

TABLE 6.5-1

PLANT PARAMETERS USED
LOCA ANALYSIS

<u>Plant Parameters</u>	<u>GE Analysis</u>		<u>FANP Analysis</u>
	<u>Nominal</u>	<u>Appendix K</u>	<u>Appendix K</u>
Core Thermal Power (MWt)	3458	3527	3527
Corresponding Power	100% of 3458 MWt	102% of 3458MWt	102% of 3458 MW
Vessel Steam Output (lbm/hr)	14.2×10^6	14.5×10^6	14.47×10^6
Rated Core Flow (lbm/hr)	102.5×10^6 *	102.5×10^6 *	102.5×10^6 **
Vessel Steam Dome Pressure (psia)	1050	1053	1054
Maximum Recirculation Suction Line Break Area (ft ²)	4.24	4.24	7.013***
Maximum Recirculation Discharge Line Break Area (ft ²)	1.96	1.96	7.013***
Low Pressure Core Injection Valve Pressure Permissive for Opening (psig)	335	335	335
Core Spray Injection Valve Pressure Permissive for Opening (psig)	335	335	335
Recirculation Pump Discharge Valve Pressure Permissive for Closure (psig)	200	200	200
Diesel Start and Ready to Load (seconds)	20 (Suction Break) 23 (Discharge Break)	20 (Suction Break) 23 (Discharge Break)	20 (Suction Break) 23 (Discharge Break)

*Note: Limiting LOCA cases were analyzed for a core flow range of 83 to 107.6 Mlb/hr for 105% OLTP conditions.

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***Note: Maximum break area is for double-ended recirculation or discharge pipe break, which is twice the pipe cross section area.

TABLE 6.5-2

ECCS EQUIPMENT CAPACITY ASSUMED IN LOCA ANALYSIS

<u>Function</u>	<u>Number Installed</u>	<u>Flow</u>
HPCI	1	3,600 gpm at 1174 psid, linearly increasing to 5,000 gpm at 1120 psid; 5,000 gpm between 1120 psid and 150 psid within 35 seconds.
ADS Valves	6	800,000 lb/hr per valve at 1125 psig
Core Spray System	2 (two pumps for each system)	5600 gpm at 105 psid per two CS pumps *
LPCI Pump	4	9400 gpm at 20 psid per pump on one loop; 17,300 gpm at 20 psid per two pumps on one loop **

NOTE: psid - pounds per square inch differential between reactor vessel and primary containment (torus)

* Both GEH and FANP Analyses assume 5,435 gpm sprays inside of shroud after accounting for 40 gpm total leakage for LPCS as-built openings, core spray thermal sleeve-safe end connection and quarter inch high point vent hole in core spray vent hole. Also included are 125 gpm for leakages due to downcomer repairs.

** Both GEH and FANP Analyses assume 8,640 gpm and 16,540 gpm (1 pump and 2 pumps in a loop) injected into the shroud after accounting for 600 gpm leakage principally around the jet pumps and 160 gpm access hole cover leakage.

TABLE 6.5-3

SINGLE FAILURE EVALUATION USED FOR LOCA ANALYSIS

Assumed Failure	Remaining Systems ^{*,†}		Disposition
	Recirculation Suction Break [‡]	Recirculation Discharge Break	
Battery SF-BATT BA [§]	6 ADS, 1 LPCS, 2 LPCI	6 ADS, 1 LPCS	Analyze
Battery SF-BATT BB [§]	4 ADS ^{**} , HPCI, 1 LPCS, 2 LPCI	4 ADS ^{**} , HPCI, 1 LPCS	Analyze
Battery SF-BATT BC ^{§,††}	4 ADS, HPCI, 1 LPCS, 3 LPCI	4 ADS, HPCI, 1 LPCS, 1 LPCI	Bounded by SF-BATT BB
SF-LOCA (U1 & 2 only)	6 ADS, HPCI, 1 LPCS, 2 LPCI	6 ADS, HPCI, 1 LPCS	Bounded by SF-BATT BA and SF-BATT BB
SF-LPCI (Injection Valve)	6 ADS, HPCI, 2 LPCS, 2 LPCI	6 ADS, HPCI, 2 LPCS	Bounded by SF-BATT BA and SF-BATT BB
SF-DGEN (Diesel Generator)	6 ADS, HPCI, 1 LPCS, 2 LPCI	6 ADS, HPCI, 1 LPCS	Bounded by SF-BATT BA and SF-BATT BB
SF-HPCI	6 ADS, 2 LPCS, 4 LPCI	6 ADS, 2 LPCS, 2 LPCI	Bounded by SF-BATT BA
SF-ADS IL ^{‡‡} (Initiation Logic)	4 ADS, HPCI, 2 LPCS, 4 LPCI	4 ADS, HPCI, 2 LPCS, 2 LPCI	Bounded by SF-BATT BB
SF-ADS SV (Single Valve)	5 ADS, HPCI, 2 LPCS, 4 LPCI	5 ADS, HPCI, 2 LPCS, 2 LPCI	Bounded by SF-BATT BB

* Each LPCS means operation of two core spray pumps in a system. It is assumed that both pumps in a system must operate to take credit for core spray cooling or inventory makeup. Furthermore, 2 LPCI refers to two LPCI pumps into one loop, 3 LPCI refers to two LPCI pumps into one loop and one LPCI pump into one loop. 4 LPCI refers to four LPCI pumps into two loops, two per loop.

† 4 ADS, 5 ADS, and 6 ADS means the number of ADS valves available for automatic activation.

‡ Systems remaining, as identified in this table for recirculation suction line breaks, are applicable to other non-ECCS line breaks. For a LOCA from an ECCS line break, the systems remaining are those listed for recirculation suction breaks, less the ECCS in which the break is assumed.

§ SF-BATT|BX (X=A, B, or C) is the single failure of a Unit Battery that results in the loss of a downstream unitized 250V DC RMOV Board A, B, or C.

** A single failure of 250V RMOV Board B results in the loss of the normal power supply to ADS logic. Units 1, 2, and 3 are designed with an automatic transfer scheme for ADS logic power to provide four ADS valves for this board failure.

†† Unit 3 systems remaining. Conservative for Units 1 and 2.

‡‡ A special case of ADS failure involves failure of initiation logic. However, 4 ADS valves are single failure proof, and will still function automatically.

Table 6.5-4

SEQUENCE OF EVENTS FOR LIMITING RECIRCULATION DISCHARGE LINE BREAK BATTERY FAILURE
(SF-BATT|BA) (EXEM BWR-2000 LOCA METHODOLOGY)

<u>Events</u>	<u>Time (sec)</u>	
Initiate break	0.0	
Initiate scram	0.6	
Low-low liquid level, L2 (448 in)	40.1	
Low-low-low liquid level, L1 (372.5 in)	65.7	
Jet pump uncovers	95.6	
Recirculation suction uncovers	155.9	
Lower plenum flashes	182.1	
LPCS high-pressure cutoff	280.9	
LPCS valve pressure permissive	270.0	
LPCS valve starts to open	272.0	
LPCS valve fully open	305.0	
LPCS permissive for ADS timer	94.7	
LPCS pump at rated speed	97.7	
LPCS flow starts	280.9	
RDIV pressure permissive	312.5	
RDIV starts to close	314.5	
RDIV fully closed	350.5	
Rated LPCS flow	374.5	
ADS valves open	187.7	
Blowdown ends	374.5	
Bypass reflood	480.7	
Core reflood	423.4	
PCT	423.4	

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TABLE 6.5-5

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Table 6.5-6

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