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PLANT NAME: HBRobinson Unit #2

ENCLOSURES:

Proposed Change to Tech Specs re allowance of decrease in required boron concentration without immediate reactor shutdown....notarized 8-30-74...

(40 cys encl rec'd)

9-4-74 GMC

FOR ACTION/INFORMATION

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Carolina Power & Light Company

August 30, 1974

File: NG-3514 Serial: NG-74-1045

Mr. Edson G. Case, Deputy Director
Directorate of Licensing
Office of Regulation
U. S. Atomic Energy Commission
Washington, D. C. 20545

50-261

Dear Mr. Case:

H. B. ROBINSON UNIT NO. 2
LICENSE DPR-23
REQUEST FOR LICENSE AMENDMENT
REVISION OF TECHNICAL SPECIFICATIONS

In accordance with the Code of Federal Regulations, Title 10, Part 50.59, Carolina Power & Light Company hereby requests a revision to the Technical Specifications for its H. B. Robinson Unit No. 2 Plant. The revision concerns the allowance of a decrease in the required boron concentration in the Boron Injection Tank (BIT) below the specified limit without immediate reactor shutdown, and is attached in the form of page changes to the Technical Specifications.

Carolina Power & Light Company requests this change in light of the difficulty we have had in maintaining the boron concentration within the specified limits of 20,000 to 22,500 ppm boron (refer to letter, E. E. Utley to Messrs. Moseley and O'Leary, July 8, 1974, for a listing of these incidents), the present requirement that a sampled concentration of boric acid less than 20,000 ppm requires that the plant be placed in a hot shutdown condition immediately with no time allowance for confirmatory sample analyses or the addition of boric acid to bring the concentration in the BIT back into specification, and the fact that reanalysis of the steambreak accident has shown that a minimum BIT boron concentration of 15,000 ppm meets the acceptance criteria for all break sizes.

The supporting safety analysis for the BIT boron concentration of 15,000 ppm was performed by the reactor vendor, Westinghouse. The assumptions and methods used in the analysis are the same as those used in the steam line break analysis for the uprating of H. B. Robinson Unit No. 2, as documented in Section 4.4.2 of the report WCAP-8243, "H. B. Robinson Unit No. 2, Justification for Operation at 2300 MWt," December, 1973.

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All steam line break cases investigated in WCAP-8243 were investigated with the BIT boron concentration of 15,000 ppm. The results of the analyses are shown in Table 1 and Figures 1-5. The return to power cases of Table 1 show power levels insignificantly higher than those shown in Table 4.4-1 of WCAP-8243. Minimum core DNB ratios in all cases were considerably above 1.30. For the case of the credible break (a failed steam safety valve), the core remained subcritical during the entire transient (Figure 5). Thus, the acceptance criteria for all break sizes are met with a 15,000 ppm BIT boron concentration.

On the basis of the above analyses, Carolina Power & Light Company feels that the requested change to the Technical Specifications will not result in an increased risk to the health and safety of the public. Your attention to this matter is appreciated.

As required by Commission Regulations, this submittal is signed under oath by a duly authorized officer of the company.

Yours very truly,

E. E. Utley

E. E. Utley
Vice-President
Bulk Power Supply

Sworn to and subscribed before me this 30th day of August, 1974.

Judy Sloan

My Commission expires: 12-19-78

JUDY SLOAN NOTARY PUBLIC WAKE COUNTY, N.C.

DBW:mvp
Enclosures

cc: Messrs. N. B. Bessac
W. B. Howell
J. B. McGirt
D. V. Menscer
D. B. Waters

TABLE I

Summary of Steam Line Break Analysis

	CASE A					CASE B					CASE D				
Time (Sec)	38	47	56	61	96	25	34	45	53	86	24	32	46	65	103
Inlet Temp. In Loop Near Stuck Rod	453	442	435	432	414	425	408	398	395	377	437	414	386	362	337
Inlet Temp. Other Loops	507	499	493	491	467	512	503	495	491	464	519	516	515	513	512
Pressure (psia)	917	879	846	828	688	930	880	834	800	638	1109	947	980	975	913
Core Av Heat Flux % of 2300 MW	4.9	10.9	12.5	10.9	5.1	14.8	25.5	30.1	25.1	15.1	7.4	13.0	17.5	13.3	7.0
Flow % of Nominal	100	100	100	100	100	100	100	100	100	100	41.3	34.0	26.3	20.6	15.4
$F_{\Delta H}$	12.0	11.1	11.3	11.5	12.8	11.1	9.2	8.6	10.3	12.3	9.3	7.3	5.2	6.4	8.9

Break downstream of flow restrictor   offsite power available   case a

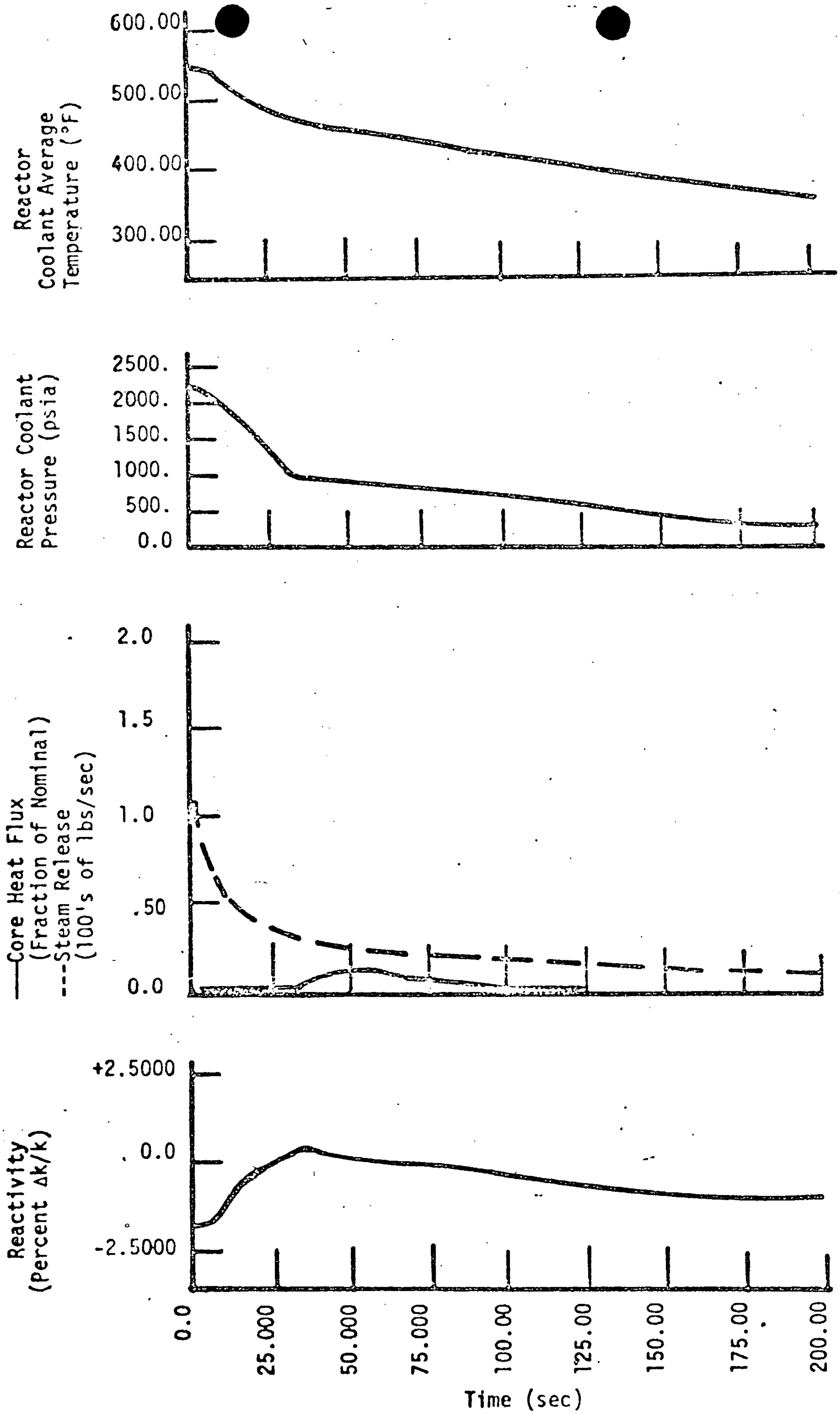


FIGURE 1
Steam Line Break

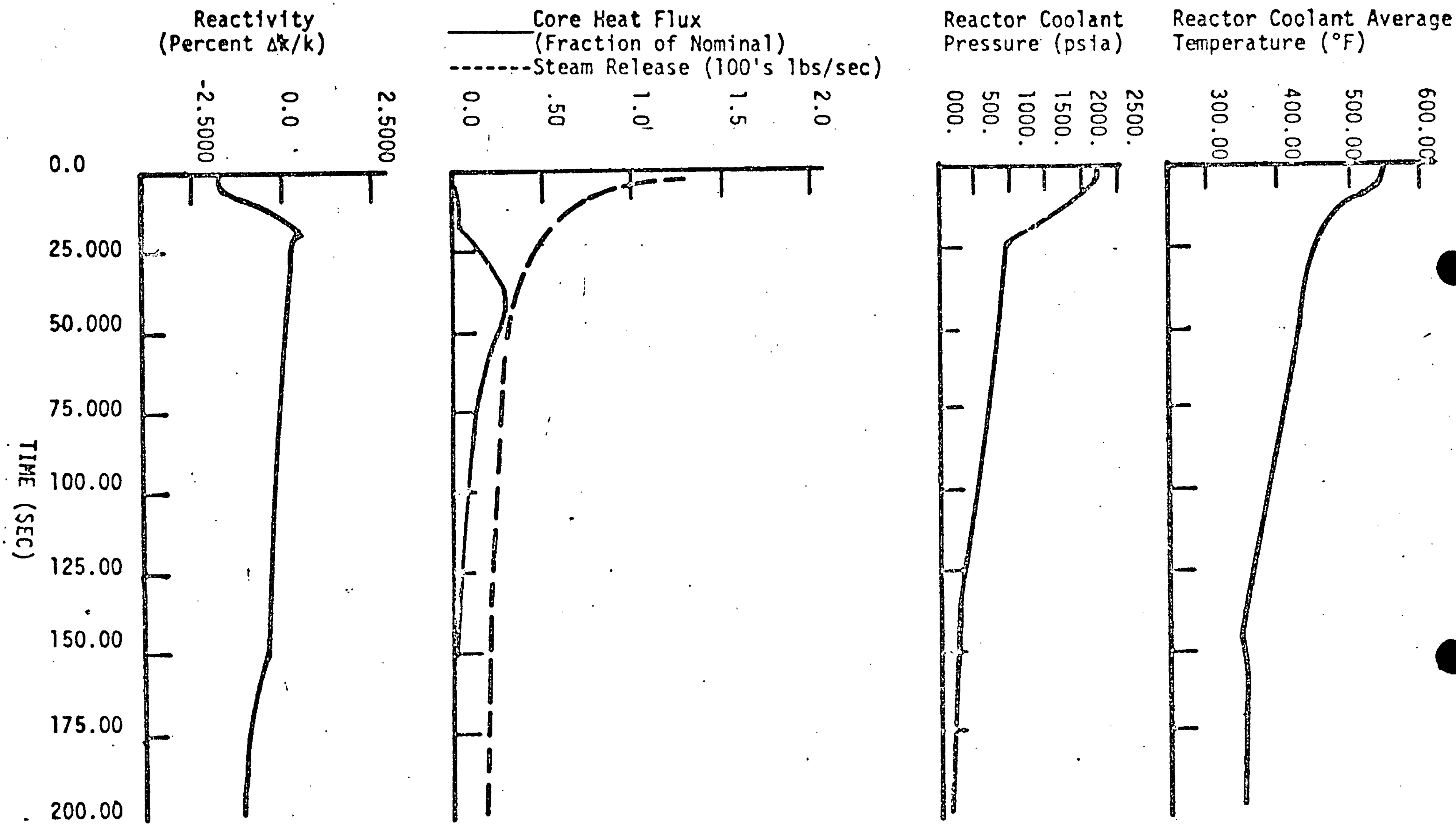


Figure 2
Steam Line Break

Break downstream of flow restrictor   no offsite power available   case c

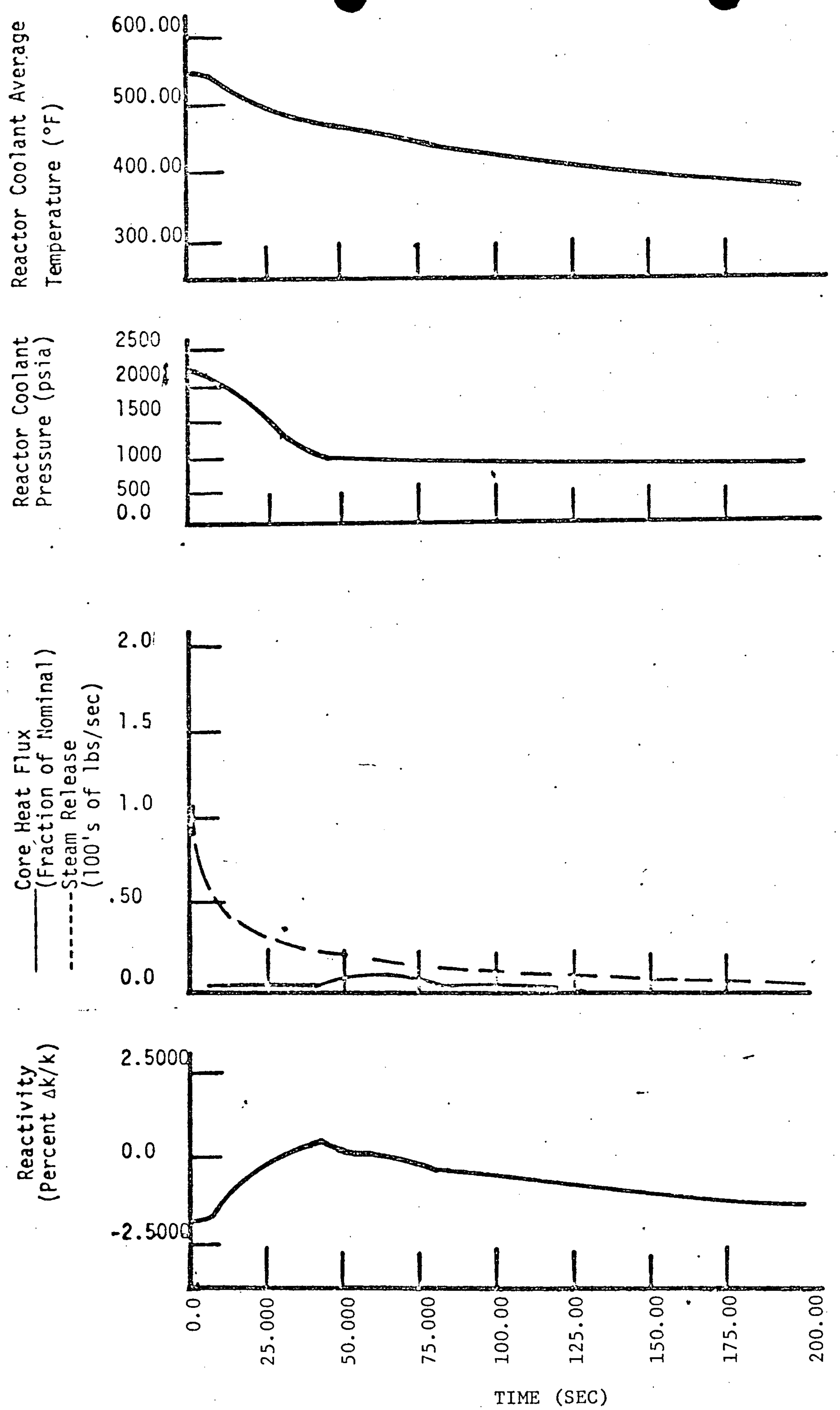
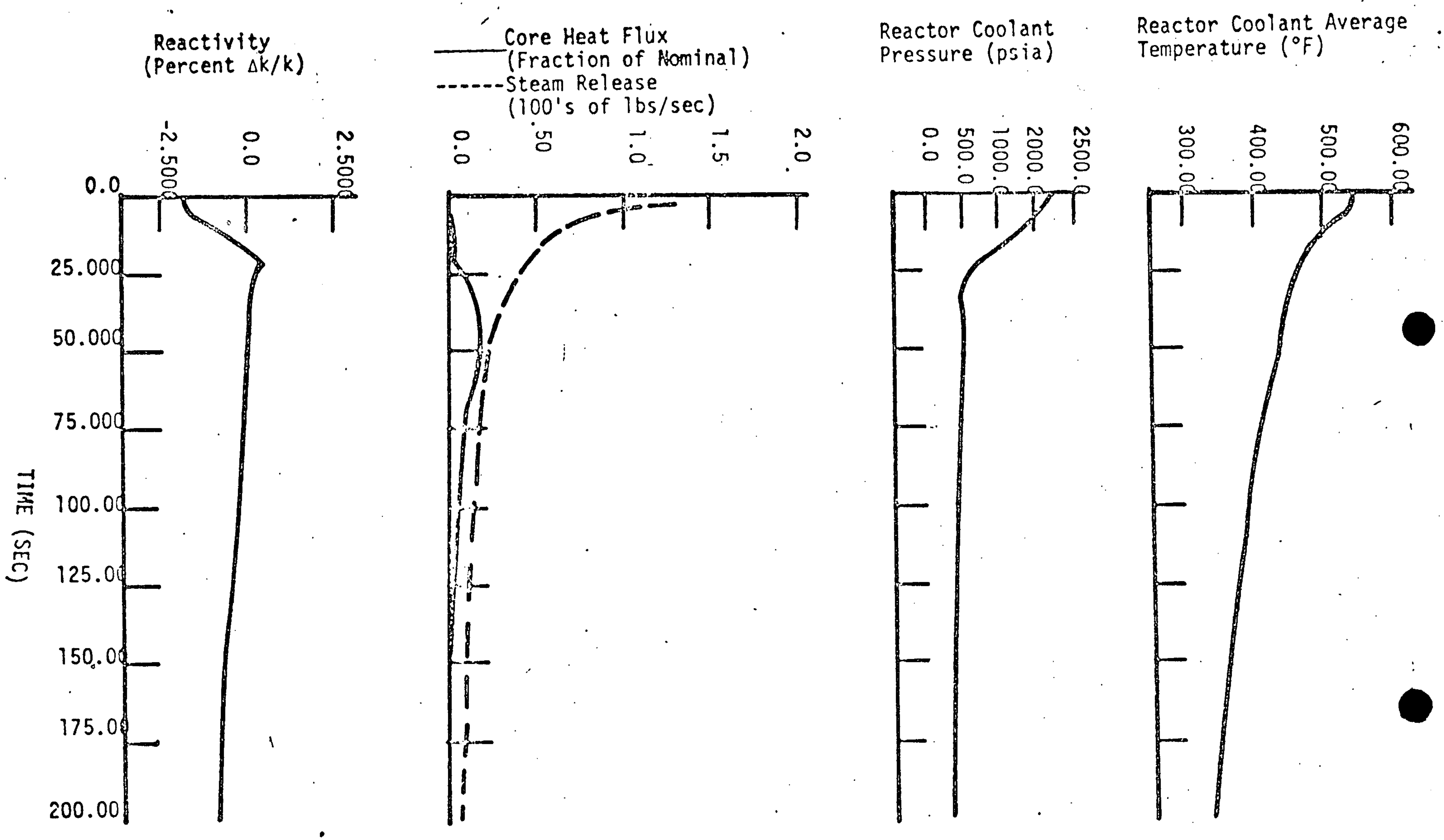


Figure 3
Steam Line Break



Break downstream of flow restrictor no offsite power available case d

Figure 4
Steam Line Break

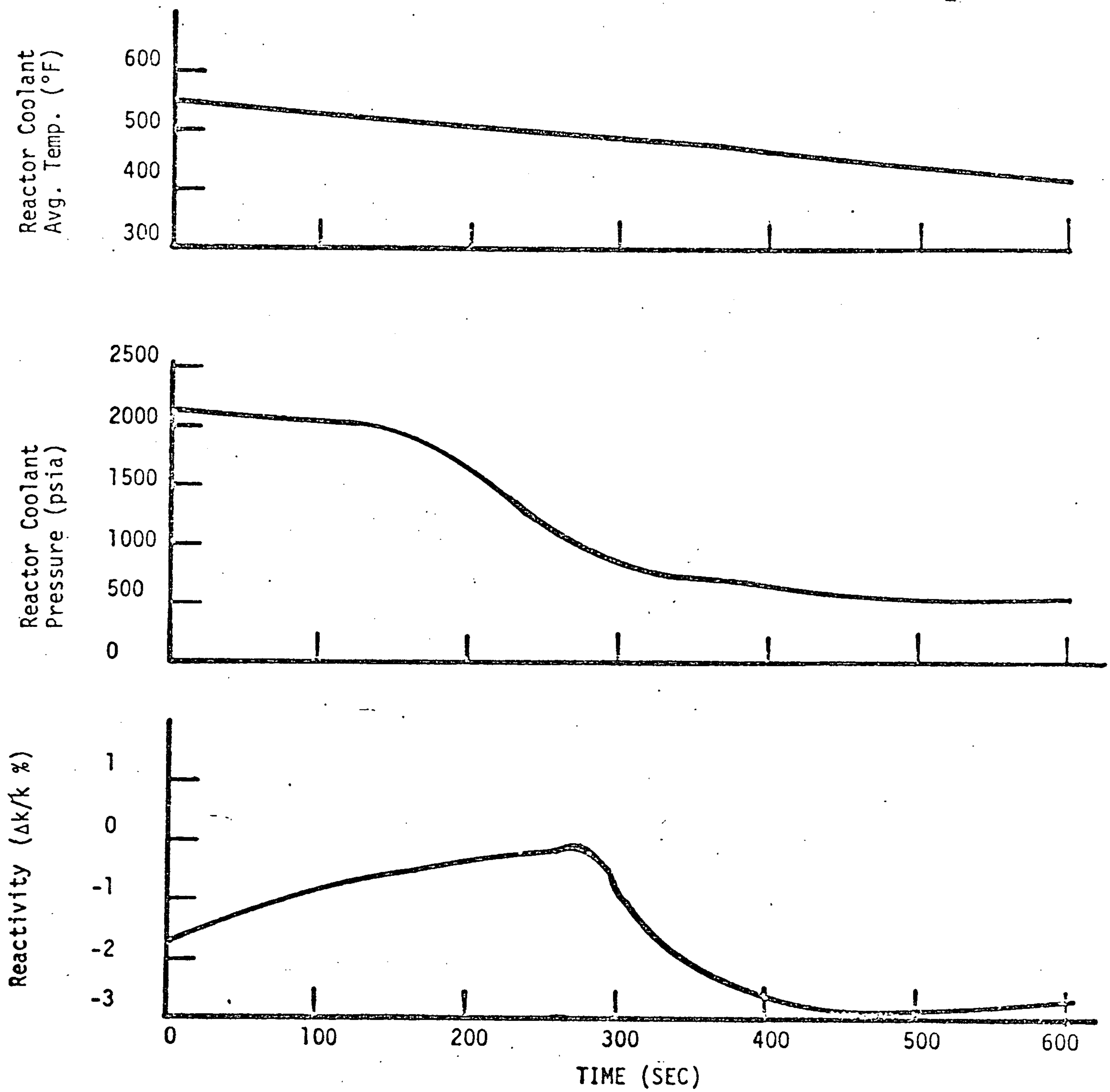


Figure 5

Failed Steam Safety Valve offsite power available case e

e. If any one flow path including valves of the safety injection or residual heat removal system is found to be inoperable during normal reactor operation, the reactor may remain in operation for a period not to exceed 24 hours, provided the other flow path(s) are demonstrated to be operable prior to initiating repairs. The hot leg injection paths of the Safety Injection System, including valves, are not subject to the requirements of this specification.

f. If the boron concentration in the boron injection tank falls below 20,000 ppm, and is greater than 15,000 ppm, the reactor may remain in operation for a period not to exceed 24 hours. If the concentration is less than 15,000 ppm, the reactor will be placed in the hot shutdown condition utilizing normal operating procedures.

3.3.1.3 When the reactor is in the hot shutdown condition, the requirements of 3.3.1.1 and 3.3.1.2 shall be met. Except that the accumulators may be isolated, and in addition, any one component as defined in 3.3.1.2 may be inoperable for a period equal to the time period specified in the subparagraphs of 3.3.1.2 plus 48 hours, after which the plant shall be placed in the cold shutdown condition utilizing normal operating procedures.

3.3.2 Containment Cooling and Iodine Removal Systems

3.3.2.1 The reactor shall not be made critical, except for low temperature physics tests, unless the following conditions are met:

a. The spray additive tank contains not less than 2505 gal. of solution with a sodium hydroxide concentration of not less than 30% by weight.

b. Two containment spray pumps are operable.

c. Four fan cooler units are operable.

d. All essential features, including valves, controls, dampers, and piping associated with the above components are operable.

e. The system which automatically initiates the sodium hydroxide addition to the containment spray simultaneously to the actuation of the containment spray is operable.

3.3.2.2 During power operation, the requirements of 3.3.2.1 may be modified to allow any one of the following components to be inoperable. If the system is not restored to meet the requirements of 3.3.2.1 within the time period specified, the reactor shall be placed in the hot shutdown condition utilizing normal operating procedures. If the requirements of 3.3.2.1 are not satisfied within an additional 48 hours, the reactor shall be placed in the cold shutdown condition utilizing normal operating procedures.

a. If one fan cooler unit or the flow path for a fan cooler unit becomes inoperable during normal reactor operation, the reactor may remain in operation for a period not to exceed 24 hours, provided both containment spray pumps are demonstrated to be operable.

sodium hydroxide addition, are capable of being operated on emergency power with one diesel generator inoperable. If all diesel generators are operating or another source of emergency power is available, the other containment spray pump, with sodium hydroxide addition, can be operated to provide iodine removal in excess of the minimum requirements. Adequate power for operation of the redundant containment heat removal system (i.e. four fan-cooler units and two containment spray pumps) is also assured in this case.

The Component Cooling System is different from the other systems discussed above in that the components are so located in the auxiliary buildings as to be accessible for repair after a loss-of-coolant accident.(4)

A total of four service water pumps are installed, a minimum of two of which are required to operate during the postulated loss-of-coolant accident.(5)

A minimum of 300,000 gallons of water will be maintained in the refueling water storage tank. This requirement is based on recirculation mode operation which may start with a depth of 1.5 feet on the containment floor. This depth of water is equivalent to the amount of water in the primary system plus 60% of the refueling water storage tank, approximately 215,000 gallons of water at 263°F.(1)

Analysis have shown that the consequences of the steam line break accident are successfully mitigated with a boron injection tank boron concentration of 15,000 ppm or greater.(9) The specification of 20,000 ppm as a minimum concentration is maintained to provide additional margin in the event of such an accident.

The post accident containment venting system is designed with redundant air supply and vent paths. The valves in the system will be demonstrated to be operable prior to criticality. Testing of the air supply system is not required because of the long lead time between an accident and the required operation of the venting system. This period of time will permit maintenance effort, if required. The efficiency of the filters in each vent path was not used in this safety analysis; therefore, testing of these filters is not required.(6)

The Isolation Seal Water System provides a reliable means for injecting seal water between the seats and stem packing of the globe and double disc types of isolation valves and into the piping between closed diaphragm type isolation valves.(7)

The minimum 775 ft^3 and maximum 791 ft^3 of water in the accumulators correspond to an instrument reading of 15% and 33% of instrument span, respectively.

References
(1) FSAR Section 6.2
(2) FSAR Section 6.3
(3) FSAR Section 14.3.5
(4) FSAR Section 9.3
(5) FSAR Section 9.6.2
(6) FSAR - Appendix 6B
(7) FSAR - Section 5.2.2
(8) CP&L report and supplemental letters of September 29, November 5, December 8, 1971, and March 20, 1972.
(9) CP&L letter of August 30, 1974.