



# RESPONSE TO FREEDOM OF INFORMATION ACT (FOIA) / PRIVACY ACT (PA) REQUEST

2000-0278

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RESPONSE TYPE  FINAL  PARTIAL

REQUESTER

Samantha Brock

DATE

JUL 20 2000

### PART I. -- INFORMATION RELEASED

- No additional agency records subject to the request have been located.
- Requested records are available through another public distribution program. See Comments section.
- APPENDICES A** Agency records subject to the request that are identified in the listed appendices are already available for public inspection and copying at the NRC Public Document Room.
- APPENDICES B** Agency records subject to the request that are identified in the listed appendices are being made available for public inspection and copying at the NRC Public Document Room.
- Enclosed is information on how you may obtain access to and the charges for copying records located at the NRC Public Document Room, 2120 L Street, NW, Washington, DC.
- APPENDICES B** Agency records subject to the request are enclosed.
- Records subject to the request that contain information originated by or of interest to another Federal agency have been referred to that agency (see comments section) for a disclosure determination and direct response to you.
- We are continuing to process your request.
- See Comments.

### PART I.A -- FEES

- AMOUNT \*  You will be billed by NRC for the amount listed.  None. Minimum fee threshold not met.
- \$  You will receive a refund for the amount listed.  Fees waived.
- \* See comments for details

### PART I.B -- INFORMATION NOT LOCATED OR WITHHELD FROM DISCLOSURE

- No agency records subject to the request have been located.
- Certain information in the requested records is being withheld from disclosure pursuant to the exemptions described in and for the reasons stated in Part II.
- This determination may be appealed within 30 days by writing to the FOIA/PA Officer, U.S. Nuclear Regulatory Commission, Washington, DC 20555-0001. Clearly state on the envelope and in the letter that it is a "FOIA/PA Appeal."

### PART I.C COMMENTS (Use attached Comments continuation page if required)

SIGNATURE - FREEDOM OF INFORMATION ACT AND PRIVACY ACT OFFICER

Carol Ann Reed

**APPENDIX A**  
**RECORDS ALREADY AVAILABLE IN THE PDR**

<u>NO.</u>	<u>DATE</u>	<u>ACCESSION NUMBER</u>	<u>DESCRIPTION/(PAGE COUNT)</u>
1.	08/21/97	9708270006	Ltr from C. H. Cruse, BGE to NRC Re: Request for Review and Approval of System and Commodity Reports for License Renewal (86 pages)
	08/18/95	9508240146	<b>(Reference to # 1)</b> Ltr from R.E. Denton, BGE to NRC Re: Inegrated Plant Assessment Methodology ( 2 pages)
	04/04/96	9604090427	<b>(Reference to # 1)</b> Ltr from D.M. Crutchfield, NRC to C. H. Cruse Re: Final Safety Evaluation (FSE) concerning the Baltimore Gas and Electric Company report entitled, Integrated Plant Assessment Methodology ( 3 pages)
	03/04/97	9703060322	<b>(Reference to # 1)</b> Ltr from S.C. Flanders, NRC to NRC Re: Summary of meeting with Baltimore Gas Electric Company (BGE) on BGE License Renewal Activities ( 55 pages)

**APPENDIX B  
RECORDS BEING RELEASED IN THEIR ENTIRETY**

<u>NO.</u>	<u>DATE</u>	<u>DESCRIPTION/(PAGE COUNT)</u>
1.	7/9/98	Letter to C Cruse, Baltimore Gas & Electric Company from D Solorio, NRC with enclosure (5 pages)



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

July 9, 1998

Mr. Charles H. Cruse, Vice President  
Nuclear Energy Division  
Baltimore Gas & Electric Company  
1650 Calvert Cliffs Parkway  
Lusby, Maryland 20657-47027

**SUBJECT: REQUEST FOR ADDITIONAL INFORMATION FOR THE REVIEW OF THE  
CALVERT CLIFFS NUCLEAR POWER PLANT, UNITS 1 & 2, COMMODITY  
REPORT FOR CABLES (TAC NOS. M99593, M99594, M99208)**

Dear Mr. Cruse:

By letter dated August 21, 1997, Baltimore Gas and Electric (BG&E) submitted for review the Cables (6.1) commodity technical report as attached to the "Request for Review and Approval of System and Commodity Reports for License Renewal." BG&E requested that the Nuclear Regulatory Commission staff review the cable commodity technical report to determine if the report meets the requirements of 10 CFR 54.21(a), "Contents of application-technical information," and the demonstration required by 10 CFR 54.29(a)(1), "Standards for issuance of a renewed license," to support an application for license renewal if BG&E applies in the future.

As requested, the staff reviewed the cables (6.1) commodity technical report against the requirements of 10 CFR 54.21(a)(1), 10 CFR 54.21(a)(3). By letter dated April 4, 1996, the staff approved BG&E's methodology for meeting the requirements of 10 CFR 54.21(a)(2). 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 BG&E prior to the submittal of the responses to provide clarifications of the staff's requests for additional information.

Sincerely,

A handwritten signature in black ink, appearing to read "David L. Solorio".

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

Enclosure: As stated

Docket Nos. 50-317, 50-318

cc: See next page

B/1

Mr. Charles H. Cruse  
Baltimore Gas & Electric Company

Calvert Cliffs Nuclear Power Plant  
Unit Nos. 1 and 2

cc:

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Calvert County Board of  
Commissioners  
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Public Service Commission of  
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Regional Administrator, Region I  
U.S. Nuclear Regulatory Commission  
475 Allendale Road  
King of Prussia, PA 19406

**REQUEST FOR ADDITIONAL INFORMATION**  
**CALVERT CLIFFS 1&2 CABLES (COMMODITY REPORT), SECTION 6.1**  
**DOCKET NOS. 50-317/50-318**

**Section 6.1.1 Scoping**

1. Since unscheduled cables (internal panel wiring, equipment pigtails and terminal wiring, field installed jumpers, and some non-safety-related cabling) are not in the cable raceway system (CRS) database, describe how these unscheduled cables are controlled.
2. BG&E states that internal panel wiring at CCNPP is not exposed to high temperature/radiation levels; therefore, aging is not considered plausible. Describe the basis for this conclusion and the methods that were used to verify that the temperature/radiation levels were such that they would not affect the functionality of the internal panel wiring.
3. Reference 2 (SAND96-0344) states that mechanical stress (including vibration, bending of wire and manipulation, etc.) was cited frequently as a cause for failure and occurs near the end devices or connected loads. Discuss why mechanical stress and installation damage were not considered to be plausible age related degradation mechanisms (Table 6.1-2) for CCNPP cabling.
4. The miscellaneous insulation cables listed in Table 6.1-1 (vendor supplied turbine supervisory cables of unknown insulation material) have been determined by BG&E as not subject to plausible aging since they are not subjected to high temperatures or radiation. Since the insulation material is unknown, what is the technical basis for this conclusion since the thermal rating of the material insulation is unknown to BG&E?
5. The information provided in Table 6.1-1 that explains why the Kapton cables were excluded from the scope of the license renewal review is not adequate for the staff to conclude that there is sufficient justification for their removal. Provide additional justification for excluding the Kapton cables from the scope of the aging management review. Additionally, describe any other functions that are performed by the Kapton cables beyond detection of heat or fires (for example, initiation of sprinkler system for fire suppression).

**Section 6.1.2 Aging Management**

6. For the age related degradation inspection (ARDI) programs credited for managing the age related degradation mechanisms (ARDM) affecting the Group 1, 2, 3, and 6 cables provide a status summary on the development of the ARDI program elements for these groups.
7. BG&E states that the possibility exists that some Group 1 cable operating temperatures may sometimes exceed the insulation temperature rating of 90°C and a temperature survey program is being developed to establish an upper bound on the operating service temperatures.

- a. Discuss how BG&E will collect temperature over sufficient time to capture peak cable service conditions given the variation in ambient temperature due to daily, seasonal, or operational effects.
  - b. Because the maximum allowable material temperature for insulation is fixed, (90 °C), describe how BG&E will account for the entire temperature history for Group 1 cables whose service limiting temperatures may have been exceeded.
  - c. The EPR data sets were based on a 20% retention of elongation in BG&E's use of the Arrhenius model to calculate 60-year service limiting temperatures. Since 50% retention of absolute elongation is the industry standard, justify why 20% retention of elongation is acceptable for cables with EPR insulation.
8. Describe the acceptance criteria for the CCNPP Cables ARDI program in groups 3 and 6 that will ensure corrective actions that will be taken such that there is reasonable assurance that the prevention or isolation of faults in an electrical circuit intended function will be maintained.
  9. Describe the analysis that BG&E has performed to verify that none of the operating temperatures for the Group 2 cables exceed the 90°C insulation rating.
  10. As discussed in the Group 1 Aging Mechanism Effects section, the 60-year service limiting temperature was determined to be 184°F for EPR insulation. However, Reference 2 (SAND96-0344) lists the maximum ambient temperature for EPR insulation at 167°F for cables with no ohmic heating based on 50% retention of absolute elongation. Provide the basis for the 184°F EPR maximum ambient temperature rating selected by BG&E.
  11. BG&E states that cable condition monitoring is presently considered an optional approach to ongoing cable management and that they will monitor research in this area. Discuss to what extent BG&E considers the following physical properties when inspecting cable systems as part of a cable condition monitoring program.
    - \*Surface condition (including cracking, crazing, texture)
    - \*Color
    - \*Size (swelling, shrinkage, deformation, or compression set)
    - \*Physical integrity (tight or loose)
    - \*Flexibility or embrittlement (requires manipulation in accordance with an inspection procedure)
  12. Group 3 power cables inside containment with EPR or XLPE insulation are subject to synergistic thermal and radiative aging. To manage the effects of synergistic radiative and thermal aging for the Group 3 cables, BG&E stated that it will develop a new ARDI plant program to provide monitoring, testing, and analysis. One of the ARDI elements is

condition monitoring (i.e., in-situ non-destructive testing). Describe the non-destructive testing that BG&E is planning with regard to cable condition monitoring.

13. The Group 4 power cables with EPR insulation which are associated with the Saltwater System and Service Water System 4kV pump motors are subject to thermal degradation of the motor terminations. BG&E states that the existing Electrical Preventive Maintenance (EPM) program will be modified and will include visual inspection as part of the periodic EPM on the pump motors. Provide a summary discussion of the modifications intended including the applicable inspection criteria for the cables that will be included in the revised EPM checklists.
14. The Group 5 EPR/XLPE/XLPO instrumentation cables that are subject to IR reduction effects from thermal and radiation-induced degradation of the cable insulation will be managed by the existing Instrument Calibration Program, MN-1-211. Describe the corrective actions that were taken to correct the two weaknesses identified by NRC inspections in 1986, 1991, and 1992 related to: (1) program inconsistencies that did not permit a readily accessible mechanism to ensure safety-related process instrumentation was scheduled and periodically calibrated; and (2) there was no process to evaluate the effect of equipment operability of instrumentation found out-of-calibration.
15. The Group 6 4kV power cables with EPR insulation are subject to voltage-induced degradation of the cable insulation known as 'treeing' which will be managed by a new plant program consisting of monitoring, testing, and analysis. Describe the in-situ non-destructive testing (cable condition monitoring) that BG&E is planning to use to detect the effects of 'treeing' which can lead to an eventual breakdown of the insulation dielectric strength.