



UNITED STATES
NUCLEAR REGULATORY COMMISSION
WASHINGTON, D.C. 20555-0001

June 28, 1999

Dr. Dana A. Powers, Chairman
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

SUBJECT: INTERIM LETTER ON THE SAFETY ASPECTS OF THE BALTIMORE GAS
AND ELECTRIC COMPANY'S LICENSE RENEWAL APPLICATION FOR
CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2

Dear Dr. Powers:

In your letter dated May 19, 1999, the Committee reported on the results of its review of the initial safety evaluation report for the Calvert Cliffs license renewal application. Your letter notes that there are a number of open issues and confirmatory items that must be resolved before the staff can complete the safety evaluation for the renewal application. The staff will arrange to meet with the Committee to describe the resolution of the open issues and confirmatory items, as soon as the technical basis for that resolution has been settled.

We are pleased that the Committee considered the staff's review to be thorough. The Committee provided particular comments on the importance of regular inspections to monitor for aging-induced degradation, and the approach to focus the inspections for thermal aging of cast stainless steels to specific metal compositions that could be susceptible to embrittlement. The staff will consider these comments carefully when we reflect on the lessons learned from the initial renewal reviews and we develop ways to improve on the effectiveness and efficiency of the review process.

The Committee also expressed its intent to review the Commission paper concerning credit for existing programs. SECY 99-148, *Credit for Existing Programs for License Renewal*, was issued on June 3, 1999. The Commission will meet on this matter on July 13, 1999. The staff has arranged to discuss this matter with your Subcommittee on Plant License Renewal on July 1, 1999. We appreciate the Committee's responsiveness to the schedule constraints on

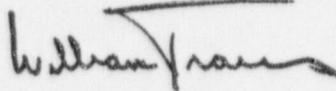
NRC FILE CENTER COPY

010015

9907060181 990628
PDR ADOCK 05000317
F PDR

this important topic. As you know, the staff review of the Calvert Cliffs application examined all of the existing programs relied upon for aging management; therefore, this topic does not apply to that review. The staff is also prepared to support the full committee meeting on July 14, 1999, when you discuss other aspects of the license renewal program that interest the Committee, and the staff will continue to work closely with the Committee to ensure that your oversight of the license renewal process is effective and efficient.

Sincerely,

A handwritten signature in dark ink, appearing to read "William D. Travers", with a long horizontal flourish extending to the right.

William D. Travers
Executive Director
for Operations

cc: Chairman Jackson
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield
SECY

this important topic. As you know, the staff review of the Calvert Cliffs application examined all of the existing programs relied upon for aging management; therefore, this topic does not apply to that review. The staff is also prepared to support the full committee meeting on July 14, 1999, when you discuss other aspects of the license renewal program that interest the Committee, and the staff will continue to work closely with the Committee to ensure that your oversight of the license renewal process is effective and efficient.

Sincerely,

Original signed by
William D. Travers

William D. Travers
Executive Director
for Operations

cc: Chairman Jackson
Commissioner Dicus
Commissioner Diaz
Commissioner McGaffigan
Commissioner Merrifield
SECY

DISTRIBUTION: TICKET NUMBER: G19990255

RLSB RF	Collins/Zimmerman
PDR	Kane
Central File	Sheron
Travers	Matthews
Knapp	Grimes
Miraglia	Solorio
Norry	Manahan
Blaha	NRR Mailroom
Burns	EDO
Thadani, RES	
Miller, RI	
Mitchell, OEDO	
ACRS File	

*SEE PREVIOUS CONCURRENCE
DOCUMENT NAME: A:\g990255.wpd

OFFICE	RLSB*	RLSB:BC*	DRIP:D*
NAME	DLSolorio	CIGrimes	DBMatthews
DATE	06/22/99	06/22/99	06/23/99

OFFICE	ADIP*	NRR:D	EDO
NAME	WFKane	SJCollins	WDTravers
DATE	06/23/99	6/23/99	6/28/99

OFFICIAL RECORD COPY

Dr. Dana A. Powers, Chairman
Advisory Committee on Reactor Safeguards
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Dr. Powers:

SUBJECT: INTERIM LETTER ON THE SAFETY ASPECTS OF THE BALTIMORE GAS
AND ELECTRIC COMPANY'S LICENSE RENEWAL APPLICATION FOR
CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2

In your letter dated May 19, 1999, the Committee reported on the results of its review of the initial safety evaluation report for the Calvert Cliffs license renewal application. Your letter notes that there are a number of open issues and confirmatory items that must be resolved before the staff can complete the safety evaluation for the renewal application. The staff will arrange to meet with the Committee to describe the resolution of the open issues and confirmatory items, as soon as the technical basis for that resolution has been settled.

We are pleased that the Committee considered the staff's review to be thorough. The Committee provided particular comments on the importance of regular inspections to monitor for aging-induced degradation, and the approach to focus the inspections for thermal aging of cast stainless steels to specific metal compositions that could be susceptible to embrittlement. The staff will consider these comments carefully when we reflect on the lessons learned from the initial renewal reviews and we develop ways to improve on the effectiveness and efficiency of the review process.

The Committee also expressed its intent to review the Commission paper concerning credit for existing programs. SECY 99-148, *Credit for Existing Programs for License Renewal*, was issued on June 3, 1999. The Commission will meet on this matter on July 13, 1999. The staff has arranged to discuss this matter with your Subcommittee on Plant License Renewal on July 1, 1999. We appreciate the Committee's responsiveness to the schedule constraints on this important topic. As you know, the staff review of the Calvert Cliffs application examined all of the existing programs relied upon for aging management; therefore, this topic does not apply to that review. The staff is also prepared to support the full committee meeting on July 14, 1999, when you discuss other aspects of the license renewal program that interest the Committee, and the staff will continue to work closely with the Committee to ensure that your oversight of the license renewal process is effective and efficient.

Sincerely,

William D. Travers
Executive Director for Operations

Distribution See next page

DOCUMENT NAME: G:\RLSB\GRIMES\g990255.wpd

OFFICE	RLSB	RLSB:BC	DRIP:D
NAME	DLSolorio <i>DS</i>	CIGrimes <i>CG</i>	DBMatthews <i>DM</i>
DATE	6/22/99	6/22/99	6/23/99 <i>jc</i>
OFFICE	ADIP <i>AD</i>	NRR:D	EDO
NAME	WFKane	SJCollins <i>SC</i>	WDTravers
DATE	6/23/99	6/23/99	/ /99

OFFICIAL RECORD COPY

Distribution:

TICKET NUMBER: **G19990255**

RLSB RF

PDR

Central File

Travers

Knapp

Miraglia

Norry

Blaha

Burns

Thadani, RES

Miller, RI

Mitchell, OEDO

ACRS File

Collins/Zimmerman

Kane

Sheron

Matthews

Grimes

Solorio

NRR Mailroom

Manahan

EDO

ACTION

Recd 5/20

RLSB

EDO Principal Correspondence Control

FROM:

DUE: 06/17/99

EDO CONTROL: G19990255

DOC DT: 05/19/99

FINAL REPLY:

Dana A. Powers, ACRS

TO:

Travers, EDO

FOR SIGNATURE OF :

** GRN **

CRC NO:

Travers, EDO

DESC:

ROUTING:

INTERIM LETTER ON THE SAFETY ASPECTS OF THE
BALTIMORE GAS AND ELECTRIC COMPANY'S LICENSE
RENEWAL APPLICATION FOR CALVERT CLIFFS NUCLEAR
POWER PLANT, UNITS 1 AND 2

Travers
Knapp
Miraglia
Norry
Blaha
Burns
Thadani, RES
Miller, RJ
Mitchell, OEDO
ACRS File

DATE: 05/19/99

ASSIGNED TO:

CONTACT:

NRR

Collins

SPECIAL INSTRUCTIONS OR REMARKS:

Prepare response to ACRS for EDO signature. Add
Commissioners and SECY as cc's.

USE SUBJECT LINE IN RESPONSE.

NRR Action: DRIP: Matthews
NRR Received: May 20, 1999
NRR Routing: Collins/Gimmerman
Kane
Sharon
NRR Mailroom

ACTION

DUE TO NRR DIRECTOR'S OFFICE

BY

6/14/99



UNITED STATES
NUCLEAR REGULATORY COMMISSION
ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
WASHINGTON, D. C. 20555

May 19, 1999

Dr. William D. Travers
Executive Director for Operations
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555-0001

Dear Dr. Travers:

SUBJECT: INTERIM LETTER ON THE SAFETY ASPECTS OF THE BALTIMORE GAS
AND ELECTRIC COMPANY'S LICENSE RENEWAL APPLICATION FOR
CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 AND 2

During the 462nd meeting of the Advisory Committee on Reactor Safeguards, May 5-8, 1999, we reviewed the NRC Staff's Safety Evaluation Report (SER) related to the license renewal application for the Calvert Cliffs Nuclear Power Plant, Units 1 and 2. Our Subcommittee on Plant License Renewal also reviewed this matter on April 28-29, 1999. During our review, we had the benefit of discussions with representatives of the NRC staff and the Baltimore Gas and Electric Company (BGE), and of the documents referenced.

Conclusions and Recommendations

1. The staff performed an extensive and thorough review of the Calvert Cliffs license renewal application. Although there are a number of open issues and confirmatory items that must be resolved, it appears that BGE has developed and implemented adequate processes to identify the structures, systems, and components that are subject to an aging management review and will be able to demonstrate that aging-induced degradation will be adequately managed during the period of extended operation.
2. Current regulatory requirements and existing BGE programs appear to be providing adequate management of aging-induced degradation for those components in the scope of the license renewal rule. BGE identified 446 programs that were needed to manage aging-induced degradation of which only 10 were new programs.
3. Although no new aging mechanisms have been identified, we believe that effective inspections are important to manage aging-induced degradation in order to avoid surprises. It is prudent, for example, to conduct periodic, enhanced visual inspections of reactor internals until data are available to indicate that stress corrosion cracking is not a

plausible degradation mechanism in pressurized water reactors. To date, no cracking has been observed in these components at the Calvert Cliffs units.

4. The issue of thermal aging of cast stainless steels has been resolved for the Calvert Cliffs license renewal application. We believe that the resolution proposed in the application is technically satisfactory and could be used by future applicants.

Discussion

By letter dated April 8, 1998, BGE submitted the license renewal application for Calvert Cliffs in accordance with 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." BGE requested renewal of the operating licenses for the Calvert Cliffs units for a period of 20 years beyond the current license expiration dates of July 31, 2014 for Unit 1, and August 13, 2016 for Unit 2.

The SER documents the results of the NRC staff's review of information submitted by BGE through March 5, 1999. The staff's review included the verification of the completeness of the identification and categorization of the structures, systems, and components considered in the application; the validation of the integrated plant assessment process; the identification of the possible aging mechanisms associated with each passive long-lived component; and the adequacy of the aging management programs. The staff also conducted on-site inspections to verify the implementation of the programs described in the application. The staff's review of the license renewal application for Calvert Cliffs was extensive and thorough.

Current regulatory requirements and licensee programs appear to be providing adequate management of aging-induced degradation for those components in the scope of the license renewal rule. BGE identified 446 activities that were needed to manage aging-induced degradation. Of these, 329 were existing programs, 107 were modifications or extensions of existing programs or analyses, and only 10 were new programs. BGE has the advantage that, even under the current pressurized thermal shock (PTS) screening criteria, the Calvert Cliffs reactor pressure vessels are not projected to reach the PTS screening limit until after 60 years of operation. BGE also has a robust reactor vessel surveillance program with sufficient surveillance materials for 60 years of operation and, thus, is well prepared to manage vessel embrittlement.

Among the new aging management programs are a number of one-time inspection programs. These are intended to verify the absence of aging-induced degradation that is currently thought unlikely to occur, but cannot be ruled out categorically. The staff stated that in some of these cases one-time inspections are not sufficient to provide assurance that degradation will not develop and that regular, periodic inspections are needed. This is one of the open items to be resolved. Although we have not reviewed the need for the particular inspections still being discussed by the staff and BGE, we believe that effective inspections are important to aging management in order to avoid surprises.

The determination of an aging management program for the embrittlement of cast stainless steels by thermal aging has been identified by both the staff and industry as an open technical issue for license renewal. Although the staff and industry have not yet defined an acceptable

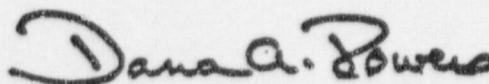
generic aging management program for the thermal aging of cast stainless steels, the issue has been resolved for the Calvert Cliffs license renewal application. The staff and BGE have agreed on metal compositions not susceptible to embrittlement. BGE has agreed to conduct inspections of components with metal compositions that could be susceptible to embrittlement. We believe that this resolution is technically satisfactory and could be used by future license renewal applicants.

Considerations for Future Reviews

The staff is exploring ways to improve the efficiency of the license renewal application and review processes. The Nuclear Energy Institute has submitted proposals concerning credit for existing programs. Because the review of the BGE application has confirmed that existing programs incorporate most of the aging management activities required for compliance with the license renewal rule, such credit does seem to offer the potential for greater efficiency. The staff is preparing a Commission paper concerning credit for existing programs. We plan to review this paper.

Dr. William J. Shack did not participate in the Committee's deliberations on aging-induced degradation.

Sincerely,



Dana A. Powers
Chairman

References

1. Letter dated March 21, 1999, from David B. Matthews, Office of Nuclear Reactor Regulation, to Charles H. Cruse, Baltimore Gas and Electric Company, Subject: Calvert Cliffs Nuclear Power Plant, Units 1 and 2, License Renewal Safety Evaluation Report.
2. Letter dated April 8, 1998, from Charles H. Cruse, Baltimore Gas and Electric Company, to U. S. Nuclear Regulatory Commission Document Control Desk, Subject: Calvert Cliffs Nuclear Power Plant Unit Nos. 1 & 2, Application for License Renewal.