

issued: May 13, 1999
certified: June 2, 1999

CERTIFIED

ACRS - 3154
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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS
MINUTES OF ACRS SUBCOMMITTEE MEETING ON
PLANT LICENSE RENEWAL
APRIL 28-29, 1999
ROCKVILLE, MARYLAND

The ACRS Subcommittee on Plant License Renewal held a meeting on April 28-29, 1999, at 11545 Rockville Pike, Rockville, Maryland, in Room T-2 B3. The purpose of the meeting was to hold discussions with representatives of the NRC staff and Baltimore Gas and Electric Company (BGE) concerning the Calvert Cliff license renewal application. The presentations included items related to the license renewal application and the associated safety evaluated report. The entire meeting was open to public attendance. Mr. Noel Dudley was the cognizant ACRS staff engineer for this meeting. The meeting was convened at 1:00 p.m. on April 28 and adjourned at 3:00 p.m. on April 29, 1999.

ATTENDEES:

ACRS

M. Fontana, Chairman
M. Bonaca, Member
T. Kress, Member
D. Miller, Member

R. Seale, Member
W. Shack
R. Uhrig
Dudley, Senior Staff Engineer

NRC STAFF

C. Grimes, NRR
D. Solorio, NRR
S. Lee, NRR
C. Gratton, NRR
C. Munson, NRR
B. Elliot, NRR
S. Coffin, NRR
Shou-Nein Hou, NRR

J. Fair, NRR
G. Georgiev, NRR
T. Chen, NRR
K. Parczewski, NRR
P. Patnaik, NRR
D. Jeng, NRR
R. Li, NRR
P. Shemanski, NRR

BALTIMORE GAS AND ELECTRIC COMPANY

R. Rycyna
B. Doroshuck
C. Rayburn

D. Shaw
M. Bowman
R. Heibel

There were no written comments or requests for time to make oral statements received from members of the public. A list of meeting attendees is available in the ACRS office files.

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INTRODUCTION:

Dr. Mario Fontana, Chairman, Plant License Renewal Subcommittee, convened the meeting at 1:00 p.m. on April 28, 1999, and called upon Mr. Christopher Grimes, Office of Nuclear Reactor Regulation (NRR).

Mr. Grimes expressed appreciation for the Subcommittee taking time to review license renewal issues following the issuance of the safety evaluation report (SER) related to the Calvert Cliffs license renewal application. He noted that this application was the first to be reviewed by the staff under 10 CFR Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plants." Mr. Grimes stated that Baltimore Gas and Electric Company (BGE) would describe some of its programs and explain how it approached the license renewal application. He explained that the staff would describe the contents of the SER and the status of associated open and confirmatory items. Mr. David Matthews, NRR, expressed the hope and expectation that the ACRS would be able to issue an interim report based on the information presented at the meeting.

NRC OVERVIEW - Messrs. David Solorio and Sam Lee, NRR

Mr. David L. Solorio, NRR, presented the principles of license renewal, the goals of the staff's review, and the staff's review process. The Subcommittee members and the staff discussed the definition of confirmatory items, the development of the principles of license renewal, the basis for a 20-year renewal period, standardization of the application format, and the status of the draft standard review plan.

Dr. Sam Lee, NRR, explained that the license renewal issue process is intended to track and document the staff resolution of questions related to the review of license renewal applications. He presented the status of the resolution of the eighteen priority 1 license renewal issues for Calvert Cliffs. The Subcommittee members and the staff discussed how issues are prioritized, resolution of priority 1 issues prior to renewing a license, the use of safety evaluations to document the resolution of issues, and the extent of staff license renewal inspections.

DEVELOPMENT OF THE LICENSE RENEWAL APPLICATION - Mr. Bath W. Doroshuck, BGE

Mr. Bath W. Doroshuck, BGE, provided an overview of the development, review, and implementation of the Calvert Cliffs license renewal application. He presented the BGE operating goals for Calvert Cliffs, the BGE energy supply mix, and the life cycle management program for Calvert Cliffs. Mr. Doroshuck explained the contents and construction of the license renewal application. In particular, he described the integrated plant assessment (IPA) process, the aging management reviews, and the aging management programs. Mr. Doroshuck stated that of the 446 aging management programs identified in the license renewal application 329 were existing programs, 101 were modified programs, and 16 were new programs. He concluded that no aging-related degradation mechanism unique to license renewal has been discovered, inspections will be conducted to ensure aging effects are managed, and planning for long term safety and reliability has been completed.

The Subcommittee members, the staff, and BGE discussed the following:

- use of plant experience in licensing decisions,
- preventing the compartmentalization of license renewal activities,
- use of risk information in making management decisions,
- use of probabilistic risk assessment results in developing the license renewal application,
- criteria used to determine active and passive components,
- composition of the integrate plant assessment panel,
- how plausibility determinations are made,
- inclusion of new and modified aging management programs in the design bases,
- use of one time inspections as part of the aging-related degradation inspection program,
- responsibilities of the life cycle and plant systems engineers for implementing programs,
- level of staff review that is required to accept the adequacy of existing programs,
- how emergent aging-related degradation mechanisms will be managed, and
- changes made to the IPA process as a result of the staff review.

SAFETY EVALUATION REPORT - NRC Staff

The staff members responsible of preparing an SER chapter or section, presented the results of their reviews. For each chapter or section, the responsible staff member identified the structures and systems considered, the aging effects, and the associated aging management programs. In addition, the staff member identified and described the associated open and confirmatory items, and the resolution of the associated priority 1 license renewal issues.

Chapter 2: Structures and Components Subject to Aging Management Review:

Mr. Christopher Gratton, NRR, explained how the staff reviewed the scoping and screening process described in the license application. He identified four open items and two confirmatory items, and described the resolution of three license renewal issues. The Subcommittee members and the staff discussed the use of bounding calculations in the scoping process.

Section 3.1: Aging Management Review: Mr. Clifford Munson, NRR, described the following common aging management programs, and identified the systems and aging effects that are managed by each program.

- fatigue monitoring program,
- chemistry program,
- structure and system walkdowns,
- boric acid inspection program,
- corrective actions program, and
- age-related degradation inspection program.

He identified two open and three confirmatory items.

The Subcommittee members and the staff discussed the synergistic effects of radiation and chemistry on metal corrosion rates, the applicability of risk-informed inservice inspection programs, the use of operational experience, and the handling of emerging aging-related degradation issues.

They also discussed how the staff would verify the resolution of confirmatory items before licensees exceed the initial period of their licenses.

Section 3.2: Reactor Vessel, Internals and Reactor Coolant System: Mr. Barry Elliot, NRR, identified six confirmatory items and described the resolution of four priority 1 license renewal issues. The Subcommittee and the staff discussed removal of copper from components in the secondary system, when the reactor pressure vessel would reach the pressurized thermal shock screening limit, types of visual examinations used to inspect reactor components and small bore piping, and extending metal fatigue calculations from 40 to 60 years.

Section 3.3: Engineered Safety Feature Systems: Ms. Stephanie Coffin, NRR, identified three confirmatory items. The Subcommittee and the staff discussed the diameter of the pipes considered, number of fatigue cycles expected on safety injection system nozzles, and the stress resulting from thermal cycles caused by stratification due to check valve leakage.

Section 3.4: Auxiliary Systems: Mr. Shou-Nein Hou, NRR, identified three open items and one confirmatory item. The Committee members and the staff discussed vibration fatigue in the chemical and volume control system, and why BGE had not replaced the heat tracing in the system.

Section 3.5: Cooling Systems: Mr. George Georgiev, NRR, presented this section. The Subcommittee members and the staff discussed the operating experience and inspection of rubber lined pipes.

Section 3.6: Heating, Ventilation, and Air Conditioning Systems: Mr. Thomas Cheng, NRR, identified one confirmatory item. The Subcommittee members and the staff discussed the dynamic loads that caused vibration cracking and loss of fasteners in operating systems.

Section 3.7: Emergency Diesel Generator Systems: Mr. George Georgiev, NRR, identified one open item. The Subcommittee members and the staff discussed the cathodic protection used for buried piping.

Section 3.8: Steam and Power Conversion Systems: Mr. Kris Parczewski, NRR, presented this section. The Subcommittee members and the staff discussed the different types of aging-related degradation inspections used for the feedwater system and the fatigue of horizontal piping.

Section 3.9: Sampling and Monitoring Systems: Mr. Pat Patnaik, NRR, identified one open item. The Subcommittee members and the staff discussed whether valve leakage creates thermal cycles.

Section 3.10: Building Structures: Mr. David Jeng, NRR, identified three open items and two confirmatory items, and described the resolution of six priority 1 license renewal issues. The Subcommittee members and the staff discussed the different types of periodic inspections and the use of protective coatings.

Section 3.11: Component Supports, Cranes, and Electrical Commodities: Ms. Renee Li, NRR, presented this section. The Subcommittee members and the staff discussed what portion of snubbers were considered passive components.

Section 3.12: Electrical Components: Mr. Paul Shemanski, NRR, presented this section.

Section 3.13: Environmentally Qualified Equipment: Mr. Paul Shemanski, NRR, presented this section. The Subcommittee members and the staff discussed cables in radiation areas, use of insulation resistance as an indicator of problems, use of Kapton insulated cables in safety-related systems, and the loss of coolant accident tests of aged cables.

Chapter 4.0: Time-Limited Aging Analyses: Mr. Paul Shemanski, NRR, identified three open items and one confirmatory item, and described the resolution of two priority 1 license renewal issues. The Subcommittee members and the staff discussed when time-limited aging analyses (TLAAs) were required to be performed, how to measure the tension on a containment tendon, requirements for passive and active long lived environmental qualification components to have TLAAs, and issues related to credit for existing programs.

STAFF AND INDUSTRY COMMITMENTS

There were no commitments made during the meeting

SUBCOMMITTEE DECISIONS

The Subcommittee requested that the following presentations be presented at the May 5-6, 1999 ACRS meeting:

- staff overview of the 10 CFR Part 54 license renewal rule,
- BGE process for developing the Calvert Cliff's license renewal application, and
- results of the staff review of the BGE license renewal application.

The Subcommittee recommended that the ACRS prepare an interim letter to the Executive Director for Operations concerning the staff's SER related to the Calvert Cliffs license renewal application.

FOLLOW-UP ACTIONS

No follow-up actions were identified.

PRESENTATION SLIDES AND HANDOUTS PROVIDED DURING THE MEETING

The presentation slides and handouts used during the meeting are available in the ACRS office files or as attachments to the transcript.

BACKGROUND MATERIAL PROVIDED TO THE SUBCOMMITTEE:

1. Letter dated March 21, 1999, from David B. Matthews, NRR, to Charles H. Cruse, Vice President Nuclear Energy, 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 Document Control Desk, U.S. Nuclear Regulatory Commission, Subject: Calvert Cliffs Nuclear Power Plant Units Nos. 1 and 2, Application for License Renewal.
3. U.S. Nuclear Regulatory Rule and Regulations Title 10, Chapter 1, Code of Federal Regulations, Part 54, "Requirements for Renewal of Operating Licenses for Nuclear Power Plant, dated September 29, 1995.
4. Memorandum dated March 24, 1999, from William D. Travers, Executive Director for Operations, to the Commissioners, Subject: Credit for Existing Programs for License Renewal.
5. Calvert Cliffs Engineering Standard Number: ES-045, "Age Related Degradation Inspection (ARDI) Program Technical Requirements Document for Mechanical Systems," February 1, 1999.

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NOTE: Additional details of this meeting can be obtained from a transcript of this meeting available in the NRC Public Document Room, 2120 L Street, N.W., Washington, D.C. 20006, (202) 634-3274, or can be purchased from Ann Riley & Associates, LTD., 1025 Connecticut Ave., NW, Suite 1041, Washington, D.C. 20036, (202) 842-0034.

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