



GE Nuclear Energy

ABWR

Date 5/11/92

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Subject GENERIC LETTER 80035

Message JIM STEWART REQUESTED (THRU
MONTY ROSS) THAT GE HELP IN
ANSWERING QUESTIONS ON THE
SUBJECT LETTER.

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abwrd047.wpa

Generic Letter 80035
DC Power Supplies

Question 1

What valves are powered by a D.C. power supply?

Response

See list attached

Question 2

How do they fail? (fail open, fail close, or fail as is)

Response

DC powered motor operated valves fail as is. Air operated valves with DC powered solenoids fail as indicated on the P&IDs.

Question 3

Has GE performed effects of D.C. power supply failure on ECCS performance analysis?

Response

Yes, loss of DC has been included. Since all switchgear breakers and all multiplexed control circuits are dependent on DC for operation, loss of DC results in the complete loss of the ability of the safety division to function. It makes no difference whether the power to the final element is DC or AC. For this reason, loss of DC has been included as a possible failure mode in all probability studies involving the loss of power.

Question 3.A

What injection systems are available to inject water into the vessel when a D.C. power supply is failed? (worst case small LOCA and worst case large LOCA)

Response

The systems remaining following the loss of DC for a division would be the same as those shown in SSAR Table 6.3-3 for the loss of the diesel generators except that RCIC would also be lost as compared to the systems remaining for the loss of diesel generator A. Tabulating for loss of DC:

<u>Assumed Failure</u>	<u>Systems Remaining</u>
Division A DC	All ADS, 2 HPCF, 2 RHR/LPFL
Division B or C DC	All ADS, RCIC, 1 HPCF, 2 RHR/LPFL

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Since the injection capacity of the RCIC is less than for one division of the HPCF, the limiting case is loss of division B or C DC. This limiting case is equivalent to the loss of diesel generator B or C as listed in Table 6.3-3, which was the most limiting case for the analyses in the SSAR section 6.3.3. Therefore, the LOCA analysis as summarized in Table 6.3-4 is completely applicable to the worst case of loss of DC power to divisions B or C for all classes of breaks.

Question 3.8

Is that enough to keep the peak cladding temperature within the safety limit?

Response

Yes, as indicated in Table 6.3-4, the peak clad temperatures (PCT) are well below the 2200 degree F PCT limit.

Attachment 1

DC MOTOR OPERATED VALVES

ABWR

1613	E51-F001	1	-8200	6.1 D.4	MO GATE VALVE (CST)	795E883/4	N/A	4	DCMCC A1
1614	E51-F004	1	12500	4.0 A.5	MO GATE VALVE (INJ)	795E883/4	N/A	4	DCMCC A1
1615	E51-F005	1	12300	3.2 A.6	AO CHECK VALVE	795E883/4	N/A	40	DC A1
1616	E51-F006	1	-7050	5.8 C.3	MO GATE VALVE (PRACT)	795E883/4	N/A	4	DCMCC A1
1617	E51-F008	1	-8200	6.0 C.5	MO GLOBE VALVE (TEST)	795E883/4	N/A	5	DCMCC A1
1618	E51-F009	1	-8200	6.0 C.5	MO GLOBE VALVE (TEST)	795E883/4	N/A	5	DCMCC A1
1619	E51-F011	1	-8200	6.3 C.6	MO GLOBE VALVE (HTWFLD)	795E883/4	N/A	4	DCMCC A1
1620	E51-F012	1	-8200	6.0 C.6	MO GLOBE VALVE (HTWFLD)	795E883/4	N/A	4	DCMCC A1
1621	E51-F026	1	12500	3.2 A.6	AO GLOBE VALVE	795E883/4	N/A	40	DC A1
1622	E51-F031	1	-8200	6.3 C.6	MO GLOBE VALVE	795E883/4	N/A	N/A	DC A1
1623	E51-F032	1	-8200	6.3 C.6	AO GLOBE VALVE	795E883/4	N/A	N/A	DC A1
1624	E51-F035	1	14450	6.1 C.8	MO GATE VALVE (ST SUP)	795E883/4	N/A	7	DCMCC B1
1625	E51-F036	2	14450	6.0 C.8	MO GATE VALVE (ST SUP)	795E883/4	N/A	7	DCMCC B1
1626	E51-F037	1	-8200	6.0 C.5	MO GLOBE VALVE (ST SUP)	795E883/4	N/A	4	DCMCC A1
1627	E51-F039	1	5800	5.7 W.9	MO GATE VALVE (ST EX)	795E883/4	N/A	7	DCMCC A1
1628	E51-F040	1	-8200	6.2 C.4	AO GLOBE VALVE	795E883/4	N/A	40	DC A1
1629	E51-F041	1	-8200	6.2 C.4	AO GLOBE VALVE	795E883/4	N/A	N/A	DC A1
1630	E51-F043	1	-8200	6.0 C.5	MO GLOBE VALVE (STBYP)	795E883/4	N/A	4	DCMCC A1
1631	E51-F047	1	1200	5.9 C.6	MO GATE VALVE (VPO1SC)	795E883/4	N/A	7	DCMCC A1
1632	E51-F048	1	14450	6.1 C.8	MO GLOBE VALVE (STBYP)	795E883/4	N/A	4	DCMCC A1
1633	E51-F058	1	-8200	6.2 C.4	AO GLOBE VALVE	795E883/4	N/A	40	DC A1
1634	E51-F098*	1	-8200	6.0 C.5	GOVERNING VALVE (MO)	795E883/4	N/A	N/A	N/A
1635	E51-F099*	1	-8200	6.0 C.5	TRIP & THROT VALVE	795E883/4	N/A	N/A	DCMCC A1