

September 4, 1998

Mr. Charles H. Cruse, Vice President
Nuclear Energy Division
Baltimore Gas & Electric Company
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 & 2, INTEGRATED PLANT ASSESSMENT FOR HEATING AND VENTILATION SYSTEMS (TAC NOS. MA1018, MA1019, MA1034, MA1106, MA1107, M99224, MA1040, MA1041, AND MA1035)

Dear Mr. Cruse:

By letter dated April 8, 1998, Baltimore Gas and Electric (BGE) submitted for review its license renewal application. The staff has reviewed Section 5.11A, "Auxiliary Building Heating and Ventilation System;" Section 5.11B, "Primary Containment Heating and Ventilation System;" and Section 5.11C, "Control Room and Diesel Generator Buildings HVAC," of Appendix A to the application against the requirements of 10 CFR 54.21(a)(1) and 10 CFR 54.21(a)(3). Based on a review of the information submitted, the staff has identified in the enclosure, areas where additional information is needed to complete its review.

Please provide a schedule by letter or telephonically for the submittal of your responses within 30 days of the receipt of this letter. Additionally, the staff would be willing to meet with BGE prior to the submittal of the responses to provide clarifications of the staff's requests for additional information.

Sincerely,

Original Signed By

David L. Solorio, Project Manager
License Renewal Project Directorate
Division of Reactor Program Management
Office of Nuclear Reactor Regulation

Docket Nos. 50-317 and 50-318

Enclosure: Request for Additional Information

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Mr. Charles H. Cruse
Baltimore Gas & Electric Company

Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 and 2

cc:

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

Mr. Joseph H. Walter, Chief Engineer
Public Service Commission of
Maryland
Engineering Division
6 St. Paul Centre
Baltimore, MD 21202-6806

James P. Bennett, Esquire
Counsel
Baltimore Gas and Electric Company
P.O. Box 1475
Baltimore, MD 21203

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

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

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

Mr. Thomas N. Prichett, Director
NRM
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, MD 20657-4702

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

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

David Lewis
Shaw, Pittman, Potts, and Trowbridge
2300 N Street, NW
Washington, DC 20037

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

Douglas J. Walters
Nuclear Energy Institute
1776 I Street, N.W.
Suite 400
Washington, DC 20006-3708

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

Barth W. Doroshuk
Baltimore Gas and Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
NEF 1st Floor
Lusby, Maryland 20657

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PDLR Staff

TCheng (TMC)
EHylton (EGH)

REQUEST FOR ADDITIONAL INFORMATION
CALVERT CLIFFS UNITS 1 AND 2 INTEGRATED PLANT ASSESSMENT
SECTION 5.11A, "AUXILIARY BUILDING HEATING AND VENTILATION SYSTEM,"
SECTION 5.11B, "PRIMARY CONTAINMENT HEATING AND VENTILATION SYSTEM," AND
SECTION 5.11C, "CONTROL ROOM AND DIESEL GENERATOR BUILDING HVAC"
DOCKET NOS. 50-317 AND 50-318

1. Sections 5.11A.1, 5.11B.1 and 5.11C.1 of the application state that representative historical operating experience pertinent to aging is included in appropriate areas, to provide insight supporting the aging management demonstration. From the past operating experience, provide specific examples of how the corrective actions (including types, methods, criteria, etc.) related to the aging degradation of heating and ventilation (H&V) systems were taken in the auxiliary building, primary containment, and control room and diesel generator buildings.
2. As described in Sections 5.11A and 5.11C of the application, for the H&V systems located in the auxiliary building, and control room and diesel generator buildings, some cracking has been discovered in plant heating, ventilating, and air conditioning (HVAC) ducting due to vibration-induced fatigue. The application also states that these isolated failures were due to a combination of design and installation deficiencies. Please address the following:
 - a. Clarify the basis for the conclusion that these isolated failures did not involve any age-related degradation mechanisms (ARDMs).
 - b. With regard to the corrective actions, provide details of how these cracks were corrected and how these failures affected the intended function.
3. As described in the operating experience for Sections 5.11A, 5.11B, and 5.11C of the application, loosening of fasteners due to dynamic loading was identified as an ARDM. Provide a justification of why this ARDM is identified as plausible only for fans in the ARDMs tables (Tables 5.11A-2, 5.11B-2 and 5.11C-2) and not fasteners or other device types exposed to dynamic loads.
4. Sections 5.11A.2, 5.11B.2 and 5.11C.2 of the application describe ARDM and device type combinations for aging management. Provide a justification as to why mechanical wear of the duct systems is not considered as a plausible ARDM.
5. As described in the application (Sections 5.11A.1.3, 5.11B.1.3 and 5.11C.1.3), some of the device types (such as damper, filters, hand valve, and pressure differential indicator in the auxiliary building; damper, filter and solenoid valve in the primary containment; analyzer element, gravity damper, hand valve and temperature transmitter in the control room and diesel generator buildings) are subject to a detailed evaluation of ARDMs as part of the aging management review (AMR). However, there are no entries of potential and plausible ARDMs under these device types in Tables 5.11A-2, 5.11B-2 and 5.11C-2

Enclosure

- of the application. Provide a summary description of the ARDMs considered for these device types and the basis for the plausible ARDM conclusion.
6. In describing the aging management programs for components such as ducting and heat exchangers, the application (Discovery in Pages 5.11A-13, 5.11B-15 and 5.11C-11) states that crevice corrosion, general corrosion, and pitting can be readily detected through visual examination. Clarify how these aging effects will be managed for locations such as lap joints that cannot be readily inspected visually.
 7. Tables 5.11A-1, 5.11B-1 and 5.11C-1 of the application list all the H&V system device types for which the AMR is required. Also, Sections 5.11A.1.3, 5.11B.1.3 and 5.11C.1.3 of the application include a statement that only the pressure-retaining function (the passive intended function) for these device types is considered in the AMR for the H&V systems in the auxiliary building, primary containment, and control room and diesel generator buildings. However, no description of how to maintain this passive intended function is included in the application. Clarify how the aging management programs described in the application maintain the pressure-retaining function of these device types.
 8. Pages 5.11A-7 and 5.11C-6 of the application indicate that certain device types "do not require a detailed evaluation of specific aging mechanisms because they are considered part of a complex assembly whose only passive function is closely linked to active performance." The listed device types include accumulators, piping, and valves. Clarify how the passive functions of these devices are adequately managed by such performance monitoring. In particular, describe the nature of the monitoring and demonstrate that the degradation of the particular component intended function is "closely linked" to the parameters being monitored in a performance monitoring program, such that the component intended function would be maintained for the period of extended operation.
 9. Page 5.11B-6 of the application indicates that temperature elements do not require an AMR because they have only active functions. However, thermocouples and RTDs are installed in thermowells which perform a pressure-retaining function and have housings which serve as environmental barriers. Clarify BGE's basis for concluding that temperature elements do not have any passive functions.
 10. On Page 5.11B-10, the application includes a description of two aging degradation experiences for valves: (1) some wear of the containment purge supply and exhaust containment isolation valves (control valves) were identified, and (2) check valves have experienced pressure boundary failures with several valves failing back-leakage tests. The application also states that the root cause of these failures is due to a combination of wear and misapplication of the valve for its intended function. Please address the following:
 - a. Clarify the basis for the conclusion that these failures did not involve any age-related degradation mechanisms.

- b. Provide a description of the corrective actions implemented for these two cases.
11. Are there any parts of the systems, structures and components within the H&V systems that are inaccessible for inspection? If so, describe what aging management program will be relied upon to maintain the integrity of the inaccessible areas. If the aging management program for the inaccessible areas is an evaluation of the acceptability of inaccessible areas based on conditions found in surrounding accessible areas, please provide information to show that conditions would exist in accessible areas that would indicate the presence of, or result in degradation to, such inaccessible areas. If different aging effects or aging management techniques are needed for the inaccessible areas, please provide a summary to address the following elements for the inaccessible areas: (a) Preventive actions that will mitigate or prevent aging degradation; (b) Parameters monitored or inspected relative to degradation of specific structure and component intended functions; (c) Detection of aging effects before loss of structure and component intended functions; (d) Monitoring, trending, inspection, testing frequency, and sample size to ensure timely detection of aging effects and corrective actions; (e) Acceptance criteria to ensure structure and component intended functions; and (f) Operating experience that provides objective evidence to demonstrate that the effects of aging will be adequately managed.