

CHARLES H. CRUSE  
Vice President  
Nuclear Energy

Baltimore Gas and Electric Company  
Calvert Cliffs Nuclear Power Plant  
1650 Calvert Cliffs Parkway  
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April 19, 1996

U. S. Nuclear Regulatory Commission  
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant  
Unit Nos. 1 & 2; Docket Nos. 50-317 & 50-318  
60-Day Response to NRC Generic Letter 96-01: Testing of Safety-Related, Logic Circuits

REFERENCES: (a) Letter from Mr. D. M. Crutchfield (NRC) to Mr. R. E. Denton (BGE), dated January 10, 1996, NRC Generic Letter GL 96-01: Testing of Safety-Related, Logic Circuits  
(b) Letter from Mr. B. A. Byger (NRC) to Mr. A. Marion (NEI), dated February 14, 1996

The purpose of this letter is to forward our 60-day response to Nuclear Regulatory Commission Generic Letter 96-01: Testing of Safety-Related, Logic Circuits. The generic letter requests that we review electrical schematic drawings and logic diagrams for the following systems:

- > reactor protection system;
- > emergency diesel generator load shedding and sequencing; and
- > actuation logic for the engineered safety features systems

to ensure that all portions of the logic circuitry are adequately tested in the surveillance procedures to fulfill the Technical Specification requirements.

Attachment (1) contains our detailed response to the actions requested. Reference (b) extended the initial response due date to April 19, 1996.

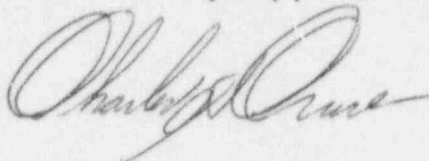
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Should you have questions regarding this matter, we will be pleased to discuss them with you.

Very truly yours,



STATE OF MARYLAND :  
: TO WIT:  
COUNTY OF CALVERT :

I hereby certify that on the 19<sup>th</sup> day of April, 1996, before me, the subscriber, a Notary Public of the State of Maryland in and for St. Mary's County, personally appeared Charles H. Cruse, being duly sworn, and states that he is Vice President of the Baltimore Gas and Electric Company, a corporation of the State of Maryland, that he provides the foregoing response for the purposes therein set forth; that the statements made are true and correct to the best of his knowledge, information, and belief, and that he was authorized to provide the response on behalf of said Corporation.

WITNESS my Hand and Notarial Seal:

Laura A. Martin  
Notary Public  
LAURA A. MARTIN  
NOTARY PUBLIC STATE OF MARYLAND  
My Commission Expires July 1, 1998  
April 19<sup>th</sup> 1996  
Date

My Commission Expires:

CHC/JMO/dlm

Attachment: (1) Baltimore Gas & Electric Company's 60-Day Summary Response to GL 96-01:  
Testing of Safety-Related, Logic Circuits

cc: D. A. Brune, Esquire  
J. E. Silberg, Esquire  
L. B. Marsh, NRC  
D. G. McDonald, Jr., NRC  
T. T. Martin, NRC  
Resident Inspector, NRC  
R. I. McLean, DNR  
J. H. Walter, PSC

**ATTACHMENT (1)**

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**BALTIMORE GAS & ELECTRIC COMPANY'S  
30-DAY SUMMARY RESPONSE  
TO  
GENERIC LETTER 96-01:  
TESTING OF SAFETY-RELATED, LOGIC CIRCUITS**

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## ATTACHMENT (1)

### BALTIMORE GAS & ELECTRIC COMPANY'S 60-DAY SUMMARY RESPONSE TO GENERIC LETTER 96-01: TESTING OF SAFETY-RELATED, LOGIC CIRCUITS

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#### Requested Actions

*The Nuclear Regulatory Commission (NRC) requests that Baltimore Gas and Electric Company (BGE) take the following actions:*

- (1) *Compare electrical schematic drawings and logic diagrams for the reactor protection system, emergency diesel generator load shedding and sequencing, and actuation logic for the engineered safety features systems against plant surveillance test procedures (STPs) to ensure that all portions of the logic circuitry, including the parallel logic, interlocks, bypasses and inhibit circuits, are adequately covered in the surveillance procedures to fulfill the Technical Specification requirements. This review should also include relay contacts, control switches, and other relevant electrical components within these systems, utilized in the logic circuits performing a safety function.*
- (2) *Modify the surveillance procedures as necessary for complete testing to comply with the Technical Specifications. Additionally, the licensee may request an amendment to the Technical Specifications if relief from certain testing requirements can be justified.*

#### Required Response

Generic Letter (GL) 96-01 requires BGE to submit the following:

*Within 60 days of the date of GL 96-01, we must submit a written response indicating whether we will implement the requested actions and our schedule for implementing them. If we choose not to take the requested actions, we must submit a description of any proposed alternative course of action, the schedule for completing the alternative course of action (if applicable), and the safety basis for determining the acceptability of the planned alternative course of action.*

#### Baltimore Gas and Electric Company's Response

##### Past Efforts to Review the Adequacy of Surveillance Test Procedures

In 1992, we completed an extensive review of the STPs in the scope of GL 96-01. The goals of our review were to increase the overall quality of STPs and to reduce the number of Licensee Event Reports being written because of weaknesses in the Surveillance Test Program. Baltimore Gas and Electric Company developed a two-phase approach to review and improve the program. In the first phase, we reviewed each Technical Specification surveillance requirement to ensure that each requirement was being addressed. A cross-reference list of the surveillance requirement and its implementing procedure was developed. Phase one was completed in December 1989.

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The second phase was the STP Technical Adequacy Review Project (TARP). It was completed in February 1992. Phase two included the following:

- Verifying the technical adequacy of each STP to ensure it satisfied the intent of the surveillance requirements;
- Researching and reconstructing the bases for each surveillance requirement (wherever possible); and
- Conducting a Failure Modes and Effects Analysis of each procedure to identify component/equipment failures that would not be detected during performance of the existing STP. Such failures could result in false satisfactory indications of the test performed.

At the same time, we were implementing the Procedure Upgrade Project (PUP). The PUP goal was to improve management control of plant configuration and administrative functions through improvements in procedure adequacy, consistency, and human factors considerations. The NRC Region I Resident Inspection Report Nos. 50-317/93-28 and 50-318/93-28 noted that upgrades to all surveillance test procedures were completed in December 1992. Additionally, it noted that the "... inspectors reviewed selected upgraded procedures and found that procedures were of high quality. The procedures were consistent with the appropriate writers guide and incorporated human factors considerations ..."

As a result of the TARP and PUP, each STP was reviewed and revised, as necessary, to ensure the following:

- The intent of the surveillance requirement was being fulfilled by the STP;
- The STP adequately tested the system, component, logic, and/or electrical circuitry (based on the plant as-built configuration), including verification of continuity and overlap; and
- Testing techniques, utilized in the STP, did not invalidate the test results.

Our change processes ensure STPs are reviewed and revised as necessary to support Technical Specification changes and plant modifications. The procedure change process ensures our STPs meet the intent of the Technical Specification surveillance requirements. The combination of TARP, PUP and our change processes provide us with a very high confidence that our STPs meet the surveillance requirements of our Technical Specifications.

#### Additional Efforts to Ensure the Adequacy of Surveillance Test Procedures

We will expend additional effort to implement actions beyond those requested in GL 96-01. Our additional effort will focus on plant modifications, changes to Unit-1 and Unit-2 Technical Specifications, and



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changes to implementing procedures that have occurred since February 1992. Furthermore, our additional effort will provide a self-assessment of the effectiveness of our change processes.

- Our actions for the Unit-1 Reactor Protective System and Engineered Safety Features Systems will be completed by the end of the Unit 1 refueling outage that is currently scheduled for spring 1998.
- Our actions for the Unit-2 Reactor Protective System and Engineered Safety Features Systems will be completed by the end of the Unit 2 refueling outage that is currently scheduled for spring 1997.
- Our actions for the emergency diesel generator load shedding and sequencing logic circuits will be completed on a schedule that supports testing required to complete the Emergency Diesel Generator Project. These actions will be completed by the end of the Unit 1 refueling outage that is currently scheduled for scheduled for spring 1998.