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VICE PRESIDENT
SUPPLY

October 28, 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 1; Docket No. 50-317
Pressurized Thermal Shock

References: a) BG&E Letter from A. E. Lundvall to R. A. Clark dated October 20, 1981; same subject

b) NRC letter from T. M. Novak to A. E. Lundvall, Jr. dated December 18, 1981

Gentlemen:

One of the critical parameters of a realistic evaluation of the pressurized thermal shock (PTS) phenomenon is weld chemistry: the concentration of various elements in the reactor vessel weld material. Over the last several months, we have been able to better characterize our most critical weld materials, permitting a more accurate assessment of the ability of the Calvert Cliffs Unit 1 reactor vessel to sustain a postulated PTS transient without damage.

In our earlier submittals (reference (a)), we had suggested that a concentration of 0.25% copper (by weight) was a reasonable and conservative value representative of the longitudinal welds of the intermediate and lower courses of the Calvert Cliffs Unit 1 reactor vessel. At that time, no chemical analysis of that particular weld material was available. The Staff responded in reference (b) that since a higher copper concentration (0.30% copper) was known to exist in the Calvert Cliffs vessel (in one of the circumferential welds), in the absence of supporting data, that value would be used for computation of the embrittlement of the CCNPP vessel.

Through the Nuclear Regulatory Commission's MATSURV data base and with the assistance of the Electric Power Research Institute and Combustion Engineering, we have gathered data which indicates that the chemical composition of our most limiting longitudinal weld seam is:

A049

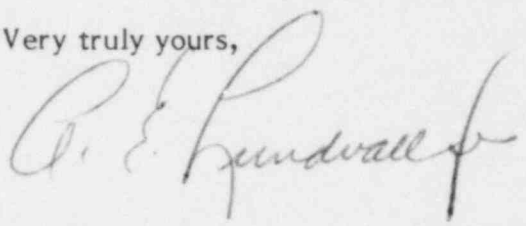
Element	Concentration (by weight)
Copper	0.21%
Nickel	0.85%
Phosphorus	0.20%

Attachments to this letter provide the basis for these values.

We feel that it is essential that this new information be incorporated into current and future PTS analysis on Calvert Cliffs. The improved characterization of our reactor vessel leads to the conclusion that Calvert Cliffs Unit 1 will not reach any of the screening criteria proposed by the NRC Staff prior to expiration of the plant's operating license. Of course, this in no way diminishes our commitment to supporting the Commission's Task Action Plan for resolution of Unresolved Safety Issue A-49, Pressurized Thermal Shock.

If you have any questions about this information, please do not hesitate to contact us.

Very truly yours,



AEL/MDP/gvg

Attachment

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Calvert Cliffs Nuclear Power Plant
Unit 1 Longitudinal Weld
Chemistry Assessment

Calvert Cliffs Unit 1 longitudinal weld seams are of particular interest in resolving the pressurized thermal shock issue because these are the "critical welds;" i.e., those subjected to a) the largest pressure stress and b) above-average fluence over a large proportion of their lengths. The beltline circumferential weld is represented in our surveillance program.

The Calvert Cliffs Unit 1 upper and intermediate course longitudinal weld seams (1-203 and 2-203) were fabricated using the tandem arc procedure with Linde 1092 flux lot number 3833 and B-4 specification weld wires from heat numbers 20291 and 12008. The lower course longitudinal weld seams (3-203) were fabricated using Linde 1092 flux lot number 3869 and wires from heat number 21935. Pertinent data have been obtained from a weld wire data search by Combustion Engineering at their Chattanooga facility, and from data on the Cooper Station (a General Electric boiling water reactor owned by the Nebraska Public Power District). The weld material in the surveillance program at the Cooper Station was fabricated by the single wire process with B-4 wire heat number 20291 and Linde flux 1092 lot number 3833.

Table 1 provides chemistry data from single wire deposits, while Table 2 provides similar data for tandem wire deposits. Flux lot differences are assumed to have little effect on weld deposit chemistry.

TABLE 1

B-4 Single Wire Deposits (Wt %) Chemistries

Heats	Source	Cu	Ni	P
12008	CE Chattanooga	0.20	NA	.015
20291	Cooper Station	0.21	0.74	.021
21935	CE Chattanooga	0.21	0.68	.015
305414	CE Chattanooga	0.35	0.60	.013
27204	CE Chattanooga	0.18	0.96	.013

TABLE 2

B-4 Tandem Wire Deposit (Wt %) Chemistries

Heats	Source	Cu	Ni	P
12008 21935	CE Chattanooga	0.20-0.22	NA	.015
12008 305414	CE Chattanooga	0.28	0.74	.016
12008 27204	CE Chattanooga	NA	0.98	.015

It is reasonable to infer from the above data that the pertinent Calvert Cliffs longitudinal weld chemistry is:

Weld Nos.	Heats	Cu	Ni	P
1-203 2-203	{ 12008 { 20291	0.21	0.85	.020
3-203	21935	0.21	0.68	.015