



Constellation Energy
Nuclear Generation Group

February 14, 2008

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
Report of Changes, Tests, and Experiments – 10 CFR 50.59 and 10 CFR 72.48

In accordance with 10 CFR 50.59(d)(2) and 10 CFR 72.48(d)(2), Calvert Cliffs Nuclear Power Plant, Inc. hereby submits a report containing brief descriptions of changes, tests, and experiments approved under the provisions of 10 CFR 50.59 and 10 CFR 72.48.

Attachment (1) of this report includes 10 CFR 50.59 and 10 CFR 72.48 evaluations recorded and approved between January 1, 2007 and December 31, 2007.

Should you have questions regarding this matter, please contact Mr. Jay S. Gaines at (410) 495-5219.

Very truly yours,

Mark D. Flaherty
Manager – Engineering Services

MDF/CAN/bjd

Attachment: (1) Calvert Cliffs Nuclear Power Plant Report of Changes, Tests, and Experiments
[10 CFR 50.59(d)(2) and 10 CFR 72.48(d)(2)]

cc: D. V. Pickett, NRC
S. J. Collins, NRC
Resident Inspector, NRC

R. I. McLean, DNR
M. Weber, NMSS

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ATTACHMENT (1)

**CALVERT CLIFFS NUCLEAR POWER PLANT
REPORT OF CHANGES, TESTS, AND EXPERIMENTS
[10 CFR 50.59(d)(2) and 10 CFR 72.48(d)(2)]**

ATTACHMENT (1)

CALVERT CLIFFS NUCLEAR POWER PLANT REPORT OF CHANGES, TESTS, AND EXPERIMENTS [10 CFR 50.59(d)(2) and 10 CFR 72.48(d)(2)]

Document Id	Doc Type	Rev Status	Revision	Date Issued
SE00495	50.59	64	0004	02/15/2007
Subject	UNIT 2 CYCLE 16 CORE RELOAD			
Summary	<p>SE00495 Revision 1 authorized an alternate core loading pattern for Unit 2 Cycle 16 (U2C16) that did not re-use 2S118 because fuel "sipping" has identified that fuel bundle to contain at least one leaking fuel pin. The alternate core loading pattern was only authorized for Mode 6 plant operation.</p> <p>SE00495 Revision 2 authorized the alternate core loading pattern for operation in plant Modes 5 and 6.</p> <p>SE00495 Revision 3 authorized the alternate core loading pattern for operation in all plant Modes.</p> <p>SE00495 Revision 4 evaluated the impact of the "ALPHA" computer code error that resulted in the over prediction of CEA worth used in the U2C16 safety analyses. The only safety analysis requiring explicit reanalysis was the Post-Trip Steam Line Break because it is a cycle specific safety analysis. The conclusions of all safety analyses remain unchanged. A minor change to COLR Figure 3.2.1-3 was also required to maintain continued operability of Unit 2. Since the NRC has already issued a change to Tech Spec 5.6.5 to add a reference to the Zirc Diboride Topical Report and references to the Westinghouse physics APA code set, no license amendment request is required.</p>			

Document Id	Doc Type	Rev Status	Revision	Date Issued
SE00497	50.59	64	0003	08/08/2007
Subject	UNIT 1 CYCLE 18 CORE RELOAD			
Summary	<p>The proposed activity is a revision to the Unit 1 Cycle 18 (U1C18) core reload safety analyses to address the following discrepancies:</p> <ul style="list-style-type: none"> During fabrication of ZrB_2 fuel at the Westinghouse manufacturing facility, some of the boron coating on the outside of the fuel pellets is typically redistributed on the inside of the fuel rod cladding. This boron redistribution is measured at the manufacturing facility and incorporated into the ANC physics computer code models in order to more accurately predict the ASI. For U1C18, Westinghouse entered the data into the ANC physics computer code in the wrong location which resulted in the computer ignoring the boron redistribution (IRE-015-458). Westinghouse has regenerated the physics data using the correct boron redistribution. As part of the reactor vessel head replacement project, all of the ICI thimbles were replaced with a new design. The new design allows increased flow up the ICI thimble (IRE-021-445). Flow up the ICI thimble essentially bypasses the reactor core. The safety analysis assumes the bypass flow is not available to remove heat from the fuel pins. The increased flow up the ICI thimbles increases the bounding core bypass flow used in the safety analyses from 3.7% to now be 3.9%. An error in the ALPHA computer code resulted in an over-prediction of available CEA Bank worth for the U1C18 safety analyses (IRE-014-209). All safety analyses that might have been impacted by reduced CEA worth were re-evaluated, the only safety analysis requiring explicit reanalysis was the Post-Trip Steam Line Break because it is a cycle specific analysis. <p>The conclusions of all safety analyses (including Post-Trip Steam Line Break) remain unchanged.</p> <p>The Better Axial Shape Selection System (BASSS) will need the B and B' arrays to be replaced with new coefficients prior to exceeding a cycle burnup of 16 GWD/MTU.</p>			

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CALVERT CLIFFS NUCLEAR POWER PLANT REPORT OF CHANGES, TESTS, AND EXPERIMENTS

[10 CFR 50.59(d)(2) and 10 CFR 72.48(d)(2)]

Document Id	Doc Type	Rev Status	Revision	Date Issued
SE00497	50.59	64	0003	08/08/2007
<p>A required change to COLR Figure 3.2.1-3 was identified and conservatively implemented on 10/6/06 under IRE-017-571 in order to maintain operability.</p> <p>This revision addresses deficiencies identified in the existing safety analyses since initial criticality for Unit 1 Cycle 18.</p> <p>The safety analyses were evaluated. Only the Post-Trip Steam Line Break event required explicit reanalysis. The currently reported UFSAR accident doses remain bounding for operation of Unit 1 Cycle 18.</p> <ol style="list-style-type: none"> 1. The proposed activity has been evaluated against the eight criteria of 10 CFR 50.59. It is concluded that no License Amendment is required prior to implementation. 2. Although the safety analyses allow full power operation up to and including 2737 MWt, a License change is required prior to exceeding 2700 MWt. 3. A 30 day report must be sent to the NRC per 10 CFR 50.46 since the Small Break Loss of Coolant Accident predicted Peak Clad Temperature (PCT) will decrease by more than 50°F from the temperature currently reported in the UFSAR for Unit 1. 4. Technical Specification Bases 3.1.3 for Moderator Temperature Coefficient (MTC) will be rewritten. 				

Document Id	Doc Type	Rev Status	Revision	Date Issued
SE00498	50.59	64	00001	3/26/2007
Subject	UNIT 2 CYCLE 17 CORE RELOAD			
Summary	<p>The proposed activity is the Unit 2 Cycle 17 (U2C17) core reload.</p> <p>Revision 0 authorized the U2C17 core onload and operation in plant modes 5, 6 and defueled condition.</p> <p>In Revision 1, all analyses for the U2C17 core loading pattern are now complete and Quality Assured. U2C17 (2007-2009) may now operate in all plant modes.</p> <p>Implemented 3rd radial enrichment zoning.</p> <p>3rd cycle irradiation of Westinghouse LFAs (low tin Zirlo and alloy A cladding).</p> <p>Increased maximum fuel enrichment in some assemblies to 4.95 wt%.</p> <p>Increased maximum radial enrichment split within some assemblies to 1.0 wt%.</p> <p>Fuel assembly serial numbers modified location.</p> <p>Re-analysis of Post-Trip Steam Line Break Event.</p> <p>Re-analysis of Containment Response Event.</p> <p>Cycle Specific Refueling Boron Concentration.</p> <p>Increased quantities of metal mass in Containment.</p> <p>Increased Maximum assumed core bypass flow from 3.7% to 3.9%.</p> <p>Replace CEA-TF with spare CEA-8Z.</p> <p>CECOR/BASSS Library Mid-Cycle Replacement.</p>			

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CALVERT CLIFFS NUCLEAR POWER PLANT REPORT OF CHANGES, TESTS, AND EXPERIMENTS [10 CFR 50.59(d)(2) and 10 CFR 72.48(d)(2)]

Document Id	Doc Type	Rev Status	Revision	Date Issued
SE00498	50.59	64	00001	3/26/2007
<p>Rewrite Tech Spec Bases 3.3.10. UFSAR Changes for batch 2W. Core Loading Pattern / Cycle Length / Cycle Specific Parameters.</p> <p>The proposed activity is required to support the biennial refueling of Unit 2 at Calvert Cliffs.</p> <p>Safety analyses were explicitly performed for the U2C17 Post-Trip Steam Line Break (UFSAR 14.14) and Containment Response (UFSAR 14.20 for both Unit 1 and 2). The remaining UFSAR Chapter 14 events were evaluated and confirmed to remain bounding for U2C17. The currently reported UFSAR accident doses remain bounding for operation of U2C17.</p> <ol style="list-style-type: none"> 1. U2C17 may now operate in all plant modes. 2. Although the safety analyses allow full power operation up to and including 2737 MWt, a License change is required prior to exceeding 2700 MWt. 3. Tech Spec Bases 3.3.10 for Core Exit Thermocouples will be rewritten. 4. The currently reported UFSAR accident doses remain bounding for operation of Unit 2 Cycle 17. 5. The proposed activity has been evaluated against the eight criteria of 10 CFR 50.59. It is concluded that no License Amendment is required prior to implementation since Tech Spec 4.2.1 has already been revised by the NRC to allow non-Zircaloy and non-ZIRLO cladding material in Unit 2 Cycle 17. 				

Document Id	Doc Type	Rev Status	Revision	Date Issued
SE00498	50.59	97	00000	3/19/2007
Subject	UNIT 2 CYCLE 17 CORE RELOAD MODIFICATION			
Summary	<p>The proposed activity is the Unit 2 Cycle 17 (U2C17) core reload.</p> <p>The original U2C17 core loading pattern has been revised to:</p> <ul style="list-style-type: none"> Remove the AREVA test Lead Fuel Assemblies (LFAs). Select different Westinghouse test LFAs. Replace leaking reinsert fuel assembly 2T310. Replace reinsert assembly 2T316 (initially identified by sipping as a suspect leaker). <p>At this time, all analyses for the core loading pattern are not complete. In order to support the outage schedule for full core onload, the reload analyses were prioritized and completed in phases based on which analyses were required for each particular plant mode of operation.</p> <p>U2C17 (2007-2009) may only operate in plant modes 5, 6 and defueled conditions.</p> <p>U2C17 (2007-2009) may not enter plant modes 1 through 4.</p>			

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CALVERT CLIFFS NUCLEAR POWER PLANT REPORT OF CHANGES, TESTS, AND EXPERIMENTS
[10 CFR 50.59(d)(2) and 10 CFR 72.48(d)(2)]

Document Id	Doc Type	Rev Status	Revision	Date Issued
SE00498	50.59	97	00000	3/19/2007
<p>Although only mode 5, 6 and defueled operation are authorized at this time, this 50.59 revision contains discussions relative to some topics only applicable to operation in higher plant modes.</p> <p>Implement 3rd radial enrichment zoning 3rd cycle irradiation of Westinghouse LFAs (low tin Zirlo and alloy A cladding) Increased maximum fuel enrichment in some assemblies to 4.95 wt% Increased maximum radial enrichment split within some assemblies to 1.0 wt% Fuel Assembly Serial numbers modified location</p>				