



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

ELECTRIC ENGINEERING  
DEPARTMENT

May 17, 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  
Units Nos. 1 & 2; Docket Nos. 50-317 & 50-318  
Boron Precipitation During Long Term ECCS Operation

Reference: Letter from J. W. Gore, Jr. to D. L. Ziemann dated  
April 16, 1975.

Gentlemen:

As a result of conversations with Mr. D.H. Jaffe of your staff, we are providing additional information concerning the prevention of boron precipitation in the reactor vessel during long-term ECCS operation. Attached are descriptions of the primary and alternate flushing flow paths which will be used to preclude boron precipitation. We are also enclosing with Mr. Jaffe's copy of this letter (only) copies of the drawings which show those flow paths:

BG&E Dwg. 60-729-E (OM-72)  
BG&E Dwg. 60-730-E (OM-73)  
BG&E Dwg. 60-731-E (OM-74)

If you require additional copies of these drawings or would like to discuss this information, please have Mr. Jaffe contact us.

Very truly yours,

R. C. L. Olson  
Principal Engineer  
Nuclear Licensing & Analysis Unit

RCLO/klb  
Enclosures

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

8205210350 820517  
PDR ADDCK 05000317  
F PDR

A001  
s  
1/1

#### ATTACHMENT

The primary procedure (hot leg injection) promotes flow through the core by establishing a flow path from the Containment Sump through the Low Pressure Safety Injection System via the warm-up line to the Shutdown Cooling suction line and into the hot leg.

More specifically, flushing water flows through the following path:

- from the containment sump (Refer to Dwg. OM-74)
- through valve MOV-4144 or MOV-4145 (Containment sump discharge valves, opened by RAS)
- through LPSI pump #11 and 1-SI-447 (locked open) or LPSI pump #12 and 1-SI-435 (locked open)
- through CV-306 (LPSI flow control valve)
- through FE-306
- through FE-332
- through MOV-399 (newly installed - opened by Control Room Operator)
- through SI-400 (which is locked open)
- through MOV-651 and MOV-652 (SDC return header isolation valves) into RCS hot leg #12 (OM-72) and into the vessel.

The alternate procedure (pressurizer injection) is used in the unlikely event that the primary flowpath is unavailable. Core flushing is provided by diverting a portion of HPSI flow into the hot leg via the pressurizer auxiliary spray line and surge line.

More specifically, water flows through the following path:

- from the common discharge of HPSI pumps 11,12 & 13 (Dwg. OM-74)
- through line 6" DC-1-1009
- through MOV-656 (HPSI header isolation valve, opened by SIAS)
- through lines 6" CC-6-1001 and 2" CC-6-1003 (Dwg. OM-73 zone G-1)
- through MOV-269 (newly-installed bypass around CVC-269 & 270) down the line and through CVC-182
- upline 2" CC-7-1001
- through FE-212 and CVC-188
- through the regenerative heat exchanger
- through CV-517 (auxiliary spray line control valve) and CVC-389
- through the auxiliary spray line (Dwg. OM-72 zone B-8) into the pressurizer
- through the pressurizer surge line
- into RCS hot leg #11 and into the vessel