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DEC 19 1990

Dockets Nos. 50-317
50-318

Baltimore Gas and Electric Company
ATTN: Mr. George C. Creel
Vice President - Nuclear Energy
Calvert Cliffs Nuclear Power Plant
MD Routes 2 and 4
Post Office Box 1535
Lusby, Maryland 20657

Gentlemen:

Subject: NRC Region I Special Team Inspection Report No. 50-317/90-24

This refers to your letter dated November 19, 1990, in response to our letter dated October 9, 1990. Thank you for informing us of the actions documented in your letter. Your actions appear to be appropriate at this time. We will review the actions you have taken in a future NRC inspection.

Your cooperation with us is appreciated.

Sincerely,

ORIGINAL SIGNED BY:
CURTIS J. COWGILL

James C. Linville, Chief
Reactor Projects Branch No. 1
Division of Reactor Projects

cc:

- R. McLean, Administrator, Nuclear Evaluations
- J. Walter, Engineering Division, Public Service Commission of Maryland
- G. Adams, Licensing (CCNPP)
- K. Burger, Esquire, Maryland People's Counsel
- P. Birnie, Maryland Safe Energy Coalition
- Public Document Room (PDR)
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- Nuclear Safety Information Center (NSIC)
- NRC Resident Inspector
- State of Maryland (2)

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bcc:

Region I Docket Room (w/concurrences)

R. Bellamy, DRSS

J. Linville, DRP

C. Cowgill, DRP

R. Summers, DRP

F. Lyon, DRP

M. Callahan, OCA

R. Capra, NRR

D. McDonald, NRR

J. Caldwell, EDO

RJS
RI:DRP
RSummers/mjd

12/14/90

RJS for
RI:DRP
CCowgill

12/14/90

[Signature]
RI:DRP
JLinville

12/14/90

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CHARLES CENTER • P.O. BOX 1475 • BALTIMORE, MARYLAND 21203-1475

GEORGE C. CREEL
VICE PRESIDENT
NUCLEAR ENERGY
3011 260-4455

November 19, 1990

U. S. Nuclear Regulatory Commission
Washington, DC 20555

ATTENTION: Document Control Desk

SUBJECT: Calvert Cliffs Nuclear Power Plant
Unit No. 1; Docket No. 50-317
Response to Concerns Identified in Special Team Inspection Report
No. 50-317/90-24

Gentlemen:

The subject report documented the conclusions of a Special Team Inspection. The team reviewed a Reactor Vessel water level anomaly that occurred while draining the Unit 1 Reactor Coolant System on August 30, 1990. As requested, Baltimore Gas and Electric Company is providing a response to concerns identified within the report. Attachment (1) details the manner in which we plan to address these concerns, as well as additional actions we have taken or plan to take as a result of our investigation.

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

Very truly yours,

GCC/DWM/bjd

Attachment

cc: D. A. Brune, Esquire
J. E. Silberg, Esquire
R. A. Capra, NRC
D. G. McDonald, Jr., NRC
T. T. Martin, NRC
L. E. Nicholson, NRC
R. I. McLean, DNR

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ATTACHMENT (1)

RESPONSE TO CONCERNS IDENTIFIED IN SPECIAL TEAM INSPECTION REPORT NO. 50-317/90-24

On August 30, 1990, while performing a Reactor Coolant System (RCS) draining evolution on Calvert Cliffs Unit 1, an unexpected Reactor Vessel Level Monitoring System (RVLMS) indication was received. Following preliminary supervisory review of the evolution, the General Manager-Calvert Cliffs Nuclear Power Plant formed an investigation team to review the evolution in detail. The goal of the investigation team was to ensure a complete understanding of the sequence of events, identify the root cause of the RVLMS indication, assess equipment and operator response, and determine if procedure controls were adequate.

The root cause of the unexpected RVLMS indication was determined to be expansion of air trapped inside the Control Element Drive Mechanisms (CEDMs). The air was originally trapped inside the Steam Generator tubes (following RCS fill and drawing a Pressurizer bubble) and subsequently swept into the Reactor Vessel head as part of RCS venting. Although the head was vented, CEDM venting was deferred due to an identified need to subsequently depressurize and drain the RCS to work on a Reactor Coolant Pump shaft seal. When the RCS was depressurized, the air expanded into the Reactor Vessel head and uncovered the uppermost RVLMS sensors.

Our team concluded that overall, operator actions were well controlled, methodical and conservative. Numerous parameters were monitored throughout the draining evolution to ensure adequate control of RCS inventory and that shutdown cooling was not affected. A safety assessment was made of the condition as compared to the applicable Updated Final Safety Analysis Report Chapter 14 event (Boron Dilution), and analyses supporting Generic Letter 88-17, "Loss of Decay Heat Removal." This assessment showed that there were no nuclear safety implications as a result of the air within the Reactor Vessel head.

Our team's findings were presented to the Plant Operations and Safety Review Committee, which concurred with and recommended approval of all the investigation recommendations.

As discussed in the subject Nuclear Regulatory Commission (NRC) Inspection Report, the conclusions of our investigation team were in substantial agreement with that of the NRC team. The Inspection Report identified and requested a response to three specific concerns. The following provides our actions for each concern, as well as a summary of additional actions planned or taken as a result of our investigation.

CONCERN

Operators vented the Reactor Vessel head without first understanding the chemical and radiological content of the gas. Since the Reactor Vessel head void was unexpected, additional personnel safety precautions should have been taken while venting this unknown gas.

RESPONSE

Prior to venting, the operators informed Radiation Safety that they were preparing to vent the Reactor Vessel head. Although a head vent sample was not drawn and analyzed prior to the first venting, Radiation Safety personnel had previously reviewed the RCS liquid activity and recent system breach airborne activity levels. As a result of this evaluation, Radiation Safety concluded that subsequent RCS venting would not result in a significant personnel hazard.

The Reactor Vessel head was vented to the bottom of the refueling pool with no personnel within 30 feet. Radiological samples taken and analyzed during venting verified that no personnel hazard existed.

ATTACHMENT (1)

RESPONSE TO CONCERNS IDENTIFIED IN SPECIAL TEAM INSPECTION REPORT NO. 50-317/90-24

We will review this event in Licensed Operator Training, emphasizing the need to consider additional personnel safety precautions when dealing with unusual plant conditions. We are currently evaluating whether or not to proceduralize key communication points in the process of venting gases from the RCS.

CONCERN

Calvert Cliffs Instruction CCI-300, "Use of Procedures," does not specifically define "journeyman knowledge" but reserves it for the "simplest of manipulations." CCI-300 indicates that more significant actions be performed in accordance with approved procedures. Operators used "journeyman knowledge" to complete the manual venting of the gas rather than an approved procedure.

RESPONSE

Operating Procedure-5, "Plant Shutdown from Hot Standby to Cold Shutdown," has been revised and includes an option to manually vent the Reactor Vessel head and adds flexibility for when venting can be performed.

In addition, when the Alarm Manual was consulted for an RVLMS low level alarm, it directed operators to Operating Instruction (OI)-1G, "Reactor Coolant Vessel Head and Pressurizer Vent System." This OI only addresses venting of the RCS using the head vent solenoid valves, which may not be effective at low pressures (atmospheric). The OI will be revised to include manual venting of the RCS in non-accident conditions.

We agree that the definition and application of journeyman knowledge needs evaluation and improvement. An Operations Quality Circle is pursuing this issue. We anticipate implementation of improvements by March 31, 1991.

CONCERN

A temporary modification to Channel B RVLMS caused a second low level light to illuminate along with the first. Operators were unaware of this modification and were consequently confused by the indication of one light on Channel A and two lights on Channel B.

RESPONSE

All operators were trained on existing temporary modifications on RVLMS. We will change the RVLMS OI to require providing more detailed information in the RVLMS operability log on the effects of any installed temporary modifications. The CCI for temporary modifications will be changed to clarify the requirements for hanging control board tags adjacent to indicators affected by temporary modifications.

Finally, we have assigned a Temporary Modifications Task Force to address possible improvements to overall operator awareness of installed temporary modifications and their effect on plant systems. We expect completion of this task by December 31, 1990.

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RESPONSE TO CONCERNS IDENTIFIED IN SPECIAL TEAM
INSPECTION REPORT NO. 50-317/90-24

ADDITIONAL ACTIONS BEING TAKEN

A summary of additional actions being taken is provided below.

• Operator Actions

Throughout the duration of the RCS draining evolution, two instances were identified where procedures were not explicitly followed. These have been documented and are being addressed via our Problem Report system.

• Air/Gas Intrusion into the RCS

As part of the root cause determination, additional gas sources which could potentially contribute to this type of event were identified. These include nitrogen from local leak rate testing and pressure transmitter calibrations.

We are training personnel to report excessive nitrogen use during maintenance and testing.

• Detail of CRO Logs

Lack of detail in the Control Room Operator (CRO) logs made reconstruction of the event difficult. We are evaluating the level of detail in the CRO logs and if it is deemed to be important for post-event analysis, and cannot be obtained from other sources, the detail of the logs will be increased.