



UNITED STATES
NUCLEAR REGULATORY COMMISSION

WASHINGTON, D.C. 20555-0001

June 17, 1994

Docket Nos. 50-317
and 50-318

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

Dear Mr. Denton:

SUBJECT: REQUEST FOR ADDITIONAL INFORMATION REGARDING ALTERNATE AC POWER
DESIGN REPORT - CALVERT CLIFFS NUCLEAR POWER PLANT, UNIT NOS. 1
AND 2 (TAC NOS. M89086 AND M89087)

The subject report for the Calvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2, was provided by Baltimore Gas and Electric Company in a letter dated March 7, 1994. The NRC staff has completed its initial review of 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 your response to the RAI be provided in a timely manner to allow the staff to complete its review.

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

Sincerely,

A handwritten signature in cursive script, appearing to read "Daniel G. McDonald".

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

Enclosure:
Request For Additional Information

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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Request For Additional InformationAlternate AC Power Design ReportCalvert Cliffs Nuclear Power Plant, Unit Nos. 1 and 2Docket Nos. 50-317 and 50-318

General Comment on Section 2.0, Attachment 2, of subject report:

The staff realizes that the SBO (Station Blackout) Diesel Generator Building (SBODGB) is a non-category I structure. However, if inadequately designed, its failure may potentially incapacitate the adjacent category I structure, which in this case is the Emergency Diesel Generator Building (EDGB). The potential failure of the SBODGB is from either tornado winds or earthquakes. The threat to the EDGB is from the missiles generated by the tornado from the structural members of the SBODGB and lateral load imposed on the EDGB from the collapse of the SBODGB due to a tornado or an earthquake. There are two approaches to resolve the concerns. One is to design the EDGB so that it can resist the forces and the other is to design the SBODGB such that no potentially damaging missiles will be generated and the SBODGB can withstand the tornado wind and the seismic load. It appears that Baltimore Gas and Electric Company (BG&E) has basically adopted the first approach. However, in order to eliminate any potential effects for which the EDGB is not designed BG&E has taken the approach that the SBODGB will be so designed that it would not collapse under severe tornado and earthquake loads, even though it may sustain some damage. On the basis of this understanding, the following concerns have been identified.

1. The last sentence on page 1 of Attachment 2 states "Such structures are designed and constructed so that the design basis earthquake (DBE), five operating basis earthquakes (OBEs) followed by a safe-shutdown earthquake (SSE) would not cause impairment of safety-related features." The staff does not understand this. In the design of a seismic category I structure, the DBE has been replaced by SSE and the earthquakes to be considered are the two earthquakes, OBE and SSE, specified by the ground spectra for the plant site. The staff does not understand how the five OBEs and one SSE are used. Please provide an explanation.
2. From the description of the SBODGB in Section 2.2, it appears that the building is a framed steel structure supported on a reinforced concrete mat foundation with metal decking as the roof and metal sheets as siding. Provide a plan view and an elevation view showing the relation to the EDGB.
3. Since the SBODGB is not designed for tornado wind loading and its structural members may be broken off resulting in missiles more damaging to the EDGB than those considered. Indicate what design measures will be taken to avoid such an occurrence and provide the details.

4. From what is described in Section 2.3, Earthquake Analysis, it appears that the seismic design of the SBODGB is in accordance to Standard Review Plan (SRP) 3.7.2 which is for category I structures, and is acceptable. However, in Section 2.0 it is indicated that the SBODGB is designed to meet the structural requirements of the Standard Building Code (SBC), which according to B.3 of NUMARC 87-00 is the Uniform Building Code (UBC) equivalent design code of record for the area of the plant. Indicate if there is any such SBC for the Calvert Cliffs area. If there is none and the UBC is the SBC, indicate which portions of the UBC are used in the design.
5. The description on the SBODGB seismic design, which is based on SRP 3.7.2, needs some clarification. On one hand it appears very detailed, such as consideration of 3-component earthquakes; and on the other hand, a single degree of freedom system is used for the seismic analysis in the vertical direction. Provide the model used for the SBODGB and the analysis method in more details.
6. Indicate if other codes, such as ACI-318 and AISC standards, are used for the structural design of the SBODGB in addition to the SBC.

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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:
Request For Additional Information

cc w/enclosure:
See next page

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