 7 to Materials License No. SNM 2505 for the Calvert Cliffs Independent Spent Fuel Storage Installation (TAC No. L23846)
- 4) 10 CFR 72.214, Certificate Number: 1004, Amendment 5

ATTACHMENT (2)

**NRC INSPECTION REPORT NO. 072-00008/2005-001,
VIOLATION B**

ATTACHMENT (2)

NRC INSPECTION REPORT NO. 072-00008/2005-001, VIOLATION B

ALLEGED VIOLATION

10 CFR 72.48(c)(2)(viii) requires, in part, that a specific licensee shall obtain a license amendment pursuant to 10 CFR 72.56, prior to implementing a proposed change if the change would result in a departure from a method of evaluation described in the Final Safety Analysis Report (FSAR) used in establishing the design basis or in the safety analyses.

Contrary to the above, the licensee performed structural evaluations for the NUHOMS-32P DSC system using a method of evaluation different from the method described in the Updated Safety Analysis Report for the Calvert Cliffs Independent Spent Fuel Storage Installation and did not request a license amendment.

This is a Severity Level IV violation (Supplement VI).

I. ADMISSION OR DENIAL OF THE ALLEGED VIOLATION

Calvert Cliffs Nuclear Power Plant, Inc. (CCNPP) accepts the violation as stated.

II. REASON FOR THE VIOLATION

The primary reason for the violation is lack of technical rigor by the Independent Spent Fuel Storage Installation (ISFSI) vendor and CCNPP engineers. There were errors identified with calculations and other documents associated with this project. However, these errors were not identified during the owner acceptance review because there was an over reliance on the completeness and accuracy of the documents provided by the vendor based on the expertise of the vendor. In addition, the 72.48 evaluation did not provide sufficient information to support the conclusions. The provisions outlined in Nuclear Energy Institute (NEI) 96-07, Appendix B (Reference 1) were not rigorously followed when discussing changes in methodology or elements of a methodology, leading to difficulty in the understanding of the bases for some of the 72.48 evaluation conclusions. A lack of technical rigor in clearly documenting the bases for the evaluation led to discrepancies and did not support the 72.48 evaluation as a stand-alone product.

Safety Significance:

The safety significance of the specific technical issues is low. The methodology for the structural analysis was submitted to the NRC and received approval on November 2, 2005 (Reference 3).

III. CORRECTIVE STEPS THAT HAVE BEEN TAKEN AND RESULTS ACHIEVED

Following the NRC inspection, the entire 72.48 evaluation and all the supporting calculations were reviewed to ensure completeness and accuracy of the design basis documentation. All errors and inconsistencies identified were corrected. The 72.48 evaluation (Log No. SE00163-0000) was revised to fully comply with the NRC-approved guidance document NEI 96-07, Appendix B. The revised 72.48 evaluation identified two additional changes that required NRC prior approval, including the change that was identified in this violation. The other identified change involved alteration of a design basis limit for a fission product barrier due to a change in the allowable weld stress from Level C for the NUHOMS-24P canisters to Level D for the NUHOMS-32P canisters. By letter dated, October 28, 2005 (Reference 2), Calvert Cliffs submitted these changes to the NRC and received approval on November 2, 2005 (Reference 3).

ATTACHMENT (2)

NRC INSPECTION REPORT NO. 072-00008/2005-001, VIOLATION B

IV. CORRECTIVE STEPS THAT WILL BE TAKEN TO AVOID FURTHER VIOLATIONS

All actions listed below that have not been completed yet will be completed by February 27, 2006.

1. We have ensured that vendor is aware of all technical issues associated with specific NRC findings and observations from this inspection. This information has been provided to the vendor for incorporation into the vendor's corrective action program to correct specific products and improve future performance. This action has been completed.
2. We have included preliminary lessons-learned into the Fall 2005 10 CFR 72.48 training lesson plan. The October/November training for the CCNPP Technical Staff population was revised to incorporate this issue. This action has been completed.
3. Training was included on engineering human performance tools in the 2005 Industry Operating Experience (OE) lesson plan. This training covered the use of human performance tools in an engineering setting with emphasis on technical rigor as described in Fleet Administrative Procedure CNG-HU-1.01-1003, Human Performance Tools for Non-Field Technical Activities. This action has been completed.
4. We have reviewed previous OE and determined that additional actions could have been taken for OE 13605, "Collective Significance Review of Design Modification Premature Failures." We will implement actions documented in OE 13605 that are applicable to the CCNPP vendor oversight and owner acceptance review processes.
5. We will provide training to the engineering population on lessons-learned regarding vendor oversight and 72.48 issues.
6. We will document the inadequate rigor and reviews associated with this 72.48 evaluation in a Technical Alert per ES-033, Nuclear Engineering Department Self Assessment.
7. We will revise Procedure ES-053, 10CFR72.48 Reviews, to provide guidance that will require all 8 criteria to be applied to each individual change in calculation methodology and code application during a 72.48 evaluation.

V. DATE WHEN FULL COMPLIANCE WILL BE ACHIEVED

Full compliance was achieved on November 2, 2005, with NRC approval of Amendment 7 for the Calvert Cliffs ISFSI (Reference 3).

VI. REFERENCES

- 1) NEI 96-07, Appendix B Nuclear Energy Institute Guidelines for 10 CFR 72.48 Implementation March 5, 2001
- 2) Letter from Mr. J. E. Pollock (CCNPP) to Document Control Desk (NRC), dated October 28, 2005, Supplement to License Amendment Request: Change to the Dry Shielded Canister Design Basis Limit Requiring NRC Prior Approval Pursuant to 10 CFR 72.48 to Support the ISFSI NUHOMS®-32P Upgrade
- 3) Letter from Mr. R. A. Nelson (NRC) to Mr. G. Vanderheyden (CCNPP), dated November 2, 2005, Amendment 7 to Materials License No. SNM 2505 for the Calvert Cliffs Independent Spent Fuel Storage Installation (TAC No. L23846)