

March 12, 1993

Mr. Robert E. Denton
Vice President - Nuclear Energy
Baltimore Gas & Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, Maryland 20657-4702

Dear Mr. Denton:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION CONCERNING CIVIL ENGINEERING
REPORT ON EMERGENCY DIESEL GENERATOR PROJECT - CALVERT CLIFFS
NUCLEAR POWER PLANT, UNIT NO. 1 (TAC NO. M85222) AND UNIT NO. 2
(TAC NO. M85223)

By letter dated December 18, 1992, Baltimore Gas and Electric Company (BG&E) provided the subject report for review and approval. The staff is currently reviewing the report and has determined that additional information is needed to complete its review. Enclosed is the staff's request for additional information (RAI). We request that the response to the RAI be provided in a timely manner to allow the staff to complete its review.

In addition, the staff has not received the information on turbine missile protection as stated on page 3-6 and the details of figures 3-47 through 3-58. Please indicate in your response when this information will be provided.

This request affects one respondent and, therefore, is not subject to the Office of Management and Budget review under P.L. 96-511.

Sincerely,

Original Signed By:
Daniel G. McDonald, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosure:
RAI

cc w/enclosure:

See next page

Distribution:

Docket File

NRC & Local PDRs

PDI-1 Reading

SVarga

JCalvo

RACapra

CVogan

DMcDonald

OGC

ACRS (10)

CCowgill, Region I

PSobel, 7/H/15

RPichumani, 7/H/15

CPTan, 7/H/15

PDI-1:LA	PDI-1:PM <i>[initials]</i>	PDI-1:D <i>[initials]</i>			
CVogan <i>[initials]</i>	DMcDonald:smm	RACapra <i>[initials]</i>			
3/12/93	03/17/93	3/12/93	/ /	/ /	/ /

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

March 12, 1993

Docket Nos. 50-317
and 50-318

Mr. Robert E. Denton
Vice President - Nuclear Energy
Baltimore Gas & Electric Company
Calvert Cliffs Nuclear Power Plant
1650 Calvert Cliffs Parkway
Lusby, Maryland 20657-4702

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Sincerely,

A handwritten signature in dark ink, appearing to read "Daniel G. McDonald", is written above the typed name.

Daniel G. McDonald, Senior Project Manager
Project Directorate I-1
Division of Reactor Projects - I/II
Office of Nuclear Reactor Regulation

Enclosure:
RAI

cc w/enclosure:
See next page

Mr. Robert E. Denton
Baltimore Gas & Electric Company

Calvert Cliffs Nuclear Power Plant
Unit Nos. 1 and 2

cc:

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B3
Annapolis, Maryland 21401

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

REQUEST FOR ADDITIONAL INFORMATION
Emergency Diesel Generator Project - CE Design Report
Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2
Docket Nos. 50-317 and 50-318

1. In Section 2.3.2 you state that the dynamic earth pressures due to seismic ground acceleration were calculated by the method proposed by Seed and Whitman in 1970 which deals with earth retaining structures capable of movement. Justify the use of their method for the basement walls of the diesel generator buildings (DGB) which are rigid and do not undergo sufficient movement as required in their method.
2. In Section 2.3.3, Stability of Slopes, you state that the crib wall adjacent to the proposed DGBs was not seismically designed and that some localized failure of the crib wall could occur during a seismic event. You also postulate therein that the crib wall could fail completely and the resulting sloughing of the fill material against the west wall of the DG Building would cause both static and dynamic loads against this wall. Explain the procedure used to design the west wall for the fill loading under postulated seismic conditions.
3. In Section 3.4.2, on page 3-4, you indicate that exterior walls up to the 3rd floor level and the third floor structure are designed for a pressure drop of 3 psi which is equivalent to 432 psf. Provide a discussion on the design and analysis of the walls and floor structures for such a large load. Indicate if blow-out panels will be used. Provide pertinent cross-sections and elevations of the buildings so that the arrangement of the structural elements can be visualized without much difficulty, including the 20-ft high missile barrier on the east side.
4. On page 3-11, under Critical Damping values, you indicate that you are using the same damping values as in Regulatory Guide 1.61 and as shown in Table 3-3 with the exception of cable trays where a limiting value of 15% of critical is used. The high damping value is adopted because of the friction between the cables themselves and between the cables and the tray. Indicate if any fire proof material will be used on the cables and the tray which may reduce the friction.
5. Your discussion on the seismic analysis of the fuel oil storage tank (FOST) in the two paragraphs above the last paragraph on page 3-13 appears to be contradictory. On the one hand you state the model of the FOST is coupled with the building enclosure model. On the other hand you indicate the FOST is represented in the soil structure interaction analysis by a model developed from the criteria contained in Standard Review Plan (SRP) 3.7.3 and Appendix C of NUREG/CR-1161. Since the FOST is supported on the rigid foundation of the building and the criteria in SRP 3.7.3 are in general terms, indicate in more specific terms how the soil structure interaction (SSI) between the tank and the soil is considered by using the

criteria in SRP 3.7.3 and what is the effect of the sloshing of the oil in the tank on the overall building responses.

6. On page 3-16, in the second paragraph from the top, you indicate that there is separation between the buildings which is provided by a gap of approximately 3 inches such that physical contact between buildings does not occur during earthquakes. Because of this narrow gap of separation, there may be structure-structure interaction. Indicate if this condition is taken into consideration and what the effect is. In establishing the 3-inch gap mentioned above, has the effect of the differential settlement between the ends of the buildings been taken into account?
7. In Figure 3-46, Model Analyzed By CLASSIF, provide the masses and spring constants which represent the structural elements and components as shown in the figure. Also indicate which relationships for shear modulus and damping variations with strain are used in your analysis.
8. Since the diesel generator pedestal is integral with the foundation mat, indicate the potential dynamic effect resulting from the vibrational motion during the operation of the diesel generator on the building and other equipment located in the building.