Commonwealth Edison
One First National Plaza, Chicago, Illinois
Address Reply to: Post Office Box 767
Chicago, Illinois 60690

May 9, 1980

Mr. Harold R. Denton, Director
Office of Nuclear Reactor Regulation
U.S. Nuclear Regulatory Commission
Washington, DC 20555

Subject: Zion Station Units 1 and 2
Additional Information on Environmental
Qualification of Electrical Equipment
NRC Docket Nos. 50-295 and 50-304

References (a): March 20, 1980 letter from A. Schwencer to D. L. Peoples

(b): May 2, 1980 letter from D. L. Peoples to H. R. Denton

Dear Mr. Denton:

In reference (a), the NRC Staff requested Commonwealth Edison Company to provide the Staff with data necessary for the Staff calculation of containment environmental parameters.

Reference (b) indicated that Commonwealth Edison's response would be delayed about one week since a major portion of the information was being provided by Westinghouse.

Attachment 1 to this letter contains Commonwealth Edison's response to the NRC Staff's request for data contained in Enclosure 2 of Reference (a).

Please address any questions that you might have concerning this matter to this office.

One (1) signed original and thirty-nine (39) copies of this letter are provided for your use.

Very truly yours,

William F. Naughton
Nuclear Licensing Administrator
Pressurized Water Reactors

Attachment

SUBSCRIBED and SWORN to
before me this 9th, day
of May, 1980

Nancy M Rawlings
Notary Public

3742A

ATTACHMENT 1

Commonwealth Edison Company's Response
To
NRC Staff Request
For
DATA NECESSARY FOR THE STAFF CALCULATION OF
CONTAINMENT TEMPERATURE AND PRESSURE DECAY TIME
FOR
ZION STATION UNITS 1 AND 2

ZION - UNITS 1 & 2

A. Containment Net Free Volume

$2.736 \times 10^6 ft^3$

B. Passive Heat Sinks

Thickness (in)	Area (ft^2)
.25 steel, 12 concrete	54447
.25 steel, 12 concrete	15026
18 concrete	15500
.25 steel, 12 concrete	2000
12 concrete	36000
9 concrete	7000
.25 steel, 12 concrete	16000
.25 steel	54860
.375 steel	89300
0.6249 steel	1060
5.25 steel, 12 concrete	1147
.64 steel, 12 concrete	1400
10.51 steel, 12 concrete	186
24.25 steel, 12 concrete	54
.75 steel, 12 concrete	440
7.287 steel, 12 concrete	604
12.0308 steel, 12 concrete	181
0.25 steel, 12 concrete	14862
0.25 steel, 12 concrete	3712
0.375 steel	32000

Where steel only is listed, the exposed area is for both sides

	Density lb/ft^3	Specific Heat Btu/lb°F	Conductivity Btu/HR-ft°F
Steel Lined Concrete	511	0.11	26
Concrete	146	0.24	1.6
Steel	511	0.11	26

C. Initial Containment Conditions

Temperature	90°F
Pressure	14.7 psia
Relative Humidity	0.69 psia

D. Containment Spray System

Spray setpoint	23 psig
Spray system activation time	
Elapsed time to activate spray	5 sec
Elapsed time for all remaining items b thru g	41 sec
	46 sec

E. Fan Cooler System

Delay time for RCFC to effect heat removal	43 sec

Heat removal capability
Figure 14.3.4-1 attached

F. No other heat removal system.

G. Worst single failure is the loss of the emergency diesel for Bus 148. Equipment not operating:

2 Fan Coolers
1 Spray Pump
1 RHR Pump
1 SI Pump

H. Mass and Energy Release Data

Tables Q14.28-3 and 4 attached.

FAN COOLER HEAT REMOVAL RATE
VS.
CONTAINMENT PRESSURE

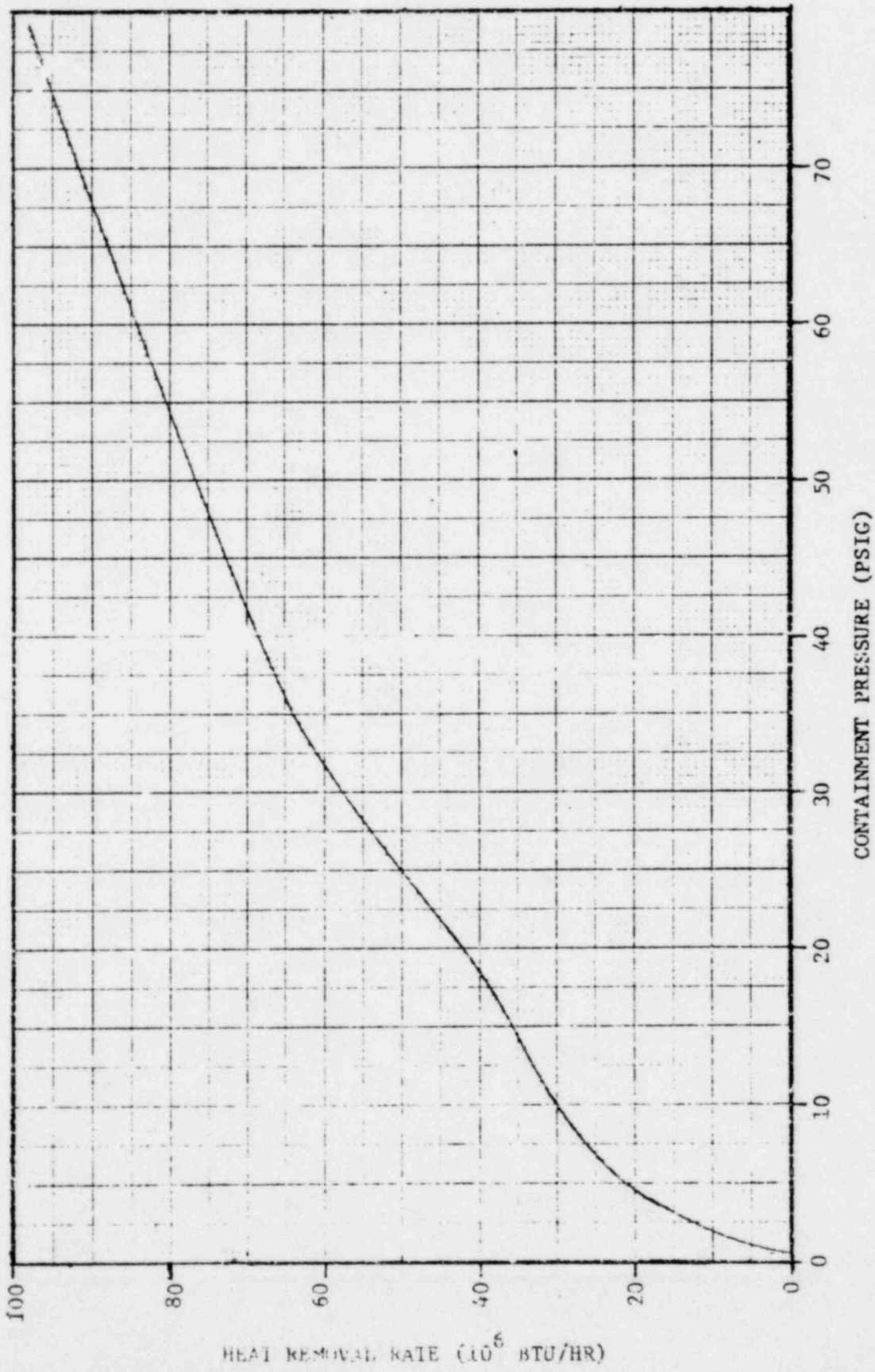


FIGURE 14.3.4-1

TABLE Q14.28-3

MASS AND ENERGY RELEASE OVER BLOWDOWN

Time (Sec)	Mass Rate (lbs/sec)	Energy Rate (BTU/sec)
1.00000E-08	6.61248E+04	3.43247E+07
2.50105E-02	6.61248E+04	3.43247E+07
2.50186E-01	7.11571E+04	3.72120E+07
6.75203E-01	6.13477E+04	3.30338E+07
1.30007E+00	5.43747E+04	3.02425E+07
2.20017E+00	4.32824E+04	2.48544E+07
3.20029E+00	3.59018E+04	2.11422E+07
4.25020E+00	3.16976E+04	1.89517E+07
5.40007E+00	2.86282E+04	1.72621E+07
6.55016E+00	2.66701E+04	1.61317E+07
7.70038E+00	2.55990E+04	1.54883E+07
8.80053E+00	2.41229E+04	1.46062E+07
9.90039E+00	2.27579E+04	1.37243E+07
1.10007E+01	2.18515E+04	1.32595E+07
1.20007E+01	1.85517E+04	1.20816E+07
1.30504E+01	1.80259E+04	1.12783E+07
1.42008E+01	1.70114E+04	1.07334E+07
1.55009E+01	1.51140E+04	9.78390E+06
1.70504E+01	1.32596E+04	8.79639E+06
1.85002E+01	1.19109E+04	7.98460E+06
1.96504E+01	1.16897E+04	7.36935E+06
2.07003E+01	1.11030E+04	6.51444E+06
2.16501E+01	9.49383E+03	5.39679E+06
2.25501E+01	8.54853E+03	4.66998E+06
2.34000E+01	7.72378E+03	4.09195E+06
2.42501E+01	5.98365E+03	3.22452E+06
2.57253E+01	2.845[illegible]E+03	1.54730E+06
2.77229E+01	1.61236E+02	2.08499E+05
2.86954E+01	0.	0.
1.00000E+05	0.	0.

Amendment 26
March, 1973

TABLE Q14.28-4

MASS AND ENERGY RELEASE FOR REFLOOD

Sec	LBM/Sec	BTU/Sec
2.8490000E+01	0.	0.
2.8500000E+01	0.	0.
3.0500000E+01	0.	0.
3.0600000E+01	0.	0.
3.5500000E+01	7.8501751E+02	1.0059575E-1[illegible]
3.8500000E+01	8.4178010E+02	1.0767557E-1[illegible]
4.8500000E+01	8.0044957E+02	1.0182715E-1[illegible]
5.0000000E+01	7.9464092E+02	1.0100316E-1[illegible]
5.8500000E+01	7.6499884E+02	9.6819819E-1[illegible]
6.8500000E+01	7.2489503E+02	9.1287659E-1[illegible]
7.8500000E+01	6.8800906E+02	8.6229601E-1[illegible]
8.8500000E+01	6.5203819E+02	8.2584164E-1[illegible]
1.0000000E+02	6.3500856E+02	7.8830868E-1[illegible]
1.0850000E+02	6.1456972E+02	7.6027595E-1[illegible]
1.2335000E+02	6.1183357E+02	7.5262950E-1[illegible]
1.4850000E+02	5.0650133E+02	6.1740934E-1[illegible]
1.6177900E+02	4.9870118E+02	6.0552863E-1[illegible]
1.8178100E+02	1.4368498E+02	1.7440187E-1[illegible]
2.0000000E+02	1.3340997E+02	1.6191978E-1[illegible]
3.0000000E+02	9.7286706E+01	1.1802778E-1[illegible]
1.0000000E+03	7.3584759E+01	8.9229170E-1[illegible]
2.0000000E+03	5.6246115E+01	6.8156188E-1[illegible]
5.0000000E+03	4.1849646E+01	5.0638420E-1[illegible]
1.0000000E+04	3.3249525E+01	4.0168314E-1[illegible]

Entrainment Ends At 123.4 Seconds for Design Case - Mass Release becomes 155 lbm sec, Energy Release becomes 1.92 x 105 BTU/sec and resumes with this Table at 200 seconds.

Entrainment Ends At 161.78 Seconds for 10' Case

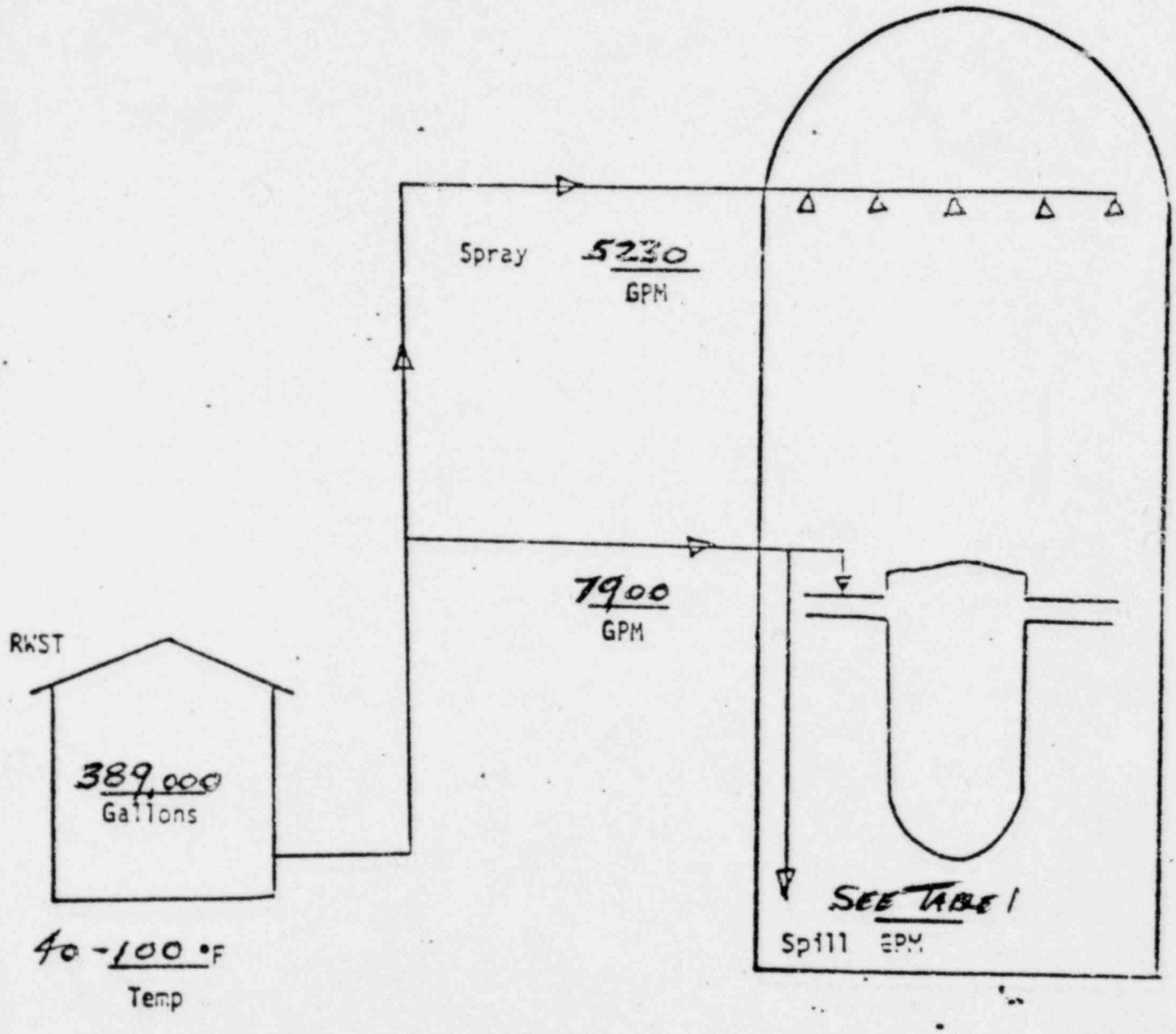
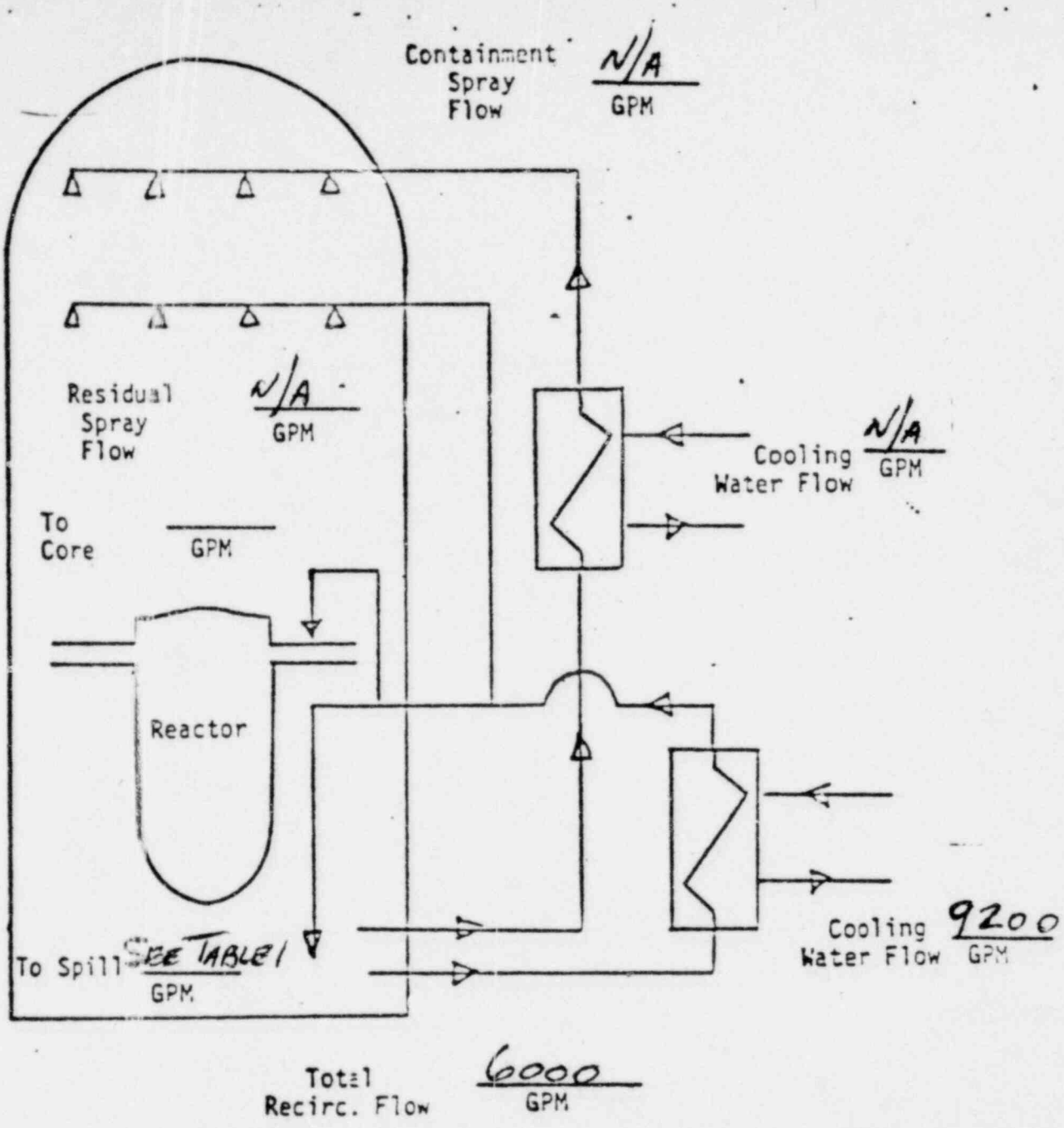


FIGURE 1 INJECTION PHASE

No Single Failure Considered.
- For Values Given



Containment Spray HX UA	N/A	$\times 10^6$
Cooling Water Temp	N/A	°F
RHR (Shutdown) HX UA	28.0	$\times 10^6$
Cooling Water Temp	95	°F

RECIRCULATION PHASE

FIGURE 2 RECIRCULATION PHASE

No Single Failure Considered For Values Given

TABLE 1

SPILL FLOWRATE

TIME 0 = END OF BLOWDOWN

TIME (sec)	SPILL FLOW (ft^3/sec)	
0	0	FROM ACCUMULATOR
.73	65	
5.83	104	
16.7	85	
31	0	
46	.261	
62	1.461	
79.25	2.939	
97.23	4.349	
116.44	5.736	
137.08	7.114	
159.49	8.502	
184.12	9.9	

CONSTANT AFTER 184.12 sec