

March 2, 2004

Mr. George Vanderheyden, Vice President  
Calvert Cliffs Nuclear Power Plant, Inc.  
Calvert Cliffs Nuclear Power Plant  
1650 Calvert Cliffs Parkway  
Lusby, MD 20657-4702

SUBJECT: CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2 -  
AMENDMENT RE: ELIMINATION OF REQUIREMENTS FOR HYDROGEN  
RECOMBINERS AND HYDROGEN MONITORS (TAC NOS. MB8419 AND  
MB8420)

Dear Mr. Vanderheyden:

The Commission has issued the enclosed Amendment No. 262 to Renewed Facility Operating License No. DPR-53 and Amendment No. 239 to Renewed Facility Operating License No. DPR-69 for the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2. These amendments consist of changes to the Technical Specifications (TSs) in response to your application transmitted by letter dated March 28, 2003 as supplemented December 5, 2003. Your letter dated December 5, 2003, withdrew a request for a related exemption from Nuclear Regulatory Commission regulations following the publication of a Final Rule revising the associated requirements on September 16, 2003 (68 FR 54123).

These amendments revise TSs by eliminating the requirements associated with hydrogen recombiners and hydrogen monitors. The changes support implementation of a revision to 10 CFR 50.44, "Standards for Combustible Gas Control System in Light-Water-Cooled Power Reactors." A notice of availability for this TS improvement using the consolidated line item improvement process was published in the *Federal Register* on September 25, 2003 (68 FR 55416).

A copy of the related Safety Evaluation is enclosed. A Notice of Issuance will be included in the Commission's next regular biweekly *Federal Register* notice.

Sincerely,

*/RA/*

Guy S. Vissing, Senior Project Manager, Section 1  
Project Directorate 1  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosures: 1. Amendment No. 262 to DPR-53  
2. Amendment No. 239 to DPR-69  
3. Safety Evaluation

cc w/encls: See next page

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3. Safety Evaluation

cc w/encls: See next page

Accession Number: ML040350467

\*See previous concurrence.

OFFICE	CLIIP LPM	PDI-1/PM	PDI-1/LA	PDI-1/SC	OGC
NAME	WReckley	GVissing	SLittle	RLaufer	MHiggins*
DATE	3/1/04	3/1/04	2/19/04	3/2/04	2/26/04

**OFFICIAL RECORD COPY**

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

cc:

President  
Calvert County Board of  
Commissioners  
175 Main Street  
Prince Frederick, MD 20678

Patricia T. Birnie, Esquire  
Co-Director  
Maryland Safe Energy Coalition  
P.O. Box 33111  
Baltimore, MD 21218

James M. Petro, Esquire  
Counsel  
Constellation Energy Group, Inc.  
750 East Pratt Street, 5<sup>th</sup> floor  
Baltimore, MD 21202

Mr. Loren F. Donatell  
NRC Technical Training Center  
5700 Brainerd Road  
Chattanooga, TN 37411-4017

Jay E. Silberg, Esquire  
Shaw, Pittman, Potts, and Trowbridge  
2300 N Street, NW  
Washington, DC 20037

Mark Geckle  
Calvert Cliffs Nuclear Power Plant  
1650 Calvert Cliffs Parkway  
Lusby, MD 20657-4702

Resident Inspector  
U.S. Nuclear Regulatory  
Commission  
P.O. Box 287  
St. Leonard, MD 20685

Mr. Richard I. McLean, Manager  
Nuclear Programs  
Power Plant Research Program  
Maryland Dept. of Natural Resources  
Tawes State Office Building, B3  
Annapolis, MD 21401

Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

Kristen A. Burger, Esquire  
Maryland People's Counsel  
6 St. Paul Centre  
Suite 2102  
Baltimore, MD 21202-1631

DATED: March 2, 2004

AMENDMENT NO. 262 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-53  
CALVERT CLIFFS UNIT 1

AMENDMENT NO. 239 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-69  
CALVERT CLIFFS UNIT 2

PUBLIC  
PDI-1 R/F  
RLaufer  
SLittle  
GVissing  
OGC  
GHill (2)  
TBoyce  
WBeckner  
ACRS  
CBixler, RI

cc: Plant Service list

CALVERT CLIFFS NUCLEAR POWER PLANT, INC.

DOCKET NO. 50-317

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 1

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 262  
Renewed License No. DPR-53

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Calvert Cliffs Nuclear Power Plant, Inc. (the licensee) dated March 28, 2003, as supplemented December 5, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.2. of Renewed Facility Operating License No. DPR-53 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 262, are hereby incorporated into the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Richard J. Laufer, Chief, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 2, 2004

CALVERT CLIFFS NUCLEAR POWER PLANT, INC.

DOCKET NO. 50-318

CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NO. 2

AMENDMENT TO RENEWED FACILITY OPERATING LICENSE

Amendment No. 239  
Renewed License No. DPR-69

1. The Nuclear Regulatory Commission (the Commission) has found that:
  - A. The application for amendment by Calvert Cliffs Nuclear Power Plant, Inc. (the licensee) dated March 28, 2003, as supplemented December 5, 2003, complies with the standards and requirements of the Atomic Energy Act of 1954, as amended (the Act) and the Commission's rules and regulations set forth in 10 CFR Chapter I;
  - B. The facility will operate in conformity with the application, the provisions of the Act, and the rules and regulations of the Commission;
  - C. There is reasonable assurance (i) that the activities authorized by this amendment can be conducted without endangering the health and safety of the public, and (ii) that such activities will be conducted in compliance with the Commission's regulations;
  - D. The issuance of this amendment will not be inimical to the common defense and security or to the health and safety of the public; and
  - E. The issuance of this amendment is in accordance with 10 CFR Part 51 of the Commission's regulations and all applicable requirements have been satisfied.
2. Accordingly, the license is amended by changes to the Technical Specifications as indicated in the attachment to this license amendment, and paragraph 2.C.2. of Renewed Facility Operating License No. DPR-69 is hereby amended to read as follows:

2. Technical Specifications

The Technical Specifications contained in Appendices A and B, as revised through Amendment No. 239, are hereby incorporated in the license. The licensee shall operate the facility in accordance with the Technical Specifications.

3. This license amendment is effective as of the date of its issuance and shall be implemented within 30 days.

FOR THE NUCLEAR REGULATORY COMMISSION

*/RA/*

Richard J. Laufer, Chief, Section 1  
Project Directorate I  
Division of Licensing Project Management  
Office of Nuclear Reactor Regulation

Attachment:  
Changes to the Technical  
Specifications

Date of Issuance: March 2, 2004



ATTACHMENT TO LICENSE AMENDMENTS

AMENDMENT NO. 262 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-53

AMENDMENT NO. 239 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-69

DOCKET NOS. 50-317 AND 50-318

Replace the following pages of the Appendix A Technical Specifications with the attached revised pages. The revised pages are identified by amendment number and contain marginal lines indicating the areas of change.

Remove Pages

iii  
3.3.10-2  
3.3.10-3  
3.3.10-4  
3.3.10-5  
3.6.7-1  
3.6.7-2

Insert Pages

iii  
3.3.10-2  
3.3.10-3  
3.3.10-4  
3.3.10-5  
- -  
- -

SAFETY EVALUATION BY THE OFFICE OF NUCLEAR REACTOR REGULATION  
RELATED TO AMENDMENT NO. 262 TO RENEWED  
FACILITY OPERATING LICENSE NO. DPR-53  
AND AMENDMENT NO. 239 TO RENEWED FACILITY OPERATING LICENSE NO. DPR-69  
CALVERT CLIFFS NUCLEAR POWER PLANT, INC.  
CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1 AND 2  
DOCKET NOS. 50-317 AND 50-318

1.0 INTRODUCTION

By application dated March 28, 2003, the Calvert Cliffs Nuclear Power Plant, Inc. (the licensee) requested changes to the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, Technical Specifications (TSs). The proposed changes would delete the TS requirements associated with hydrogen recombiners and hydrogen monitors. The application dated March 28, 2003, included a request for an exemption from the requirements of 10 CFR 50.44, "Standards for combustible gas control system in light-water-cooled power reactors," and 10 CFR Part 50, Appendix E, Section VI, "Emergency Response Data System." The licensee withdrew the request for the exemption in a letter dated December 5, 2003, following the publication on September 16, 2003 (68 FR 54123), of a Final Rule revising the related requirements. The December 5, 2003, supplemental letter provided clarifying information that did not enlarge the scope of the amendment as noticed in the original *Federal Register* notice or change the no significant hazards consideration.

The revisions to 10 CFR 50.44 eliminated the requirements for hydrogen recombiners and relaxed the requirements for hydrogen and oxygen monitoring. In letters dated December 17, 2002, and May 12, 2003, the Nuclear Energy Institute (NEI) Technical Specification Task Force (TSTF) proposed to remove requirements for hydrogen recombiners and hydrogen and oxygen monitors from the standard technical specifications (STS) (NUREGs 1430 - 1434) on behalf of the industry to incorporate the amended standards. This proposed change is designated TSTF-447.

The Nuclear Regulatory Commission (NRC) staff prepared a model safety evaluation (SE) for the elimination of requirements regarding containment hydrogen recombiners and the removal of requirements from TSs for containment hydrogen and oxygen monitors and solicited public comment (67 FR 50374, published August 2, 2002) in accordance with the Consolidated Line Item Improvement Process (CLIIP). The use of the CLIIP in this matter is intended to help the NRC to efficiently process amendments that propose to remove the hydrogen recombiner and hydrogen and oxygen monitor requirements from TSs. Licensees of nuclear power reactors to which this model applies were informed (68 FR 55416 published on September 25, 2003) that

they could request amendments conforming to the model, and, in such requests, should confirm the applicability of the SE to their reactors and provide the requested plant-specific verifications and commitments.

The licensee's application dated March 28, 2003, preceded the notices associated with the rulemaking and the availability of the CLIIP for related amendment requests. The licensee's letter dated December 5, 2003, withdrew a request for an exemption from NRC regulations but did not affect the application of a change to the TSs. The Commission issued a notice of consideration of issuance of amendment to facility operating license, proposed no significant hazards consideration determination, and opportunity for a hearing (68 FR 25651 published on May 13, 2003) in accordance with the routine process for handling license amendment requests. The NRC staff is using the CLIIP model SE for this application after deciding that the application is consistent with the CLIIP model application and to improve the efficiency of the NRC processing of the application.

## 2.0 BACKGROUND

The Commission's regulatory requirements related to the content of TSs are set forth in 10 CFR 50.36. This regulation requires that the TSs include items in five specific categories. These categories include 1) safety limits, limiting safety system settings and limiting control settings, 2) limiting conditions for operation (LCOs), 3) surveillance requirements, 4) design features, and 5) administrative controls. However, the regulation does not specify the particular TSs to be included in a plant's license.

Additionally, 10 CFR 50.36(c)(2)(ii) sets forth four criteria to be used in determining whether an LCO is required to be included in the TSs. These criteria are as follows:

1. Installed instrumentation that is used to detect, and indicate in the control room, a significant abnormal degradation of the reactor coolant pressure boundary.
2. A process variable, design feature, or operating restriction that is an initial condition of a design basis accident or transient analysis that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
3. A structure, system, or component that is part of the primary success path and which functions or actuates to mitigate a design basis accident or transient that either assumes the failure of or presents a challenge to the integrity of a fission product barrier.
4. A structure, system or component which operating experience or probabilistic risk assessment has shown to be significant to public health and safety.

Existing LCOs and related surveillances included as TS requirements which satisfy any of the criteria stated above must be retained in the TSs. Those TS requirements which do not satisfy these criteria may be relocated to other licensee-controlled documents.

As part of the rulemaking that revised 10 CFR 50.44, the Commission retained requirements for ensuring a mixed atmosphere, inerting Mark I and II containments, and providing hydrogen control systems capable of accommodating an amount of hydrogen generated from a

metal-water reaction involving 75 percent of the fuel cladding surrounding the active fuel region in Mark III and ice condenser containments. The Commission eliminated the design-basis loss-of-coolant accident (LOCA) hydrogen release from 10 CFR 50.44 and consolidated the requirements for hydrogen and oxygen monitoring to 10 CFR 50.44 while relaxing safety classifications and licensee commitments to certain design and qualification criteria. The Commission also relocated without change the hydrogen control requirements in 10 CFR 50.34(f) to 10 CFR 50.44 and the high point vent requirements from 10 CFR 50.44 to 10 CFR 50.46a.

### 3.0 EVALUATION

The ways in which the requirements and recommendations for combustible gas control were incorporated into the licensing bases of commercial nuclear power plants varied as a function of when plants were licensed. Plants that were operating at the time of the Three Mile Island (TMI), Unit 2 accident are likely to have been the subject of confirmatory orders that imposed the combustible gas control functions described in NUREG-0737, "Clarification of TMI Action Plan Requirements," as obligations. The issuance of plant-specific amendments to adopt these changes, which would remove hydrogen recombiner and hydrogen and oxygen monitoring controls from TSs, supersede the combustible gas control specific requirements imposed by post-TMI confirmatory orders.

#### 3.1 Hydrogen Recombiners

The revised 10 CFR 50.44 no longer defines a design-basis LOCA hydrogen release, and eliminates requirements for hydrogen control systems to mitigate such a release. The installation of hydrogen recombiners and/or vent and purge systems required by 10 CFR 50.44(b)(3) was intended to address the limited quantity and rate of hydrogen generation that were postulated from a design-basis LOCA. The Commission has found that this hydrogen release is not risk-significant because the design-basis LOCA hydrogen release does not contribute to the conditional probability of a large release up to approximately 24 hours after the onset of core damage. In addition, these systems were ineffective at mitigating hydrogen releases from risk-significant beyond design-basis accidents (DBAs). Therefore, the Commission eliminated the hydrogen release associated with a design-basis LOCA from 10 CFR 50.44 and the associated requirements that necessitated the need for the hydrogen recombiners and the backup hydrogen vent and purge systems. As a result, the staff finds that requirements related to hydrogen recombiners no longer meet any of the four criteria in 10 CFR 50.36(c)(2)(ii) for retention in TSs and may be relocated to other licensee-controlled documents for all plants.

#### 3.2 Hydrogen Monitoring Equipment

Section 50.44(b)(1), the STS, and plant-specific TSs currently contain requirements for monitoring hydrogen. Licensees have also made commitments to design and qualification criteria for hydrogen monitors in Item II.F.1, Attachment 6 of NUREG-0737 and Regulatory Guide (RG) 1.97, "Instrumentation for Light-Water-Cooled Nuclear Power Plants to Assess Plant and Environs Conditions During and Following an Accident." The hydrogen monitors are required to assess the degree of core damage during a beyond DBA and confirm that random or deliberate ignition has taken place. If an explosive mixture that could threaten containment integrity exists during a beyond DBA, then other severe accident management strategies, such

as purging and/or venting, would need to be considered. The hydrogen monitors are needed to implement these severe accident management strategies.

With the elimination of the design-basis LOCA hydrogen release, hydrogen monitors are no longer required to mitigate DBAs and, therefore, the hydrogen monitors do not meet the definition of a safety-related component as defined in 10 CFR 50.2. RG 1.97, recommends classifying the hydrogen monitors as Category 1. RG 1.97, Category 1, is intended for key variables that most directly indicate the accomplishment of a safety function for DBA events and, therefore, are items usually addressed within TSs. As part of the rulemaking to revise 10 CFR 50.44, the Commission found that the hydrogen monitors no longer meet the definition of Category 1 in RG 1.97. The Commission concluded that Category 3, as defined in RG 1.97, is an appropriate categorization for the hydrogen monitors because the monitors are required to diagnose the course of beyond DBAs. Hydrogen monitoring is not the primary means of indicating a significant abnormal degradation of the reactor coolant pressure boundary. Section 4 of Attachment 2 to SECY-00-0198, "Status Report on Study of Risk-Informed Changes to the Technical Requirements of 10 CFR Part 50 (Option 3) and Recommendations on Risk-Informed Changes to 10 CFR 50.44 (Combustible Gas Control)," found that the hydrogen monitors were not risk-significant. Therefore, the staff finds that hydrogen monitoring equipment requirements no longer meet any of the four criteria in 10 CFR 50.36(c)(2)(ii) for retention in TSs and, therefore, may be relocated to other licensee-controlled documents.

However, because the monitors are required to diagnose the course of beyond DBAs, each licensee should verify that it has, and make a regulatory commitment to maintain, a hydrogen monitoring system capable of diagnosing beyond DBAs.

#### 4.0 VERIFICATIONS AND COMMITMENTS

The CLIP notice of availability for this TS improvement requested that licensees address the following plant-specific verifications and commitments.

- 4.1 Each licensee should verify that it has, and make a regulatory commitment to maintain, a hydrogen monitoring system capable of diagnosing beyond design-basis accidents.

Although preceding CLIP notice of availability, the licensee did include in its application the verification that it has a hydrogen monitoring system capable of diagnosing beyond design-basis accidents. The licensee has committed to maintain the hydrogen analyzers as non-safety-related equipment.

The NRC staff finds that reasonable controls for the implementation and for subsequent evaluation of proposed changes pertaining to the above regulatory commitments are provided by the licensee's administrative processes, including its commitment management program. Should the licensee choose to incorporate a regulatory commitment into the emergency plan, final safety analysis report, or other document with established regulatory controls, the associated regulations would define the appropriate change-control and reporting requirements. The staff has determined that the commitments do not warrant the creation of regulatory requirements which would require prior NRC approval of subsequent changes. The NRC staff has agreed that NEI 99-04, Revision 0, "Guidelines for Managing NRC Commitment Changes," provides reasonable guidance for the control of regulatory commitments made to the NRC staff. (See Regulatory Issue Summary 2000-17, "Managing Regulatory Commitments Made by

Power Reactor Licensees to the NRC Staff," dated September 21, 2000.) The commitments should be controlled in accordance with the industry guidance or comparable criteria employed by a specific licensee. The staff may choose to verify the implementation and maintenance of these commitments in a future inspection or audit.

## 5.0 STATE CONSULTATION

In accordance with the Commission's regulations, the Maryland State official was notified of the proposed issuance of the amendments. The State official had no comments.

## 6.0 ENVIRONMENTAL CONSIDERATION

The amendments change a requirement with respect to installation or use of a facility component located within the restricted area as defined in 10 CFR Part 20 and changes surveillance requirements. The NRC staff has determined that the amendments involve no significant increase in the amounts, and no significant change in the types, of any effluents that may be released offsite, and that there is no significant increase in individual or cumulative occupational radiation exposure. The Commission has previously issued a proposed finding that the amendments involve no significant hazards consideration, and there has been no public comment on such finding (68 FR 25651 published on May 13, 2003). Accordingly, the amendments meet the eligibility criteria for categorical exclusion set forth in 10 CFR 51.22(c)(9). Pursuant to 10 CFR 51.22(b) no environmental impact statement or environmental assessment need be prepared in connection with the issuance of the amendments.

## 7.0 CONCLUSION

The Commission has concluded, based on the considerations discussed above that (1) there is reasonable assurance that the health and safety of the public will not be endangered by operation in the proposed manner, (2) such activities will be conducted in compliance with the Commission's regulations, and (3) the issuance of the amendments will not be inimical to the common defense and security or to the health and safety of the public.

Principal Contributor: W. Reckley

Date: March 2, 2004