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ARTHUR E. LUNDVALL, JR.
VICE PRESIDENT
SUPPLY

November 15, 1982

Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, D.C. 20555

Attn: Mr. Robert A. Clark, Chief
Operating Reactors Branch #3
Division of Licensing

Subject: Calvert Cliffs Nuclear Power Plant
Unit No. 1; Docket No. 50-317
Pressurized Thermal Shock (PTS) Audit

Gentlemen:

We have received a copy of "NRC Staff Audit of Procedures and Training for Pressurized Thermal Shock - Calvert Cliffs Nuclear Power Plant Unit 1," conducted by D. Morisseau, J. Buzy, and B. Clayton. We have reviewed the audit report, and we intend to satisfy ourselves that the concerns expressed in the "recommendations" section of the report are addressed.

We feel that it is essential that information concerning plant specific response developed during the course of the NRC Task Action Plan for Unresolved Safety Issue A-49 is incorporated in future revisions to our operating procedures and operator training programs. In many cases the implementation of the Combustion Engineering Owners Group Emergency Procedure Guidelines will resolve the issue. Our position on each of the recommendations is provided as an attachment to this letter.

As reported in our letter of October 28, 1982, we have assembled additional data on the chemistry of the longitudinal welds at Calvert Cliffs Unit 1. This supports more realistic evaluation and prediction of the material properties of the reactor vessel, and provides assurance of an even larger margin of safety than previously reported. These results underscore the fact that the PTS issue does not require precipitous changes in plant operation.

If you have any questions about our response, please do not hesitate to call.

Very truly yours,

H. H. Miller
for A. E. Lundvall, Jr.
Vice President-Supply

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Attachment

cc: J. A. Biddison, Jr., Esquire
G. F. Trowbridge, Esquire
Mr. D. H. Jaffe - NRC
Mr. R. E. Architzel - NRC

**RESPONSE TO RECOMMENDATIONS OF NRC STAFF AUDIT
OF PROCEDURES AND TRAINING OF PRESSURIZED THERMAL SHOCK -
CALVERT CLIFFS NUCLEAR POWER PLANT UNIT 1**

Recommendation 1:

Provide additional guidance in the procedures for loss of coolant and steam line rupture on preferred values and trends of pressure and temperature during recovery.

Response:

We intend to provide additional guidance to the operator on the desired trends to be established by the plant operator during a transient.

Recommendation 2:

Provide additional guidance in the procedures for loss of coolant, steam line rupture, and steam generator tube rupture on use of the high pressure safety injection and charging systems to control pressure and use of the auxiliary feedwater system and steam release paths to control cooldown. Use of the PORV's to control pressure when brittle fracture limits are approached should be included.

Response:

We intend to provide additional guidance to the operators in our emergency procedures. Changes to our emergency procedures will be performed in an integrated fashion upon completion and approval of the Combustion Engineering Owners Group Emergency Procedure Guidelines and the establishment of appropriate implementation procedures for those guidelines in developing our plant specific EOP's.

Recommendation 3:

Review the use of and need for cross-referencing among procedures. Of particular concern is the referencing of the Loss of Coolant Procedure to verify natural circulation instead of the Natural Circulation Procedure.

Response:

We intend to accomplish the intent of this recommendation in the implementation of the Combustion Engineering Owners Group Emergency Procedure Guidelines.

Recommendation 4:

Evaluate the need for additional guidance following the steam line rupture to ensure sufficient boron addition for reactivity control while trying to limit cooldown.

Response:

We will evaluate this issue and provide additional guidance to the operator if required.

Recommendation 5:

In conjunction with procedure revisions recommended by this audit, the training department should develop training sessions using available analysis to demonstrate how major parameters respond during postulated PTS events. These parameters include effects on core cooling and shutdown margin. Procedures requiring integrated response by operating personnel should be reviewed in classroom lectures as well as the control room. Training should include recovery from PTS challenges with and without steam bubbles in the reactor coolant system and also with and without forced flow. Strategies for options for use of the pressurizer PORV's should also be included in these training sessions.

Response:

We are involved in multiple programs to evaluate Calvert Cliffs' plant specific response to various PTS related transients. The results of thermal-hydraulic studies performed by BG&E, the Electric Power Research Institute, and Los Alamos National Laboratories will significantly enhance our understanding of plant response to PTS transients. In the interim, our requalification program in 1983 on Emergency Operating Procedures will include integrated plant response and parameter response to postulated transients.

Recommendation 6:

All licensed personnel should review shutdown margin calculations for all events that include use of emergency boration with and without use of safety injection.

Response:

We have reviewed operator knowledge in this area and additional training is being provided to selected operators during the requalification sessions scheduled for completion in the first week of December, 1982.

Recommendation 7:

Reference of inputs to all instruments or computer points contained in normal and emergency operating procedures should be readily available to control room personnel.

Response:

We will study possible strategies for implementation of this recommendation.

Recommendation 8:

Review the exercises conducted at the CE simulator that include depressurization events until saturation conditions develop in the reactor coolant system. If the simulator model does not respond as predicted, provide the method(s) that have been used to complete transient training.

Response:

As previously mentioned, we expect to extend our theoretical understanding of plant response through analyses performed in-house and under NRC Task Action Plan A-49 and EPRI studies. Simulator response for the Calvert Cliffs plant specific simulator will be tested on delivery. We believe that it will be more effective and will be more appropriate to make a detailed comparison at that time to ensure that any discrepancies in simulator response are addressed by appropriate additional operator training.