

## Appendix 6A. Tables

**Table 6-1. Deleted per 1995 Update**

**Table 6-2. Deleted per 2000 Update**

**Table 6-3. Quality Control Standards for Engineered Safeguards Systems**

Summary of Requirements for Core Flooding Tanks	
CLASSIFICATION: ASME III, Class C, Paragraph N-2113 and the requirements of ASME VIII, Paragraph UW-2(a) (lethal substances)	
Inspection Requirements	Acceptance Standard
1. Inspection of raw materials and review of certificates	ASME III material
2. Hydro test	ASME III
3. Radiograph	ASME VIII
Summary of Requirements for Low Pressure Injection Heat Exchanger	
CLASSIFICATION: Shell ASME VIII, Tube ASME III, Class C (lethal)	
Inspection Requirements	Acceptance Standard
1. Inspection of raw materials and review of material certificates	ASME II, III, VIII
2. Seal weld on tubes-to-tube sheet	TEMA-R-7 and additional requirements
3. Liquid penetrant inspection on tube-to-tube sheet	ASME III, N-627 and additional requirements
4. Hydro test	ASME III, VIII, TEMA-R
5. Leak test and seal weld (air)	
Summary of Requirements for Valves	
Inspection Requirements	Acceptance Standard
Class I and II Valves	
1. Radiographic inspection of the body casing	USAS B31.7
2. Inspection of material and review of material	USAS B31.7 certificates
3. Liquids penetrant inspection of the valve body	USAS B31.7
4. Hydro test of valve assembly	USAS B16.5 and additional requirements
5. Seat Leakage test	MSS-SP-61 and additional requirements
Class III Valves	
1. Inspection of material and review of material	USAS B31.7 certificates
2. Hydro test of valve assembly	USAS B16.5
3. Seat leakage test	MSS-SP-61 and additional requirements
In addition to these inspections listed above, all valve materials must meet the ASTM material specification.	
Summary of Requirements for Engineered Safeguards Systems Pumps	

Inspection Requirements	Acceptance Standard
1. Inspection of materials and review of material	ASTM certificates
2. Liquid-penetrant inspection of castings	ASME VIII
3. Performance test	Hydraulic Institute Standard
Additional requirements:	
Low Pressure Injection Pumps	
1. Hydrotest casing to 600 psig. Test pressure is held for 30 minutes per inch of thickness with a minimum holding time of 30 minutes. This exceeds the hydrotest requirements of ASME VIII Paragraph UG-99 ( $> 1.5 \times$ design pressure).	
Reactor Building Spray Pumps	
1. Hydrotest casing to 1,200 psig. Test pressure is held for 30 minutes per inch of thickness with a minimum holding time of 30 minutes. This exceeds the hydrotest requirements of ASME VIII Paragraph UG-99 ( $> 1.5 \times$ design pressure).	
High Pressure Injection Pumps	
1. Ultrasonic examination of pump barrel.	
2. Hydrotest nozzle head and pump barrel to 4,575 psig. Test pressure is held for 30 minutes per inch of thickness with a minimum holding time of 30 minutes. This exceeds the hydrotest requirements of ASME VIII Paragraph UG-99 ( $> 1.5 \times$ design pressure of 3,050 psig).	
Low Pressure Service Water Pumps	
1. Documented quality control records and certified caliper measurements of the entire casting thickness will be furnished.	
2. Witness performance test will be performed. Acceptance standards are per Hydraulic Institute Standard.	
3. A documented, non-witness, hydro-test will be performed. Acceptance standards are per ASME code.	

**Table 6-4. Engineered Safeguards Piping Design Conditions**

		Temp (F)	Press. (psig)
1.	High Pressure Injection System		
a.	From the pump discharge to upstream of the check valves inside the secondary shielding.	200/150	3,040/3120
b.	High pressure injection pump.	200/150	3,040/3,120
c.	From upstream of the check valves to the reactor inlet line.	650	2,500
2.	Low Pressure Injection System		
a.	From the borated water storage tank to upstream of the borated water storage tank outlet valves.	150	Static
b.	From upstream of the borated water storage tank outlet valve to upstream of the electric motor operated valves in the borated water feed lines. (Unit 2 only, is to the check valves in the borated water feed lines)	200	100
c.	From upstream of the electric motor operated valves in the borated water feed lines to upstream of the valves at the pump inlets. (Unit 2 only, is from the check valves in the borated water feed lines)	300	200
d.	From upstream of the system inlet valves at the pump inlets to the pump inlet. Trains 1A, 1C, 2A, 2C	300/250	470/505
	Trains 1B, 2B	300	370
e.	From the pump outlet to upstream of the throttle valves at the cooler discharge. Trains 1A, 1C, 2A, 2C <sup>1</sup>	300/250	470/515
	Trains 1B, 2B	300	370
f.	From upstream of the throttle valves at the cooler discharge to upstream of the LPI Header isolation valves. Trains 1A, 2A	300/250	470/515
	Trains 1B, 2B	300	470/505
g.	From upstream of the system inlet valves to upstream of the check valves in the core flooding lines.	300	2,500
h.	From upstream of the check valves in the core flooding lines to the reactor vessel.	650	2,500
i.	From the Reactor Building emergency sump to upstream of the valves in the recirculation lines.	300	59
3.	Reactor Building Spray System		

	Temp (F)	Press. (psig)
a. From downstream of the pump inlet valves to downstream of the Reactor Building valves.	250	495
b. From downstream of the inlet valves through the nozzles <sup>2</sup> .	250/286	200
4. Low Pressure Service Water System		
a. Condenser circulating water crossover to low pressure service water pump suction.	100	50
b. Pump discharge	100	100
(OCONEE 3 ONLY)		
1. Low Pressure Injection System		
a. From the borated water storage tank to upstream of the borated water storage tank outlet valves.	150	Static
b. From upstream of the borated water storage tank outlet valve to upstream of the check valves in the borated water feed lines.	200	100
c. From upstream of the check valves to upstream of the motor operated valves in the borated water feed lines.	300	300
d. From upstream of the electric motor operated valves in the borated water feed lines to upstream of the valves at the pump inlets.	300	388
e. From upstream of the system inlet valves at the pump inlets to upstream of the LPI Header Isolation valves.	300/250	470/505
f. From upstream of the system inlet valves to upstream of the check valves in the core flooding lines.	300	2,500
g. From upstream of the check valves in the core flooding lines to the reactor vessel.	650	2,500
h. From the Reactor Building emergency sump to upstream of the valves in the recirculation lines.	300	59

**Note:**

1. For the C Train Connection to the B Train Cooler, design conditions are 300°F and 370 psig beginning downstream of the cross over valve.
2. A 286 F design temperature is applicable due to the Post-LOCA and Post-MSLB environmental temperature inside containment. All other plant conditions that require integrity of this pipe are enveloped by the 250 F design temperature.

**Table 6-5. Single Failure Analysis Reactor Building Spray System**

<b>Component</b>	<b>Malfunction</b>	<b>Comments</b>
1. Reactor Building the spray pump.	Fails to start.	Since each of the two strings of Reactor Building Spray System is equally sized, the remaining string will provide heat removal capability at a reduced rate. In combination with the Reactor Building Cooling System, heat removal capability in excess of the requirements will be provided.
2. Building isolation valve.	Fails to open.	(Same as above.)
3. Check valve in suction or discharge line.	Fails to open.	(Same as above.)



**Table 6-6. Single Failure Analysis For Reactor Building Cooling System**

<b>Component</b>	<b>Malfunction</b>	<b>Comments</b>
1. Circulating fan	Fails to operate.	The cooling capacity of the cooling units is reduced; however, 2 of 3 cooling units provide the required cooling.
2. Cooler service water outlet valve. (LPSW-18, -21, -24)	Fails to open fully	Valve will normally be partially open. If the valve fails to open fully, the unit will operate under reduced heat removal capability. The required cooling load will be met by 2 of 3 cooling units.
3. Cooler service water inlet valve. (LPSW-16, -19, -22)	Inadvertently left closed.	The flow through this string will be unavailable for cooling. It is unlikely that this condition would occur during an accident since the position and flow are monitored during normal operation. The required cooling load will be met by 2 of 3 cooling units.
4. Service water pump (1A, 1B, 1C).	Fails to operate.	The two remaining pumps will provide full low pressure service water flow to all components.
5. Service water pump (3A, 3B).	Fails to operate.	The one remaining pump will provide full low pressure service water flow to all components.

Table 6-7. Reactor Building Penetration Valve Information

Inside Penetration Valve Data												Outside Penetration Valve Data									
Pen	Description	Vlv Arrg	Valve Position									Valve Position									
			Qty	Size	Type	Oper	Signal	Valve Position			Indi-cation	Qty	Size	Type	Oper	Signal	Valve Position			Indi-cation	
								Norm	Fail	Post Acc							Norm	Fail	Post Acc		
1 <sup>(16)</sup>	Pressurizer Sample	1	2	¾	SH	EMO	ES	OP	AI	CL	YES	1	1/2	SH	AIR	ES	OP	CL	CL	YES	
2	OTSG A Sample	8	Closed Loop Inside Containment									1	1/2	SH	AIR	ES	CL	CL	CL	YES	
3	Component Cooling Inlet	3	1	6	CK	-	-	OP	-	CL	NO	1	6	CK	-	-	OP	-	CL	NO	
4	OTSG B Drain	7	Closed Loop Inside Containment									1	4	SH	EMO	ES	OP	AI	CL	YES	
5A	RB Normal Sump Drain	24	None									-	-	-	-	-	-	-	-	-	-
												5	1	SH	MAN	-	CL	-	CL	NO	
												1	2	SH	EMO	ES	OP	AI	CL	YES	
												1	2	SH	AIR	ES	OP	CL	CL	YES	
5B	Post Accident Liquid Sample	13	None									2 <sup>(5)</sup>	1	SH	SOL <sup>(5)</sup>	-	CL	CL <sup>(5)</sup>	CL <sup>(15)</sup>	YES <sup>(5)</sup>	
6	RC Letdown	1	2	2	SH	EMO	ES	OP	AI	CL	YES	1	2	SH	AIR	ES	OP	CL	CL	YES	
7	RC Pump Seal Return	4	1	3,4 <sup>(7)</sup>	SH	EMO	ES	OP	AI	CL	YES	1	2	SH	AIR	ES	OP	OP <sup>(1)</sup>	CL	YES	
8A	Pressurizer Aux Spray	3	1	1,11/2 <sup>(11)</sup>	CK	-	-	OP	-	CL	NO	1	1,11/2 <sup>(11)</sup>	CK	-	-	OP	-	CL	NO	
8B	Loop A Nozzle Warming	3	1	1,11/2 <sup>(11)</sup>	CK	-	-	OP	-	CL	NO	1	1,11/2 <sup>(11)</sup>	CK	-	-	OP	-	CL	NO	
9	HP Injection Loop A	2	1	4	CK	-	-	OP	-	OP	NO	None									
10A	RC Pump Seal Injection	3	1	1	CK	-	-	OP	-	CL	NO	1	1,11/2 <sup>(6)</sup>	CK	-	-	OP	-	CL	NO	
10B	RC Pump Seal Injection	3	1	1	CK	-	-	OP	-	CL	NO	1	1	CK	-	-	OP	-	CL	NO	

Pen	Description	Vlv Arrg	Inside Penetration Valve Data									Outside Penetration Valve Data								
			Qty	Size	Type	Oper	Signal	Valve Position				Qty	Size	Type	Oper	Signal	Valve Position			
								Norm	Fail	Post Acc	Indi- cation						Norm	Fail	Post Acc	Indi- cation
11	Fuel Transfer Tube	19	Special Closure (Flange)									None								
			1	3	SH	EMO	-	CL	AL	CL	YES									
			1	4	SH	EMO	-	CL	AL	CL	YES									
12	Fuel Transfer Tube	18	Special Closure (Flange)									None								
			1	3	SH	EMO	-	CL	AL	CL	YES									
			1	11/2	SH	EMO	-	CL	AL	CL	YES									
			2	1	SH	EMO	-	CL	AL	CL	YES									
13	RB Spray Inlet	2	1	8	CK	-	-	CL	-	OP	NO	None								
14	RB Spray Inlet	2	1	8	CK	-	-	CL	-	OP	NO	None								
15	LPI Inlet	2	1	10	CK	-	-	CL	-	OP	NO	None								
16	LPI Inlet	2	1	10	CK	-	-	CL	-	OP	NO	None								
17	OTSG B EFW Injection	5	Closed Loop Inside Containment									None								
18	Quench Tank Vent	4	1	2	SH	EMO	ES	OP	AI	CL	YES	1	2	SH	AIR	ES	OP	CL	CL	YES
19	RB Purge Inlet	4	1	48	SH	EMO	ES	CL	AI	CL	YES	1	48	SH	AIR	ES	CL	CL	CL	YES
20	RB Purge Outlet	4	1	48	SH	EMO	ES	CL	AI	CL	YES	1	48	SH	AIR	ES	CL	CL	CL	YES
21	LPSW to RCP Coolers	7	Closed Loop Inside Containment									1	10	SH	EMO	ES	OP	AI	CL	YES
22	LPSW from RCP Coolers	7	Closed Loop Inside Containment									1	10	SH	EMO	ES	OP	AI	CL	YES
23A	RC Pump Seal Injection	3	1	1	CK	-	-	OP	-	CL	NO	1	1	CK	-	-	OP	-	CL	NO
23B	RC Pump Seal Injection	3	1	1	CK	-	-	OP	-	CL	NO	1	1	CK	-	-	OP	-	CL	NO
24A	RB Hydrogen Analyzer	10	None									1	1/2,3/8 <sup>(12)</sup>	SH	SOL	-	CL	CL	CL <sup>(2)</sup>	YES

Pen	Description	Vlv Arrg	Inside Penetration Valve Data									Outside Penetration Valve Data								
			Qty	Size	Type	Oper	Signal	Valve Position			Indi-cation	Qty	Size	Type	Oper	Signal	Valve Position			
								Norm	Fail	Post Acc							Norm	Fail	Post Acc	Indi-cation
24B	RB Hydrogen Analyzer	10					None					1	1/2,3/8 <sup>(12)</sup>	SH	SOL	-	CL	CL	CL <sup>(2)</sup>	YES
25	OTSG B Feedwater Line	6				Closed Loop	Inside Containment					1	24	CK	-	-	OP	-	CL	NO
26	OTSG A Main Stream Line	5				Closed Loop	Inside Containment									None				
27	OTSG A Feedwater Line	6				Closed Loop	Inside Containment					1	24	CK	-	-	OP	-	CL	NO
28 <sup>(20)</sup>	OTSG B Main Steam Line	5				Closed Loop	Inside Containment									None				
29	Quench Tank Drain	4	1	4	SH	EMO	ES	OP	AI	CL	YES	1	2	SH	AIR	ES	OP	CL	CL	YES
30	LPSW to RBCU	5				Closed Loop	Inside Containment									None				
31	LPSW to RBCU	5				Closed Loop	Inside Containment									None				
32	LPSW to RBCU	5				Closed Loop	Inside Containment									None				
33	LPSW from RBCU	5				Closed Loop	Inside Containment									None				
34	LPSW from RBCU	5				Closed Loop	Inside Containment									None				
35	LPSW from RBCU	5				Closed Loop	Inside Containment									None				
36	RB Emergency Sump Recirc	12					None					1	14	SH	EMO	-	CL	AI	OP	YES
37	RB Emergency Sump Recirc	15					None					1	14	SH	EMO	-	CL	AI	OP	YES
												1	1	SH	MAN	-	CL	-	OP	NO
38	Quench Tank Cooler Inlet	3	1	1 1/2	CK	-	-	OP	-	CL	NO	1	1 1/2,2 <sup>(9)</sup>	CK	-	-	OP	-	CL	NO
39a <sup>(17)</sup>	Core Flood	16	1	1	SH	MAN	-	CL	-	CL	NO	2	1	SH	MAN	-	CL	-	CL	NO

Pen	Description	Vlv Arrg	Inside Penetration Valve Data									Outside Penetration Valve Data								
			Qty	Size	Type	Oper	Signal	Valve Position			Indi- cation	Qty	Size	Type	Oper	Signal	Valve Position			Indi- cation
								Norm	Fail	Post Acc							Norm	Fail	Post Acc	
	Tank Vent																			
39b	HP Nitrogen Supply	20	1	1	CK	-	-	CL	-	CL	NO	1	1/2	SH	MAN	-	CL	-	CL	NO
												1	1	CK	-	-	CL	-	CL	NO
												1	1	SH	MAN	-	CL	-	CL	NO
40	RB Emergency Sump Drain	14										1	2	SH	MAN	-	CL	-	CL	NO
							None					2	2	CK	-	-	CL	-	OP	NO
												2	3/4	SH	MAN	-	CL	-	CL	NO
41	Instrument Air Supply	9	1	3	SH	MAN	-	CL	-	CL	NO	1	3	SH	MAN	-	CL	-	CL	NO
42A	RB Hydrogen Analyzer	10					None					1	1/2,3/8 <sup>(12)</sup>	SH	SOL	-	CL	CL	CL <sup>(2)</sup>	YES
42B	RB Hydrogen Analyzer	10					None					1	1/2,3/8 <sup>(12)</sup>	SH	SOL	-	CL	CL	CL <sup>(2)</sup>	YES
43	OTSG A Drain	7				Closed Loop Inside Containment						1	4	SH	EMO	ES	OP	AI	CL	YES
44	Component Cooling to CRD	3	1	21/2	CK	-	-	OP	-	CL	NO	1	21/2	CK	-	-	OP	-	CL	NO
45A	Leak Rate Test Line	9	1	1/2	SH	MAN	-	CL	-	CL	NO	1	1/2	SH	MAN	-	CK	-	CL	NO
45B	Leak Rate Test Line	9	1	1/2	SH	MAN	-	CL	-	CL	NO	1	1/2	SH	MAN	-	CL	-	CL	NO
45C <sup>(17)</sup>	Leak Rate Test Line	9	1	1/2	SH	MAN	-	CL	-	CL	NO	1	1/2	SH	MAN	-	CL	-	CL	NO
48	Breathing Air Supply to RB	9	1	2	SH	MAN	-	CL	-	CL	NO	1	2	SH	MAN	-	CL	-	CL	NO
49 <sup>(16)</sup>	LP Nitrogen Supply to RB	22	1	11/2	CK	-	-	CL	-	CL	NO	2	1	SH	MAN	-	CL	-	CL	NO
50	OTSG A EFW Injection	5				Closed Loop Inside Containment										None				
51	LRT Supply	11				Special Closure (Flange)						1	8	SH	AIR	-	CL	AI	CL	NO

Pen	Description	Vlv Arrg	Inside Penetration Valve Data									Outside Penetration Valve Data								
			Qty	Size	Type	Oper	Signal	Valve Position			Indi- cation	Qty	Size	Type	Oper	Signal	Valve Position			Indi- cation
								Norm	Fail	Post Acc							Norm	Fail	Post Acc	
	and Exhaust											1	1/2, <sup>(10)</sup>	SH	MAN	-	CL	-	CL	NO
52	HP Injection B Loop	2	1	4	CK	-	-	CL	-	OP	NO					None				
53A	HP Nitrogen to CFT	20	1	1	CK	-	-	CL	-	CL	NO	1	1/2, 1 <sup>(8)</sup>	SH	MAN	-	CL	-	CL	NO
												1	1	SH	MAN	-	CL	-	CL	NO
												1	1	CK	-	-	CL	-	CL	NO
53B <sup>(17)</sup>	LP Nitrogen Supply to RB	21	1	1 1/2	CK	-	-	CL	-	CL	NO	1	2	SH	MAN	-	CL	-	CL	NO
54	Component Cooling Outlet	4	1	8	SH	EMO	ES	OP	AI	CL	YES	1	8	SH	AIR	ES	OP	OP <sup>(1)</sup>	CL	YES
55	Demin Water Supply	9	1	4	SH	MAN	-	CL	-	CL	NO	1	4	SH	MAN	-	CL	-	CL	NO
56	Spent Fuel Canal Fill/Drain	9	1	8	SH	MAN	-	CL	-	CL	NO	1	8	SH	MAN	-	CL	-	CL	NO
57 <sup>(16)</sup>	DHR Return Line	28	1	12	SH	EMO	-	CL	AI	CL <sup>14</sup>	YES					None				
			1	10	SH	MAN	-	CL	-	CL	NO									
			1	8	SH	EMO	-	CL	AI	CL <sup>14</sup>	YES									
58A <sup>(17)</sup>	Pressurizer Sample Line	1	2	3/4 1 <sup>(13)</sup>	SH	EMO	ES	OP	AI	CL	YES	1	1/2	SH	AIR	ES	OP	CL	CL	YES
58B	OTSG B Sample	8						Closed Loop Inside Containment				1	1/2	SH	AIR	ES	CL	CL	CL	YES
59	Core Flood Tank Sample	17	2	1	SH	EMO	-	CL	AI	CL	YES	2	1	SH	MAN	-	CL	-	CL	NO
60	RB Sample Line (Outlet)	23	1	2	SH	EMO	ES	OP	AI	CL	YES	1	2	SH	AIR	ES	OP	OP <sup>1</sup>	CL	YES
			1	2,3 <sup>(4)</sup>	SH	EMO	-	CL	AI	CL	YES	1	1/2, 1 <sup>(3)</sup>	SH	MAN	-	CL	-	CL	NO
61	RB Sample Line (Intlet)	25	1	2	SH	EMO	ES	OP	AI	CL	YES	1	2	SH	AIR	ES	OP	OP <sup>1</sup>	CL	YES
			1	2	SH	EMO	-	CL	AI	CL	YES									

Inside Penetration Valve Data												Outside Penetration Valve Data										
Pen	Description	Vlv Arrg	Valve Position									Valve Position										
			Qty	Size	Type	Oper	Signal				Indi-cation	Qty	Size	Type	Oper	Signal				Indi-cation		
								Norm	Fail	Post Acc							Norm	Fail	Post Acc			
62 <sup>(17)</sup>	DHR Return Line	29	1	12	SH	EMO	-	CL	AI	CL <sup>(14)</sup>	YES	None										
			1	10	SH	MAN	-	CL	-	CL	NO											
63	LPSW RBACs Supply	27					None					2	6	SH	AIR	ES	OP	CL	CL	YES		
64	LPSW RBACs Return	27					None					2	6	SH	AIR	ES	OP	CL	CL	YES		
REACTOR BUILDING PENETRATION VALVE INFORMATION LEGEND 7 NOTES																						
LEGEND																						
Valve Arrgt – Refer to <a href="#">Figure 6-9</a> .																						
Qty – Quantity of comparable penetration valves shown																						
Type - Valve types:																						
SH (Shut Off Valve) - gate, globe, ball, plug, butterfly, diaphragm or other type on/off valve with the ability to shut off flow.																						
CK (Check Valve) - stop check, swing check, tilting disc check, lift check, or other type of check valve whose function is to prevent flow in the reverse direction.																						
Size – Valve size in inches																						
Oper - Valve operator types																						
MAN - manual																						
EMO - electric motor operator																						
AIR - diaphragm operator																						
HYD - hydraulic operator																						
SOL - solenoid																						
Signal - Noted "ES" if the valve receives an Engineered Safeguards signal. Refer to Section <a href="#">7.3</a> for further discussion of ES signals.																						
Valve Positions - <u>Norm</u> : position during normal operation, <u>Fail</u> : position without operator motive force, <u>Post Acc</u> : desired post-accident position																						
OP - Open																						
CL - Closed																						
AI - As Is																						
Indication – remove valve position indication																						

Inside Penetration Valve Data												Outside Penetration Valve Data										
Pen	Description	Vlv Arrg	Qty	Size	Type	Oper	Signal	Valve Position				Indi- cation	Qty	Size	Type	Oper	Signal	Valve Position				Indi- cation
								Norm	Fail	Post Acc	Indi- cation							Norm	Fail	Post Acc	Indi- cation	
Notes:																						
1.	Penetrations 7, 54, 60, and 61 outboard isolation valves fail open on loss of ES power to their associated solenoid valves provided air is available to open the valves. With ES power energizing the solenoid valves, the isolation valves close with or without supply air.																					
2.	Although initially closed for Reactor Building isolation, valves associated with penetrations 24 and 42 can be opened for post-accident hydrogen monitoring.																					
3.	For Penetration 60, the Unit 3 outside, manual penetration valve is ½ inch while the Unit 1 and Unit 2 outside, manual penetration valve is 1 inch.z																					
4.	For Penetration 60, the Unit 3 inside, non-ES actuated penetration valve is 3 inch while the Unit 1 and Unit 2 inside, non-ES actuated penetration valve is 2 inch.																					
5.	For Penetration 5b, there are two outside penetration solenoid valves for Units 1 and 2. There are two outside penetration manually operated valves for Unit 3. Only the solenoid valves on Units 1 & 2 fail closed and have remote position indication.																					
6.	For Penetration 10a, the Unit 2 outside penetration valve is 1.5 inches while the Unit 1 & 3 outside penetration valves are 1 inch.																					
7.	For Penetration 7, the Unit 2 inside penetration valve is 3 inch while the Unit 1 and Unit 3 inside penetration valves are 4 inch.																					
8.	For Penetration 53a, the Unit 1 outside penetration valve is 1 inch while the Unit 2 and Unit 3 outside penetration valves are ½ inch.																					
9.	For Penetration 38, the Unit 1 outside penetration valve is 1.5 inches while the Unit 2 and Unit 3 outside penetration valves are 2 inches.																					
10.	For Penetration 51, the Unit 1 outside penetration valve is 1 inch while the Unit 2 and Unit 3 outside penetration valves are ½ inch.																					
11.	For Penetration 8a & 8b, the Unit 1 inside and outside penetration valve sizes are 1.5 inches. The Units 2 and 3 inside and outside penetration valve sizes are 1 inch.																					
12.	For Penetration 24 & 42, the Unit 1 and 3 outside penetration valve sizes are ½ inch while the Unit 2 outside penetration valve sizes are 3/8 inch.																					
13.	For Penetration 58a, the two Unit 2 inside penetration valve sizes are 1 inch while the two Unit 3 inside penetration valve sizes are ¾ inch and 1 inch.																					
14.	Although initially closed for Reactor Building isolation, valves associated with penetrations 57 and 62 (DHR Drop Line) can be opened for post-accident boron dilution.																					
15.	Although initially closed for Reactor Building isolation, valves associated with penetration 5b may be opened post-accident for post accident liquid samples (PALS).																					
16.	Penetration number applies to Unit 1 only.																					
17.	Penetration number applies to Unit 2 and Unit 3 only.																					
18.	Deleted per 2005 Update.																					
19.	Deleted per 2005 Update.																					
20.	For Penetration 28, the OTSG B Main Steam Line piping exits the Reactor Building to the yard.																					



**Table 6-8. High Pressure Injection System Component Data**

High Pressure Injection Pump	
Type	Vertical, multistage, centrifugal, mechanical seal
Capacity, gal/min	(See <a href="#">Figure 6-16</a> )
Head, ft H <sub>2</sub> O (at sp. gr. = 1)	(See <a href="#">Figure 6-16</a> )
Motor Horsepower, nameplate hp	600
Pump Material	SS wetted parts
Design Pressure, psig	3,040/3,120
Design Temperature, F	200/150
Letdown Cooler	
Type	Shell and spiral tube
Heat Transferred, Btu/hr	$16.0 \times 10^6$
Letdown Flow, lb/hr	$3.5 \times 10^4$
Letdown Cooler Inlet/Outlet Temperature, F	555/120
Material, shell/tube	CS/SS
Design Pressure, psig	2,500
Design Temperature, F	600
Component Cooling Water Flow (ea.), lb/hr	$2 \times 10^5$
Code	ASME Sec. III-C & VIII
Reactor Coolant Pump Seal Return Cooler	
Type	Shell and tube
Heat Transferred, Btu/hr	$2.2 \times 10^6$
Seal Return Flow, lb/hr	$1.25 \times 10^5$
Seal Return Temperature Change, F	145 - 127
Material, shell/tube	SS/SS
Design Pressure, psig	150
Design Temperature, F	286 (Unit 1), 200 (Units 2&3)
Recirculated Cooling Water Flow (ea.), lb/hr	$1.25 \times 10^5$
Code	ASME Sec. III-C & VIII
Letdown Storage Tank	
Volume, ft <sup>3</sup>	600
Design Pressure, psig	100
Design Temperature, F	200

Material	SS
Code	ASME Sec. III-C
Purification Demineralizer	
Type	Mixed bed, boric acid saturated
Material	SS
Resin Volume, ft <sup>3</sup>	50
Flow, gal/min	70
Vessel Design Pressure, psig	150
Vessel Design Temperature, F	200
Code	ASME Sec. III-C
Letdown Filter	
Design Flow Rate, gal/min	80
Material	SS
Design Temperature	200
Design Pressure	150
Code	ASME Sec. III-C

**Table 6-9. Low Pressure Injection System Component Data**

Pump (each)	
Type	Single stage, centrifugal
Capacity, gpm	3,000
Head at Rated Capacity, ft H <sub>2</sub> O	350
Motor Horsepower, hp	400
Material	SS (wetted parts)
Design Pressure, psig	560/580
Design Temperature, F	300/250
Cooler (each)	
Type	Shell and tube
Capacity (at 140 F), Btu/hr	60 x 10 <sup>6</sup>
Reactor Coolant Flow, gal/min	6,000
Low Pressure Service Water Flow, gal/min	6,000
Low Pressure Service Water Inlet Temp, F	75
Material, Shell/Tube	CS/SS
Design Pressure, Shell	150
Design Pressure, Tube	515 <sup>(1)</sup> /370 <sup>(2)</sup> (470/505 for Unit 3 only)
Design Temperature, F	250 <sup>(1)</sup> /300 <sup>(2)</sup> (300/250 for Unit 3 only)
Code	ASME Section III-C, III and VIII
Borated Water Storage Tank (each)	
Capacity, gal	388,000
Material	CS/Coated inside
Design Pressure	Vessel Full plus 10 ft Hydro Head
Design Temperature, F	150
Code	AWWA D-100
<b>Note:</b>	
1. A Cooler Units 1 & 2	
2. B Cooler Units 1 & 2	

**Table 6-10. Core Flooding System Components Data**

Core Flooding Tanks			
Number	2		
Design Pressure, psig	700		
Operating Pressure, psig	600		
Minimum Pressure, psig	575		
Design Temperature, F	300		
Operating Temperature, F	110		
Total Volume, ft <sup>3</sup>	1,410		
Normal Water Volume, ft <sup>3</sup>	1,040		
Minimum Water Volume, ft <sup>3</sup>	1,010		
Material of Construction	Carbon steel lined with SS		
Check Valves			
Number per Flood Line	2		
Size, in.	14		
Material	316 SS		
Design Pressure, psig	2,500		
Design Temperature			
Valve nearest reactor, F	650		
Valve nearest tank, F	300		
Isolation Valves			
Number per Flood Line	1		
Size, in.	14		
Material	304 SS		
Design Pressure, psig	2,500		
Design Temperature, F	300		
Piping	Reactor to First Check Valve	First Check Valve to Isolation Valve	Isolation Valve to Tank
	Size, in.	14	14
	Material	316 SS	304 SS
	Design Pressure, psig	2,500	700
	Design Temperature, F	650	300

**Table 6-11. Single Failure Analysis - Emergency Core Cooling System**

<b>Component</b>	<b>Malfunction</b>	<b>Comments</b>
<b>A. High Pressure Injection System</b>		
1. Suction valve for high pressure injection pump from borated water storage tank.	Fails to open.	The parallel valve will supply the required flow to one pump string.
2. High pressure injection valve	Fails to open.	The alternate line and the two cross connect lines will provide the total required flow.
3. High pressure injection pump (operating).	Fails (stops).	Two backup pumps are available to deliver the flow.
4. High pressure injection pump.	Fails to start.	Two backup pumps are available to deliver the flow.
5. Seal return line isolation valve.	Fails to close on ES signal.	The other isolation valve will close eliminating this fluid path.
6. Letdown cooler isolation valve.	Fails to close on ES signal.	The other isolation valve will close the flow path.
7. LDST-RBES return line isolation valve	Fails to open.	The other isolation valve will provide a LDST-RBES return flow path.
<b>B. Low Pressure Injection System</b>		
1. Low pressure injection pump.	Fails to start.	Adequate injection is provided by the other pump.
2. Low pressure injection isolation valve.	Fails to open.	Other line admits necessary flow through both injection headers via the passive cross-over line.
3. Valve in suction line from the Reactor Coolant System	Fails to open.	Drain line upstream of the first isolation valve opens admitting flow to the emergency sump. The LPI System then operates in the recirculation mode.
4. LPI Cooler isolation valve (LPSW-4, -5)	Fails to open.	Other LPSW train admits necessary flow.
5. Service water pump - 1A, 1B, 1C	Fails to operate	The two remaining pumps will provide full low pressure service water flow to all components.

Component	Malfunction	Comments
6. Service water pump - 3A, 3B	Fails to operate	The one remaining pump will provide full low pressure service water flow to all components.
(RECIRCULATION FROM REACTOR BUILDING EMERGENCY SUMP)		
1. Valve in suction line from emergency sump.	Fails to open.	Other line admits necessary flow.
2. Valve in suction line from BWST.	Fails to close after initiating recirculation.	Check valve prevents flow into BWST.
3. Low pressure injection pump.	Loss of pump.	Reactor core protection will be maintained by alternate pump and low pressure injection string.
4. Valve in post accident boron dilution flow path from reactor outlet to emergency sump.	Fails to open	Redundant post accident boron dilution path admits necessary flow.
C. Core Flooding System		
1. Isolation valve in discharge line.	Closes during normal operation.	If the valve cannot be manually opened, the reactor must shut down or operations limited as specified in Technical Specifications.
2. Tank relief valve.	Opens during normal operation.	Loss of nitrogen pressure and consequent loss of ability of tank to perform. Reactor must be shut down or operations adjusted to Technical Specification limits and relief valve must be repaired.
3. Check valves in charge line.	Excessive leak detected during normal reactor operation.	It is extremely unlikely that both check valves would permit excessive leakage. Leakage would be indicated by core flooding tank pressure and level changes. If leakage becomes progressively worse or is unacceptably high, reactor must be shut down while the check valves are repaired.

**Table 6-12. Oconee Nuclear Station Analysis of Valve Motors Which May Become Submerged Following A LOCA**

<b>No.</b>	<b>Valve Identification Description</b>	<b>Evaluation</b>
1CF-1 2CF-1 3CF-1	"A" Core Flood Tank Discharge Valve	No effect on ECCS capability or containment integrity. Valve is locked open during operation and is not operated subsequent to a LOCA. Valve is not a containment isolation valve.
1CS-5 <sup>1</sup> 2CS-5 <sup>1</sup> 3CS-5 <sup>1</sup>	Reactor Building Isolation Valve for Quench Tank Drain	No effect on ECCS capability or containment integrity. Valve is normally closed. Redundant isolation valve on outside of containment is not affected.
1HP-1 2HP-1 3HP-1	Reactor Coolant Inlet to "A" Letdown Cooler	No effect on ECCS capability or containment integrity. Letdown coolers are not used following a LOCA. Valve is not a containment isolation valve.
1HP-2 2HP-2 3HP-2	Reactor Coolant Inlet to "B" Letdown Cooler	No effect on ECCS capability or containment integrity. Letdown coolers are not used following a LOCA. Valve is not a containment isolation valve.
1HP-3 <sup>1</sup> 2HP-3 <sup>1</sup> 3HP-3 <sup>1</sup>	Reactor Coolant Outlet from "A" Letdown Cooler and Reactor Building Isolation Valve	No effect on ECCS capability or containment integrity. Letdown coolers are not used following a LOCA. Redundant isolation valve on outside of containment is not affected.
1HP-4 <sup>1</sup> 2HP-4 <sup>1</sup> 3HP-4 <sup>1</sup>	Reactor Coolant Outlet from "B" Letdown Cooler and Reactor Building Isolation Valve	No effect on ECCS capability or containment integrity. Letdown coolers are not used following a LOCA. Redundant isolation valve on outside of containment is not affected.
1CC-1 2CC-1 3CC-1	Component Cooling Water Inlet to "A" Letdown Coolers	No effect on ECCS capability or containment integrity. Letdown coolers are not used following a LOCA. Valve is not a containment isolation valve.
1CC-2 2CC-2 3CC-2	Component Cooling Water Inlet to "B" Letdown Coolers	No effect on ECCS capability or containment integrity. Letdown coolers are not used following a LOCA. Valve is not a containment isolation valve.

**Note:**

1. Valve is an ES valve and would shut upon ES actuation before becoming submerged.

**Table 6-13. Equipment Operational During An Accident and Located Outside Containment**

4160 Volt Station Auxiliary Switchgear
600 Volt Load Centers
600 Volt and 208 Volt Motor Control Center
Batteries
Chargers and Inverters
Panelboards
Low Pressure Injection Pump Motors
High Pressure Injection Pump Motors
Reactor Building Spray Pump Motors
Low Pressure Service Water Pump Motors
Cables



**Table 6-14. Equipment Operational During an Accident and Located Within the Containment**

<b>Equipment</b>	<b>Accident Environmental Tests</b>
Reactor Building Cooling Fans and Motors	After preaging a prototype motor for an extrapolated 40 years insulation life and Fan testing it for operation under seismic conditions, the motor and fan assembly was placed in a pressure vessel. Steam is then injected into the chamber to a pressure of 70 to 80 psia and chemicals similar to those used in the spray system are introduced. The pressure cycle is repeated four additional times and then pressure is reduced to the level to be expected following the accident. The motor then is run continuously for a minimum of 7 days in the test chamber.
Cables	Representative samples of preaged cables are tested under high pressure, temperature and humidity conditions equal to or exceeding those specified for the LOCA. These cables are preaged for forty years of radiation and temperature prior to testing.
Valves	<p>A typical production valve and actuator was tested as follows under simulated accident conditions. After preaging heat test and shock and vibration tests, the production valve and actuator was subjected to the following environmental tests:</p> <ol style="list-style-type: none"> <li>1. Saturated steam at 90 psig for one hour.</li> <li>2. Boric acid spray for the next two hours at 70 psig followed by a pressure drop to 40 psig with the spray continuing for an additional half hour.</li> <li>3. Steam pressure was maintained at 40 psig for a period of 1½ hours followed by a pressure dropoff of 20 psig.</li> <li>4. Steam pressure was maintained at 20 psig for the remaining nineteen hours of the first day followed by a pressure decrease to 10 psig.</li> <li>5. Steam pressure at 10 psig was then maintained for six days yielding a total test time of seven days.</li> <li>6. Valve operation was conducted at the beginning and the end of each level of pressure in 1, 2, 3, 4, and 5 above.</li> </ol>
Electrical Penetrations	<p>Qualification tests have been performed on one production assembly of each type that is required to function during or following the loss-of-coolant accident to verify its functional capability. The interior end of the penetration assemblies were subjected to the following emergency conditions at 100 percent relative humidity in an autoclave built to duplicate Oconee Reactor Building concrete and nozzle design.</p> <ol style="list-style-type: none"> <li>1. First fifteen minutes: Pressure of 65 psig at a temperature of 300 °F Rise time for normal operating conditions - less than ten seconds.</li> <li>2. Next forty-five minutes: Pressure of 40 psig at a temperature of 260 °F</li> <li>3. Next twenty-three hours: Pressure of 35 psig at a temperature of 250 °F</li> </ol> <p>During the environmental tests, functional capability was demonstrated by applying rated current to conductors in series at 600 volts r.m.s. above ground. The temperature along the nozzle and in the wire bundles was monitored throughout the test. Leak rate was measured and recorded during the test.</p>

Equipment	Accident Environmental Tests
	<p>The following tests were performed before and after the autoclave test:</p> <ol style="list-style-type: none"> <li>1. Connector and conductor resistance test. Measured ohmic resistance of each conductor.</li> <li>2. Dielectric withstand tests.</li> <li>3. Conductor to ground and conductor to conductor.</li> <li>4. Insulation resistance. Conductor to ground.</li> <li>5. Leak rate test.</li> </ol>
Reactor Coolant System Pressure Transmitters	<p>Reactor coolant pressure transmitters required for use within the Reactor Building following an accident have been conservatively tested under conditions simulating the environment expected after the design base 14.1 ft<sup>2</sup> LOCA. The results of these tests show that the transmitters are acceptable for the required functions. A three phase test was performed to simulate the post-LOCA Reactor Building environment. The respective phases are given below:</p>
	<p>Phase I - Pre-accident test at the Babcock &amp; Wilcox Nuclear Development Center (NDC) to simulate the environmental dose to the transmitters associated with the 40-year plant design lifetime.</p>
	<p>Phase II - Environmental autoclave test at Franklin Institute Research Laboratory to simulate the Reactor Building pressure and temperature history for a LOCA.</p>
	<p>Phase III - Post-accident test at NDC to simulate the maximum expected dose to the transmitters after an LOCA.</p>
	<p>Phase I consisted of irradiating the transmitters while the units were in a nonoperating mode. The transmitters were placed in a sealed aluminum box with two dosimeters attachment to each transmitter and positioned over two reactor fuel elements in the NDC storage pool.</p>
	<p>Phase II consisted of exposing the transmitters in the operating mode to a steam environment in a test autoclave for 24 hours. The units were supplied with a constant input of approximately 2/3 of full range and the resultant output/input ratio was measured for the test duration.</p>
	<p>Phase III consisted of irradiating the transmitters while the units were in the operating mode in much the same manner as Phase I except that the box was lowered into position beside one fuel element from the reactor. A constant input of approximately 2/3 of full range was maintained throughout the test.</p> <p>The resulting output signal inaccuracies for each test phase were analyzed and found to be acceptable.</p>

**Table 6-15. Emergency Core Cooling Systems Performance Testing**

High Pressure Injection Pumps	One of two pumps operates continuously. The other pump will be operated periodically.
High Pressure Injection Line Valves	The remotely operated stop valves in each line are opened partially one at a time. The flow monitors will indicate flow through the lines.
High Pressure Injection Pump Suction Valves	The valves are opened and closed individually and console lights monitored to indicate valve position.
Low Pressure Injection Pumps	Pumps are used in normal service for shutdown cooling. These pumps are tested singly for operability by opening the borated water storage tank outlet valves and the bypass valves in the borated water storage tank fill line. This allows water to be pumped from the borated water storage tank through each of the injection lines and back to the tank.
Borated Water Storage Tank Outlet Valves	The operational readiness of these valves is established in completing the pump operational test discussed above. During this test, each valve is tested separately.
Low Pressure Injection Valves	With pumps shut down and borated water storage tank outlet valves closed, these valves can be opened and reclosed by operator action.
Sump Recirculation Suction Valves	With low pressure injection pumps shut down, operation of these valves can be checked.
Check Valves in Core Flooding Injection	With the reactor shut down, the check valves in each core flood line are checked for operability by closing the isolation valves, reducing the Reactor Coolant System pressure to provide $\Delta P$ slightly above the check valve opening pressure, and opening the isolation valves. Check valve operability is shown by tank pressure and level changes.

**Table 6-16. Deleted Per 1999 Update**

**Table 6-17. Deleted Per 1999 Update**

**Table 6-18. Inventory of Iodine Isotopes in Reactor Building (at t = 0)**

Isotope	Initial Inventory
	Curies/MWt
Iodine 131	$2.51 \times 10^4$
Iodine 132	$3.81 \times 10^4$
Iodine 133	$5.63 \times 10^4$
Iodine 134	$6.58 \times 10^4$
Iodine 135	$5.10 \times 10^4$

**Table 6-19. Deleted Per 2015 Update**

**Table 6-20. Parameters for Boron Precipitation Analysis**

Initial Reactor Core Power	2568 MWth
Decay Heat	120% of 1971 ANS
LPI Flow Rate	402 lbm/sec
Core Mixing Mass	60000 lbm
LPI Injection Enthalpy	123 Btu/lbm
Containment Pressure	25 psia
RCS Boron Concentration	2100 ppm
BWST Boron Concentration	3000 ppm
CFT Boron Concentration	4000 ppm

Table 6-21. Summary of Calculated Containment Pressures and Temperatures for LOCA Cases

Description	Peak Containment Pressure (psig)	Peak Containment Temperature (°F)	Time of Peak Pressure (sec)	Blowdown Energy Release (x10 <sup>6</sup> Btu)
<i>Hot Leg SG Inlet Cases (14.1 ft<sup>2</sup> break size)</i>				
100% RTP	56.95	281.68	14.5	316.23
Reduced Tavg	55.27	279.57	15.3	312.37
10°F ΔTcold	56.62	281.29	13.9	314.59
80% RTP	56.34	280.94	14.2	313.78
60% RTP	55.74	280.19	14.2	311.65
Max ECCS case	56.88	281.45	14.3	315.74
LOOP Case	56.82	281.54	14.2	315.39
<i>Hot Leg RV Outlet Cases (14.1 ft<sup>2</sup> break size)</i>				
100% RTP	56.69	281.40	13.0	316.56
<i>Cold Leg Pump Discharge Case (8.55 ft<sup>2</sup> break size)</i>				
100% RTP	52.52	276.00	16.8	313.31
<i>Cold Leg Pump Suction Case (8.55 ft<sup>2</sup> break size)</i>				
100% RTP	53.50	277.31	23.6	303.47



**Table 6-22. Containment Response Analyses Initial Conditions**

<b>General Information</b>			
External containment design pressure (psid)	3.0		
Internal containment design pressure (psig)	59		
Containment design temperature (°F)			
Containment free volume (ft <sup>3</sup> )	1,810,000		
Containment design leak rate (/1st day at peak accident pressure)	0.2%		
	<b>Large LOCA Short Term</b>	<b>Large LOCA Long- Term</b>	<b>Steam Line Break</b>
<b>Initial Conditions</b>			
Reactor power (MWt @ 102% design overpower)	2619	2619	2619
Average reactor coolant temperature (°F)	581	581	581
Containment pressure (psig)	1.2	0	1.5
Containment atmosphere temperature (°F)	80	variable	170
Containment atmosphere relative humidity (%)	0	100	0
Low pressure service water temperature (°F)	N/A	variable	N/A
Borated water temperature (°F)	N/A	115	120
Borated water storage tank level (ft)	N/A	46	N/A
Core flood tank volume (both, ft <sup>3</sup> )	1944	1944	1940

**Table 6-23. Containment Structural Heat Sink Data**

<b>Heat Sink</b>	<b>Painted Material Thickness (ft)</b>	<b>Unpainted Metal Thickness Group</b>	<b>Unpainted Metal Exposed Surface Area (ft<sup>2</sup>)</b>	<b>Unpainted Metal Total Mass (lbm)</b>	<b>Total Surface Area (ft<sup>2</sup>)</b>
Carbon Steel Building Cylinder	0.0208				61,353
Concrete Building Cylinder	3.75				61,353
Carbon Steel Building Dome	0.0208				16,230
Concrete Building Dome	3.25				16,230
Carbon Steel Building Base	0.0208				8890
Concrete Building Base	8.5				8890
Internal Concrete	1.76				66,231
Internal Carbon Steel	0.0316				165,400
Internal Carbon Steel		1	63,727	300,000	63,727
Internal Stainless Steel		2	8628	258,000	8628
Internal Aluminum		1	9892	3828	9892
Internal Copper		4	727	23,268	727

**Table 6-24. Accident Chronology for Limiting Break for Equipment Qualification**

<b>Event</b>	<b>Time(seconds)</b>
Beginning of ECCS injection	6.0
Beginning of CFT injection	12.0
Peak containment pressure	20
End of blowdown phase	26.5
Beginning of RB Spray	142
Beginning of RBCU operation	302
Peak containment pressure after blowdown	N/A
End of core reflood phase	535
Beginning of sump recirculation phase	4529
End of RB Spray/Beginning of re-circ spray	4529
End of S/G energy release	N/A
Depressurization of containment (1/2 of design pressure)	within 2000 seconds (depending on RBCU assumptions)

**Table 6-25. Minimum Acceptable Combinations of Containment Heat Removal Equipment Performance**

Case No.	INPUT ASSUMPTIONS						RESULTS	
	LPI Overall Ht Transfer Coeff @250F LPI	RBCU	LPSW	Rx Bldg Temp	RBS (inj phase)	RBS (recirc phase)	T (1 day)	T (15 days)
	(Btu/hr-ft <sup>2</sup> -°F)	(MBtu/hr)	(°F)	(°F)	(gpm)	(gpm)	(°F)	(°F)
H-2-25	250	105.79	90	130	700	900	180.8	140.2

**Table 6-26. Engineered Safety Feature Assumptions in Containment Response Analyses**

<b>Passive safety injection system</b>	<b>Full Capacity</b>	<b>Large LOCA Short-Term</b>	<b>Large LOCA Long-Term</b>	<b>Steam Line Break</b>
Number of core flood tanks	2	N/A	2	2
Core flood tank pressure setpoint (psig)	600	N/A	655	550
<b>Active safety injection systems</b>				
Number of HPI lines	2	N/A	1	1
Number of HPI pumps	3	N/A	2	2
HPI flow rate (gpm/pump)	300	N/A	variable	variable
Number of LPI lines	2	N/A	1	1
Number of LPI pumps	3	N/A	1	1
LPI flow rate (gpm/pump)	3000	N/A	variable	N/A
<b>Containment spray system</b>				
Number of injection spray lines	2	N/A	1	1
Number of injection spray pumps	2	N/A	1	1
Number of injection spray headers	2	N/A	1	1
Injection flow rate (gpm/pump)	700-1200	N/A	700	700
Number of recirculation spray lines	2	N/A	1	N/A
Number of recirculation spray pumps	2	N/A	1	N/A
Number of recirculation spray headers	2	N/A	1	N/A
Recirculation flow rate (gpm/pump)	1000	N/A	900	N/A
<b>Containment fan cooler system</b>				
Number of coolers (RBCUs)	3	N/A	2	2
Air side flow rate per RBCU (cfm)	108,000	N/A	54,000	54,000

Heat removal rate at design temperature (millions of Btu/hr)	80	N/A	variable	variable
<b>Heat Exchangers</b>	<b>Full Capacity</b>	<b>Large LOCA Short-Term</b>	<b>Large LOCA Long-Term</b>	<b>Steam Line Break</b>
System	LPI	N/A	LPI	N/A
Type	U-tube	N/A	U-tube	N/A
Number	2	N/A	1	N/A
Heat transfer area (ft <sup>2</sup> )	3986	N/A	3900	N/A
Heat removal rate at design temperature (millions of Btu/hr)	60	N/A	variable	N/A
Recirculation side flow rate (gpm)	6000	N/A	2830	N/A
Exterior side flow rate (gpm)	6000	N/A	5000	N/A
Source of cooling water	LPSW	N/A	LPSW	N/A
Cooling begins (sec)	not calculated	N/A	5467	N/A
Deleted row (s) per 2011 update				

**Table 6-27. Summary of Calculated Containment Pressures and Temperatures for Secondary System Pipe Rupture Cases**

Break Location	Break Size	Peak Pressure (psig)	Peak Temperature (F)	Time of Peak Pressure (sec)	Energy Released to Containment up to End of Blowdown (10 <sup>6</sup> Btu)
Deleted row(s) per 2008 update					
S/G outlet	12.6	58.85	464	156	291

**Table 6-28. Steam Generator Compartment Pressure Response Flowpath Discharge Coefficients**

Vent Flowpath Location	Flow Area (ft <sup>2</sup> )		Discharge Coefficients
	West Compartment	East Compartment	
Top	528	417	( <a href="#">Figure 6-46</a> )
Bottom	522	522	0.85
Cross Compartment	116	116	( <a href="#">Figure 6-47</a> )
Cross Compartment	167	167	0.60
Total	1,333 ft <sup>2</sup>	1,222 ft <sup>2</sup>	



Table 6-29. Peak Pressure Mass and Energy Release Data

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
0.0	3010.01	1184.97	49671.97	582.17	2193.5	3285.7	1185.3	53516.7	582.0	2194.5
0.1	3292.43	1186.06	48890.57	578.04	1181.629	3595.0	1186.3	50971.8	577.1	1197.0
0.2	3514.61	1187.31	47678.99	574.34	1159.982	3628.0	1188.2	46317.2	572.9	1107.1
0.3	3543.37	1188.18	44653.10	572.03	1110.159	3397.0	1190.1	41300.8	572.3	1029.7
0.4	3630.87	1189.37	40559.81	567.41	1049.93	3693.9	1191.7	35278.7	566.8	976.9
0.5	3635.68	1190.27	38647.09	565.67	1034.564	4278.5	1195.5	31515.0	552.9	936.0
0.6	3648.05	1190.44	38356.02	565.55	1035.154	4962.8	1201.0	30910.8	531.2	856.1
0.7	3669.39	1190.34	38597.74	565.83	1038.666	5331.4	1204.5	29974.4	516.3	804.5
0.8	3718.86	1190.34	38499.13	565.82	1039.054	5240.4	1205.9	28512.6	508.7	755.2
0.9	3792.57	1190.46	38007.04	565.60	1035.513	4979.0	1206.5	27982.4	503.2	731.9
1.0	3894.59	1190.67	37243.49	565.28	1032.616	4666.8	1206.5	28170.5	500.4	718.2
1.1	4040.05	1191.05	36056.67	564.56	1024.747	4338.3	1206.1	28843.6	499.1	714.5
1.2	4207.73	1191.60	34568.39	563.29	1013.115	4009.4	1205.6	29806.0	498.8	716.5
1.3	4365.54	1192.20	33138.08	561.69	1000.073	3717.0	1205.0	30817.1	499.0	720.2
1.4	4993.88	1195.85	32492.03	552.24	989.5376	3479.8	1204.6	31694.5	499.3	723.7
1.5	5680.12	1199.71	30794.20	538.92	875.3103	3300.6	1204.3	32345.0	499.5	726.3
1.6	5890.87	1201.23	29217.68	532.83	910.9592	3181.6	1204.1	32666.4	499.7	728.1
1.7	6230.52	1203.24	28865.65	528.18	886.991	3106.0	1204.0	32723.4	499.8	729.0
1.8	6589.77	1206.18	26964.95	519.59	803.0924	3052.9	1203.9	32680.9	499.6	728.4

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
1.9	6793.44	1208.29	24854.61	512.88	762.0923	3020.8	1203.9	32600.2	499.2	726.3
2.0	6987.48	1209.57	23543.95	509.93	757.0142	3010.7	1204.0	32499.2	498.5	722.8
2.1	7049.20	1210.37	22700.01	507.46	732.7446	3020.8	1204.1	32356.9	497.7	717.8
2.2	6982.30	1210.71	22352.82	505.43	722.8103	3050.3	1204.4	32131.9	496.6	711.7
2.3	6929.43	1211.04	21991.46	503.58	712.88	3106.2	1204.6	31730.6	495.4	705.0
2.4	6926.97	1211.55	21424.15	501.60	700.4492	3181.4	1204.9	31161.7	494.3	698.2
2.5	6972.51	1212.27	20638.07	499.39	686.8077	3257.5	1205.1	30565.0	493.1	691.1
2.6	7045.78	1213.19	19690.63	496.92	670.8762	3329.2	1205.4	29990.4	491.9	684.3
2.7	7104.95	1214.14	18744.18	494.28	653.8654	3396.4	1205.7	29409.8	490.6	677.1
2.8	7120.03	1214.90	17983.51	491.78	638.7917	3460.7	1206.0	28798.3	489.2	669.3
2.9	7090.58	1215.41	17449.85	489.58	626.4775	3523.6	1206.3	28153.2	487.6	660.6
3.0	7024.28	1215.70	17117.19	487.66	616.2853	3586.2	1206.7	27480.8	486.0	651.3
3.1	6931.13	1215.78	16983.97	486.12	608.9916	3650.1	1207.0	26806.2	484.1	641.6
3.2	6827.70	1215.69	16999.04	484.98	604.6638	3707.1	1207.4	26140.4	482.1	629.7
3.3	6723.07	1215.54	17071.12	484.04	601.1656	3751.8	1207.7	25494.8	480.1	619.2
3.4	6617.46	1215.36	17164.90	483.17	598.1012	3787.5	1208.0	24906.0	478.3	609.5
3.5	6513.70	1215.16	17283.34	482.42	595.6895	3819.2	1208.3	24363.3	476.7	601.6
3.6	6410.98	1214.94	17419.40	481.73	593.6919	3851.2	1208.6	23822.7	475.1	593.5
3.7	6306.66	1214.70	17580.36	481.12	592.0447	3885.2	1208.9	23248.5	473.4	584.7
3.8	6197.66	1214.45	17746.44	480.48	590.5136	3928.3	1209.2	22613.2	471.6	575.1

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
3.9	6091.36	1214.23	17887.72	479.78	588.2765	3975.1	1209.6	21950.0	469.7	565.2
4.0	5999.57	1214.06	17982.71	479.08	586.2639	4013.3	1209.9	21316.9	467.8	555.6
4.1	5919.56	1213.96	17999.05	478.23	582.8126	4041.9	1210.2	20723.0	465.9	546.1
4.2	5850.31	1213.91	17975.75	477.35	578.8416	4063.8	1210.5	20159.5	464.1	536.9
4.3	5785.93	1213.86	17948.31	476.51	575.8641	4081.9	1210.8	19619.1	462.2	527.8
4.4	5719.81	1213.82	17907.76	475.59	571.6936	4097.2	1211.1	19096.9	460.4	519.1
4.5	5657.05	1213.79	17859.65	474.68	567.8912	4109.7	1211.3	18589.4	458.6	510.5
4.6	5601.93	1213.77	17801.33	473.81	564.1906	4120.8	1211.6	18096.4	456.8	501.9
4.7	5556.08	1213.79	17707.59	472.91	560.3049	4130.3	1211.8	17625.7	455.1	493.9
4.8	5521.32	1213.86	17560.69	471.95	555.8145	4135.5	1212.1	17179.0	453.4	486.0
4.9	5497.49	1213.99	17366.12	470.94	550.9728	4136.0	1212.3	16743.6	451.7	478.2
5.0	5479.21	1214.14	17138.19	469.87	545.6119	4135.3	1212.5	16305.3	450.0	470.1
5.1	5461.59	1214.30	16903.19	468.77	540.1775	4138.0	1212.8	15863.6	448.2	462.2
5.2	5458.31	1214.41	16753.36	468.13	534.9559	4144.7	1213.0	15424.4	446.6	454.6
5.3	5452.41	1214.50	16629.87	467.58	537.133	4154.3	1213.3	14993.1	445.0	447.2
5.4	5418.88	1214.63	16392.82	466.31	527.8124	4167.1	1213.5	14579.1	443.5	440.3
5.5	5377.81	1214.79	16119.89	464.77	520.9561	4179.8	1213.8	14186.3	442.0	433.9
5.6	5331.54	1214.88	15926.04	463.43	514.8933	4187.2	1214.0	13802.8	440.6	427.4
5.7	5270.87	1214.87	15832.54	462.28	510.2204	4191.7	1214.2	13411.3	439.1	420.5
5.8	5202.57	1214.79	15800.48	461.26	506.3772	4199.3	1214.5	12999.4	437.5	413.4

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
5.9	5136.92	1214.70	15777.82	460.32	502.8705	4214.5	1214.9	12544.7	435.8	406.0
6.0	5084.95	1214.66	15709.59	459.38	499.2031	4227.8	1215.2	12095.1	434.1	398.1
6.1	5058.63	1214.74	15535.22	458.37	494.8307	4233.7	1215.5	11685.9	432.5	391.1
6.2	5061.77	1214.98	15214.89	457.19	488.941	4238.8	1215.8	11282.6	430.9	383.9
6.3	5087.59	1215.37	14763.62	455.79	481.5992	4242.2	1216.2	10887.3	429.3	376.9
6.4	5126.83	1215.87	14229.35	454.24	473.1572	4243.0	1216.5	10506.6	427.7	370.0
6.5	5166.82	1216.43	13671.74	452.60	464.2117	4241.2	1216.8	10139.1	426.1	363.3
6.6	5199.58	1216.96	13143.25	450.96	455.6055	4236.9	1217.0	9782.5	424.5	356.6
6.7	5225.96	1217.46	12655.68	449.39	447.4246	4230.4	1217.3	9435.8	422.9	349.9
6.8	5248.35	1217.96	12194.42	447.88	439.5559	4221.9	1217.6	9097.6	421.3	343.4
6.9	5268.13	1218.45	11744.27	446.39	431.8085	4211.2	1217.9	8767.5	419.7	336.9
7.0	5285.42	1218.94	11299.63	444.91	424.1094	4197.9	1218.1	8446.1	418.1	330.4
7.1	5300.02	1219.44	10861.96	443.41	416.4128	4182.1	1218.4	8134.4	416.5	324.0
7.2	5312.88	1219.96	10430.75	441.92	408.7826	4163.6	1218.7	7835.1	414.9	317.6
7.3	5325.34	1220.51	9998.25	440.43	401.1175	4142.7	1219.0	7549.3	413.3	311.4
7.4	5335.32	1221.08	9568.11	438.92	393.3681	4119.8	1219.2	7275.8	411.7	305.4
7.5	5339.94	1221.65	9151.08	437.39	385.6325	4094.8	1219.5	7015.1	410.1	299.5
7.6	5338.68	1222.21	8748.44	435.83	377.9228	4068.1	1219.7	6768.1	408.5	293.7
7.7	5332.27	1222.75	8363.09	434.27	370.244	4039.8	1219.9	6534.3	406.9	288.1
7.8	5321.04	1223.26	7998.24	432.72	363.0505	4010.1	1220.1	6313.3	405.4	282.8

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
7.9	5303.07	1223.73	7652.23	431.15	355.3909	3979.5	1220.3	6103.5	403.9	277.5
8.0	5280.96	1224.18	7327.65	429.60	348.3742	3949.0	1220.4	5902.4	402.4	272.5
8.1	5255.83	1224.61	7021.56	428.07	341.5477	3919.4	1220.6	5705.6	401.0	267.6
8.2	5222.98	1225.02	6721.74	426.45	334.4929	3888.6	1220.8	5505.3	399.5	262.7
8.3	5178.24	1225.42	6421.44	424.64	326.976	3830.0	1220.8	5307.4	397.5	256.6
8.4	5121.44	1225.79	6125.63	422.63	318.8619	3733.0	1220.5	5167.8	394.9	249.3
8.5	5056.17	1226.14	5837.72	420.50	310.7606	3634.5	1220.1	5061.3	392.4	243.5
8.6	4982.49	1226.47	5555.02	418.23	302.328	3564.0	1220.0	4863.4	390.1	237.0
8.7	4898.50	1226.75	5286.03	415.81	293.5971	3523.9	1220.5	4527.7	387.7	229.0
8.8	4808.09	1226.93	5044.59	413.34	285.3314	3502.3	1221.3	4096.3	385.3	219.9
8.9	4711.35	1227.00	4833.97	410.86	277.262	3479.2	1222.3	3639.8	382.7	210.2
9.0	4606.88	1226.95	4657.63	408.31	269.5202	3436.9	1223.2	3223.6	379.9	200.3
9.1	4500.25	1226.80	4515.59	405.81	262.4702	3367.1	1223.8	2891.7	376.8	190.9
9.2	4393.63	1226.56	4395.57	403.35	255.7832	3271.4	1223.9	2665.5	373.5	182.4
9.3	4285.60	1226.25	4292.05	400.89	249.39	3159.3	1223.5	2537.1	370.1	175.4
9.4	4172.87	1225.85	4206.82	398.35	243.1775	3043.6	1222.8	2464.3	366.8	169.2
9.5	4056.84	1225.37	4138.37	395.77	236.9903	2935.8	1222.0	2423.7	363.8	164.0
9.6	3947.57	1224.86	4087.16	393.33	231.5702	2840.2	1221.2	2389.4	361.1	159.6
9.7	3835.90	1224.30	4041.69	390.82	226.4181	2761.6	1220.7	2326.7	358.6	154.9
9.8	3723.65	1223.79	3970.26	388.15	220.1975	2702.5	1220.5	2239.8	356.6	151.0

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
9.9	3637.49	1223.53	3852.26	385.81	214.6207	2655.9	1220.6	2113.9	354.7	146.8
10.0	3574.11	1223.47	3707.97	383.83	209.3918	2612.7	1220.9	1954.7	352.7	141.6
10.1	3516.03	1223.39	3588.09	382.03	204.7022	2568.8	1221.1	1814.3	350.7	137.2
10.2	3453.19	1223.16	3511.79	380.28	200.9402	2529.7	1221.5	1663.8	348.9	132.8
10.3	3387.37	1222.85	3449.77	378.51	197.0519	2502.7	1222.4	1463.3	347.3	127.5
10.4	3332.71	1222.68	3368.08	376.89	193.3959	2478.7	1223.5	1269.5	345.8	122.5
10.5	3291.35	1222.70	3256.39	375.45	189.7945	2451.0	1224.3	1115.5	344.4	118.4
10.6	3252.54	1222.80	3126.88	373.98	185.8833	2433.4	1225.5	959.8	343.3	114.4
10.7	3209.24	1222.88	2997.81	372.40	181.8303	2427.7	1227.2	776.2	342.7	110.4
10.8	3159.90	1222.89	2878.73	370.69	177.7135	2414.3	1229.0	598.8	342.1	105.9
10.9	3102.83	1222.81	2767.53	368.80	173.5954	2375.7	1229.9	481.5	340.7	101.7
11.0	3022.52	1222.51	2652.96	366.29	168.4726	2316.7	1229.9	432.5	338.6	98.3
11.1	2921.69	1222.01	2534.35	363.17	162.1219	2258.8	1229.5	408.8	336.6	95.6
11.2	2841.36	1221.68	2419.12	360.53	156.5801	2215.6	1229.5	367.6	335.1	93.0
11.3	2784.73	1221.45	2336.24	358.61	153.2978	2187.5	1230.1	299.6	334.1	90.4
11.4	2721.38	1221.00	2289.86	356.65	150.1807	2167.0	1231.1	219.2	333.3	87.8
11.5	2647.53	1220.47	2225.48	354.32	146.3128	2139.3	1231.8	148.1	332.4	85.3
11.6	2571.92	1219.92	2152.39	351.83	141.5976	2029.6	1226.9	103.5	328.2	82.5
11.7	2488.89	1219.16	2103.44	349.18	138.5105	1909.2	1219.9	86.3	322.5	89.6
11.8	2367.60	1217.94	2038.88	345.28	132.5417	1857.9	1217.9	82.1	320.5	88.9

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
11.9	2211.88	1216.15	1985.77	340.13	125.396	1811.1	1216.6	74.3	318.8	88.0
12.0	2080.26	1214.41	1975.41	335.77	120.0252	1755.1	1215.1	62.1	316.7	86.8
12.1	1976.69	1212.96	1984.45	332.23	116.7781	1687.3	1213.3	52.1	314.2	85.5
12.2	1861.60	1211.18	2028.49	328.28	112.3925	1621.1	1211.6	45.5	311.7	84.3
12.3	1741.18	1209.23	2069.41	324.04	108.2196	1572.0	1210.3	41.4	309.9	83.4
12.4	1656.14	1207.86	2074.89	320.78	103.8234	1542.5	1209.5	39.3	308.9	83.0
12.5	1638.77	1207.62	2064.24	319.99	104.8238	1522.9	1209.0	39.2	308.2	82.7
12.6	1615.17	1207.37	2011.97	318.74	101.6428	1501.4	1208.4	43.4	307.4	82.4
12.7	1570.89	1206.86	1922.47	316.35	98.20489	1473.8	1207.6	46.0	306.5	82.1
12.8	1552.09	1206.91	1808.22	314.80	96.26216	1432.9	1206.5	41.1	305.1	81.5
12.9	1513.04	1206.70	1663.76	312.22	91.32984	1391.3	1205.4	34.5	303.6	80.6
13.0	1441.60	1205.89	1529.09	308.12	86.44714	1370.8	1204.9	29.9	302.8	80.4
13.1	1359.13	1204.64	1441.25	303.62	81.8531	1341.3	1204.2	27.2	301.8	80.1
13.2	1285.69	1202.69	1399.98	300.88	81.00603	1261.1	1202.2	24.5	299.1	78.9
13.3	1228.48	1200.84	1361.43	299.37	81.01533	1169.0	1201.0	21.8	296.1	77.8
13.4	1194.66	1200.05	1321.72	297.96	80.41002	1112.3	1201.4	21.8	294.3	77.3
13.5	1163.71	1199.33	1295.32	296.58	79.40754	1078.9	1201.6	26.5	293.4	76.9
13.6	1120.23	1198.26	1262.64	294.55	77.6799	1043.2	1201.0	31.8	292.3	77.1
13.7	1082.17	1197.28	1236.92	293.01	77.24097	985.0	1200.0	32.5	290.7	76.3
13.8	1050.36	1196.44	1226.41	292.06	76.99243	925.1	1199.6	32.2	289.0	75.9

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
13.9	1020.71	1195.68	1219.63	291.20	76.7229	886.0	1199.2	39.4	287.9	75.7
14.0	972.68	1194.51	1198.88	289.84	76.36981	866.2	1198.3	55.0	287.5	75.6
14.1	900.88	1192.79	1158.71	287.89	75.62348	862.1	1197.5	70.2	287.4	75.7
14.2	827.53	1191.10	1109.10	286.04	75.25019	857.7	1197.0	76.0	287.3	75.7
14.3	771.08	1189.85	1064.41	284.73	74.94771	825.2	1196.5	70.2	286.5	75.5
14.4	738.42	1189.16	1044.59	284.05	74.85709	764.6	1195.9	62.2	285.0	75.0
14.5	722.98	1188.85	1059.36	283.76	74.9034	700.9	1195.2	61.0	283.5	74.6
14.6	701.42	1188.44	1056.75	283.32	74.7923	638.2	1194.4	63.0	282.2	74.3
14.7	655.77	1187.63	961.10	282.40	74.49541	567.0	1193.5	62.7	281.0	74.4
14.8	585.34	1186.84	825.49	281.11	74.0854	483.4	1192.9	58.9	279.8	73.6
14.9	506.65	1186.41	727.80	279.85	73.87328	366.5	1192.3	49.7	278.4	73.4
15.0	445.48	1186.14	661.92	279.03	73.8341	210.5	1192.0	33.0	277.2	73.6
15.1	411.78	1185.81	619.64	278.64	73.87054	64.4	1192.0	12.5	276.6	73.5
15.2	385.86	1185.49	592.75	278.37	73.83266	1.1	1190.4	1.0	276.2	73.6
15.3	349.27	1185.30	554.67	278.03	73.74274	0.0	100.0	0.0	10.0	73.6
15.4	319.59	1185.20	507.41	277.77	73.76365	0.0	100.0	0.0	10.0	73.6
15.5	325.76	1185.22	498.53	277.98	73.77338	0.0	100.0	0.0	10.0	73.6
15.6	369.42	1184.78	575.30	278.45	74.58835	0.0	100.0	0.0	10.0	73.5
15.7	346.74	1184.61	584.43	278.21	73.66819	0.0	100.0	0.0	10.0	73.5
15.8	262.52	1184.94	466.55	277.51	73.63993	0.0	100.0	0.0	10.0	73.4



Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
15.9	218.42	1184.87	361.49	277.11	73.67149	0.0	100.0	0.0	10.0	73.3
16.0	222.61	1184.76	320.17	277.10	73.7808	0.0	100.0	0.0	10.0	73.3
16.1	256.26	1184.43	361.74	277.35	73.88752	0.0	100.0	0.0	10.0	73.5
16.2	314.87	1184.32	484.15	278.05	74.00542	0.0	100.0	0.0	10.0	73.5
16.3	399.70	1184.46	651.48	278.87	74.611	0.0	100.0	0.0	10.0	73.6
16.4	424.88	1184.86	697.94	278.89	73.8687	0.0	100.0	0.0	10.0	73.6
16.5	386.37	1185.31	628.68	278.39	73.86523	0.0	100.0	0.0	10.0	73.6
16.6	346.12	1185.35	566.91	278.02	73.71196	0.0	100.0	0.0	10.0	73.5
16.7	322.87	1185.29	517.31	277.81	73.76705	0.0	100.0	0.0	10.0	73.1
16.8	333.86	1185.05	522.15	277.92	73.94365	25.1	1184.8	0.1	275.9	73.8
16.9	347.65	1184.83	558.07	278.03	73.91508	35.5	1184.8	0.4	275.3	73.6
17.0	345.70	1184.89	568.38	277.99	73.85989	10.5	1185.0	0.3	275.0	73.5
17.1	350.61	1185.03	570.27	278.08	73.87688	0.0	100.0	0.0	10.0	73.6
17.2	379.62	1184.96	607.60	278.44	74.09661	0.0	100.0	0.0	10.0	73.8
17.3	404.80	1184.94	647.60	278.66	74.03583	0.0	100.0	0.0	10.0	73.7
17.4	435.72	1185.41	687.07	279.23	74.02745	0.0	100.0	0.0	10.0	73.7
17.5	598.94	1187.92	924.39	282.82	75.58422	18.0	1184.9	0.0	300.0	73.7
17.6	720.00	1188.90	1114.95	284.07	74.80801	96.3	1186.4	1.0	277.4	73.9
17.7	680.45	1188.07	1081.59	282.91	74.60171	83.9	1186.8	1.1	276.9	73.4
17.8	651.61	1187.52	1065.14	282.37	74.85718	52.1	1187.6	0.5	274.3	73.8

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
17.9	633.42	1187.19	1015.64	282.03	74.48551	59.0	1187.8	0.6	276.1	73.5
18.0	607.27	1186.78	915.49	281.51	74.38813	12.5	1189.0	0.2	282.2	73.6
18.1	587.60	1186.59	852.64	281.15	74.21064	0.0	100.0	0.0	10.0	73.7
18.2	553.74	1186.32	815.45	280.62	74.19325	0.3	1184.5	0.0	10.0	73.8
18.3	478.24	1186.12	732.12	279.57	73.75981	0.4	1183.7	0.0	10.0	73.6
18.4	429.67	1186.05	664.12	278.92	73.93896	2.3	1184.7	0.0	100.0	73.8
18.5	438.00	1185.61	678.40	279.04	74.11103	2.3	1184.8	0.0	100.0	73.2
18.6	457.94	1185.43	719.11	279.32	74.05242	0.0	100.0	0.0	10.0	71.4
18.7	482.49	1185.54	754.55	279.68	74.06602	0.0	100.0	0.0	10.0	71.3
18.8	504.59	1185.59	780.58	279.95	74.33266	0.0	100.0	0.0	10.0	72.4
18.9	503.49	1185.66	768.14	279.87	74.15369	49.5	1186.1	0.0	300.0	74.0
19.0	476.57	1185.79	724.02	279.47	73.98391	135.2	1189.1	0.1	280.0	73.8
19.1	466.39	1185.81	711.54	279.38	74.10407	161.5	1193.2	0.2	273.5	73.7
19.2	495.61	1185.75	756.43	279.88	74.2496	77.7	1195.9	0.1	280.0	73.5
19.3	525.03	1185.73	791.41	280.25	74.28757	1.9	1197.3	0.0	500.0	73.7
19.4	523.68	1185.85	767.50	280.16	74.18356	0.0	100.0	0.0	10.0	73.6
19.5	522.86	1186.05	749.64	280.17	74.31515	3.3	1186.5	0.0	10.0	73.8
19.6	533.74	1185.99	768.04	280.33	74.43989	3.3	1186.5	0.0	10.0	73.6
19.7	502.24	1185.92	730.49	279.85	73.89213	0.0	100.0	0.0	10.0	73.7
19.8	508.56	1186.34	734.64	280.20	74.19047	11.4	1187.3	0.0	10.0	73.7

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
19.9	616.57	1187.48	917.68	282.36	74.8431	64.5	1192.6	0.0	200.0	73.8
20.0	775.01	1190.10	1383.88	285.64	76.28355	28.5	1195.3	0.0	200.0	73.6
20.5	768.54	1189.90	1293.07	285.24	75.66263	6.5	1198.0	0.0	10.0	72.1
21.0	737.11	1189.18	1175.02	284.21	74.90845	70.9	1196.7	0.0	276.0	69.2
21.5	735.01	1189.12	1277.36	284.25	75.24608	80.3	1196.4	0.0	280.0	73.5
22.0	720.92	1188.88	1432.47	284.08	75.57133	9.4	1194.6	0.0	100.0	73.7
22.5	726.28	1189.06	1447.13	284.21	75.18275	61.9	1195.8	0.0	10.0	72.5
23.0	773.58	1189.98	1180.22	284.93	75.54347	73.5	1197.0	0.0	10.0	73.7
23.5	743.87	1189.42	909.58	284.23	74.70858	12.2	1202.9	0.0	10.0	73.7
24.0	653.24	1187.68	951.56	282.29	74.38791	40.8	1196.2	0.0	10.0	73.4
24.5	622.69	1187.07	1153.75	281.98	74.78619	57.5	1198.2	0.0	10.0	73.7
25.0	591.01	1186.75	1165.02	281.47	74.57095	26.6	1201.6	0.0	10.0	73.7
25.5	517.97	1185.79	1246.63	280.26	74.32353	11.5	1197.8	0.0	10.0	73.7
26.0	470.72	1184.94	1528.44	279.77	74.51925	29.9	1203.0	0.0	10.0	73.7
26.5	438.75	1184.57	1620.52	279.41	74.44828	37.2	1204.4	0.0	10.0	73.7
27.0	395.58	1184.51	1391.44	278.83	74.1436	15.0	1205.2	0.0	10.0	73.6
27.5	354.94	1184.46	1206.39	278.25	74.01461	11.1	1205.5	0.0	10.0	73.7
28.0	323.82	1184.30	1180.52	277.94	73.94646	12.2	1205.8	0.0	10.0	73.7
28.5	292.90	1184.23	1080.88	277.65	73.87787	7.0	1205.2	0.0	10.0	73.7
29.0	264.78	1184.22	925.93	277.40	73.82074	0.4	1197.2	0.0	10.0	73.7

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
29.5	245.07	1184.19	783.58	277.24	73.79306	0.7	1191.1	0.0	10.0	73.7
30.0	229.02	1184.14	675.89	277.13	73.76751	2.4	1191.5	0.0	10.0	73.7
30.5	213.60	1184.07	602.43	277.03	73.76419	2.1	1191.2	0.0	10.0	73.7
31.0	198.66	1183.96	559.76	276.95	73.75786	0.4	1189.1	0.0	10.0	73.7
31.5	186.45	1183.85	523.38	276.88	73.75477	0.7	1186.9	0.0	10.0	73.7
32.0	177.71	1183.74	519.98	276.84	73.75468	11.1	1197.0	0.0	10.0	73.7
32.5	169.39	1183.59	570.67	276.81	73.75427	28.1	1203.4	0.0	10.0	73.7
33.0	159.81	1183.43	642.99	276.77	73.74869	32.7	1208.1	0.0	10.0	73.7
33.5	151.10	1183.28	707.65	276.75	73.77543	28.2	1206.7	0.0	10.0	73.7
34.0	146.42	1183.16	789.63	276.74	73.76569	13.4	1203.3	0.0	10.0	73.6
34.5	144.36	1183.05	1033.98	276.76	73.78262	0.1	1206.4	0.0	10.0	72.9
35.0	141.69	1182.90	1571.86	276.82	73.81935	6.3	1186.6	0.0	10.0	71.2
35.5	137.42	1182.69	2171.55	276.87	73.89374	41.0	1191.9	0.0	200.0	73.9
36.0	135.44	1182.48	2562.42	276.95	73.96019	53.1	1192.8	0.0	200.0	73.8
36.5	134.63	1182.34	2833.52	277.00	74.03759	24.5	1193.0	0.0	10.0	73.6
37.0	131.47	1182.28	2925.39	276.99	74.02323	27.0	1195.9	0.0	10.0	73.5
37.5	127.70	1182.29	2813.08	276.94	73.99922	22.8	1197.0	0.0	10.0	73.7
38.0	123.37	1182.32	2700.79	276.88	73.9596	2.6	1197.9	0.0	10.0	73.7
38.5	118.40	1182.32	2638.13	276.83	73.92158	11.2	1193.1	0.0	10.0	73.8
39.0	114.06	1182.31	2613.86	276.80	73.92563	16.2	1193.1	0.0	10.0	73.7

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
39.5	108.28	1182.30	2554.13	276.70	73.88004	7.8	1192.9	0.0	10.0	73.7
40.0	100.17	1182.31	2396.29	276.57	73.70213	3.1	1192.8	0.0	10.0	73.7
40.5	92.79	1182.32	2230.38	276.51	73.70171	1.8	1191.0	0.0	10.0	73.7
41.0	87.72	1182.29	2155.10	276.49	73.70168	7.2	1195.5	0.0	10.0	73.7
41.5	84.54	1182.24	2182.41	276.49	73.70219	13.5	1199.4	0.0	10.0	73.7
42.0	82.74	1182.21	2261.05	276.48	73.70177	14.1	1203.9	0.0	10.0	73.7
42.5	83.64	1182.15	2397.74	276.49	73.70461	15.0	1206.8	0.0	10.0	73.7
43.0	88.05	1181.99	2703.09	276.51	73.70767	16.8	1208.7	0.0	10.0	73.7
43.5	92.99	1181.86	3081.04	276.53	73.71006	18.3	1210.4	0.0	10.0	73.7
44.0	97.06	1181.81	3345.76	276.55	73.713	19.8	1211.8	0.0	10.0	73.7
44.5	100.77	1181.80	3464.22	276.57	73.71436	20.3	1213.0	0.0	10.0	73.7
45.0	102.87	1181.82	3440.50	276.57	73.71311	20.2	1214.0	0.0	10.0	73.7
45.5	102.00	1181.87	3331.83	276.56	73.70994	20.2	1214.8	0.0	10.0	73.7
46.0	98.34	1181.93	3218.84	276.55	73.70684	21.2	1215.5	0.0	10.0	73.7
46.5	94.03	1181.96	3146.64	276.53	73.70648	23.9	1216.1	0.0	10.0	73.7
47.0	92.13	1181.94	3165.32	276.53	73.70738	27.5	1216.5	0.0	10.0	73.7
47.5	94.10	1181.87	3291.14	276.54	73.71215	29.7	1216.9	0.0	10.0	73.7
48.0	96.45	1181.83	3429.04	276.55	73.71077	26.7	1217.1	0.0	10.0	73.7
48.5	94.99	1181.86	3441.09	276.54	73.7085	25.4	1217.3	0.0	10.0	73.7
49.0	90.01	1181.96	3220.39	276.52	73.70547	25.6	1217.5	0.0	10.0	73.7

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
49.5	79.93	1182.12	2782.82	276.49	73.69555	13.3	1217.6	0.0	10.0	73.7
50.0	65.72	1182.28	2336.62	276.46	73.69418	1.5	1217.7	0.0	10.0	73.7
50.5	51.69	1182.43	1936.11	276.44	73.69373	0.0	100.0	0.0	10.0	73.7
51.0	39.33	1182.59	1511.38	276.42	73.69345	0.0	100.0	0.0	10.0	73.7
51.5	31.34	1182.63	1108.77	276.42	73.69723	0.0	100.0	0.0	10.0	73.6
52.0	26.53	1182.53	784.76	276.41	73.6967	0.0	100.0	0.0	10.0	73.6
52.5	21.48	1182.40	524.23	276.40	73.70061	4.4	1188.1	0.0	10.0	73.7
53.0	17.17	1182.48	320.55	276.40	73.69612	4.7	1188.0	0.0	10.0	73.7
53.5	14.90	1182.73	196.09	276.40	73.69675	9.1	1191.8	0.0	10.0	73.7
54.0	14.21	1182.97	107.19	276.41	73.69689	31.5	1198.0	0.0	10.0	73.7
54.5	14.48	1183.19	44.46	276.42	73.6972	54.1	1204.5	0.0	10.0	73.7
55.0	16.08	1183.41	16.26	276.33	73.69724	62.3	1209.8	0.0	10.0	73.7
55.5	22.12	1183.51	19.64	276.40	73.69837	54.2	1213.2	0.0	10.0	73.7
56.0	30.62	1183.12	130.51	276.41	73.69796	41.6	1215.0	0.0	10.0	73.7
56.5	34.60	1182.53	378.40	276.41	73.69784	25.4	1215.8	0.0	10.0	73.7
57.0	33.66	1182.14	581.39	276.41	73.69814	9.4	1216.4	0.0	10.0	73.7
57.5	32.50	1181.98	662.14	276.41	73.6994	8.6	1217.1	0.0	10.0	73.7
58.0	31.96	1181.85	730.39	276.41	73.69713	13.9	1217.5	0.0	10.0	73.7
58.5	29.60	1181.70	720.18	276.41	73.69666	16.6	1217.9	0.0	10.0	73.7
59.0	23.23	1181.54	549.73	276.40	73.69803	18.5	1218.2	0.0	10.0	73.7

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)
59.5	16.54	1181.55	318.06	276.40	73.6974	15.3	1218.4	0.0	10.0	73.7
60.0	14.63	1182.30	100.15	276.40	73.69705	10.3	1218.8	0.0	10.0	73.7
61.0	14.80	1182.92	27.07	276.41	73.69739	14.4	1219.2	0.0	10.0	73.7
62.0	14.93	1183.46	3.28	276.49	73.69757	26.0	1219.2	0.0	10.0	73.7
63.0	15.01	1183.93	0.42	276.52	73.69798	29.6	1219.0	0.0	10.0	73.7
64.0	14.08	1184.38	0.07	270.27	73.69649	23.7	1218.9	0.0	10.0	73.7
65.0	11.02	1184.53	0.06	277.31	73.6967	21.6	1219.0	0.0	10.0	73.7
66.0	7.83	1184.36	0.05	284.31	73.69694	22.3	1219.1	0.0	10.0	73.7
67.0	8.98	1184.83	0.03	264.15	73.6979	22.8	1219.2	0.0	10.0	73.7
68.0	13.77	1185.80	0.02	258.06	73.69794	24.3	1219.2	0.0	10.0	73.7
69.0	19.57	1185.76	0.82	276.83	73.6981	26.4	1219.1	0.0	10.0	73.7
70.0	22.80	1184.37	36.64	276.41	73.69612	28.4	1219.1	0.0	10.0	73.7
71.0	21.97	1183.10	150.45	276.40	73.69683	29.5	1219.0	0.0	10.0	73.7
71.68426	20.81	1182.71	265.61	276.40	73.69853	29.8	1219.0	0.0	10.0	73.7

Table 6-30. RELAP5 Long-Term Mass and Energy Release Data

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
0.0	2.61	1190.80	45034.67	560.04	2294.67	622.72	1195.07	24082.41	538.81	2296.60	0.00
0.5	1.35	1190.73	45002.73	561.03	1141.73	701.17	1195.39	23503.53	536.92	946.56	0.00
1.0	1.97	1189.03	43883.38	561.31	1112.71	821.86	1195.63	22712.44	535.16	946.49	0.00
1.5	14.86	1188.96	41138.78	560.56	1113.47	940.61	1195.69	22178.90	535.45	952.13	0.00
2.0	50.78	1188.48	37445.88	561.23	1121.34	1048.83	1196.19	20838.21	536.12	928.40	0.00
2.5	131.14	1188.16	33748.12	562.75	1143.21	1085.61	1196.58	19040.70	538.38	895.71	0.00
3.0	295.10	1188.29	31133.46	563.51	1137.55	1165.81	1196.70	17346.79	538.67	874.28	0.00
3.5	499.44	1188.67	29332.74	562.72	1127.36	1339.95	1197.43	15457.64	534.17	837.95	0.00
4.0	702.87	1189.19	27711.68	561.28	1120.62	1789.77	1201.47	13673.54	517.80	797.22	0.00
4.5	973.92	1190.10	25969.13	558.99	1104.83	2328.37	1205.61	11416.29	495.80	685.83	0.00
5.0	1308.56	1191.25	23634.97	556.36	1072.47	2574.99	1207.92	9250.46	482.53	620.76	0.00
5.5	1580.32	1191.83	20906.55	556.08	1032.60	2641.20	1209.04	8241.40	475.89	590.78	0.00
6.0	1802.31	1192.39	18632.19	555.19	1003.97	2628.75	1209.53	7834.36	472.11	577.39	0.00
6.5	2004.58	1193.41	17055.64	550.93	979.81	2676.06	1210.49	7089.30	467.57	557.19	7.51
7.0	2142.47	1194.57	15821.38	545.99	951.27	2816.47	1212.28	5780.78	460.58	509.76	15.21
7.5	2201.87	1195.71	14909.52	540.90	924.81	2904.60	1213.70	4810.09	454.21	479.95	23.09
8.0	2201.25	1196.85	14343.35	535.83	901.26	2906.34	1214.35	4396.83	450.43	464.32	31.11
8.5	2432.66	1200.19	14060.63	524.56	844.18	2868.05	1214.66	4167.69	447.20	451.84	39.38
9.0	2754.27	1203.35	13282.68	512.71	792.59	2818.77	1214.99	3900.91	443.34	435.95	47.90



Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
9.5	2871.87	1204.91	12016.15	506.08	753.66	2771.95	1215.55	3502.50	438.36	413.89	56.67
10.0	2910.01	1206.30	10930.33	499.17	715.22	2732.74	1216.38	2996.00	432.48	387.73	65.73
10.5	2893.94	1207.56	9959.00	491.68	672.61	2681.48	1217.16	2516.27	426.21	362.25	75.14
11.0	2866.07	1208.79	9014.42	483.96	632.15	2594.28	1217.52	2178.14	419.90	338.86	84.77
11.5	2839.38	1209.99	8060.30	475.90	588.69	2485.06	1217.59	1934.33	413.70	318.78	94.71
12.0	2659.09	1210.53	7615.43	466.52	551.69	2376.03	1217.67	1697.65	407.37	296.84	104.83
12.5	2069.41	1209.75	8732.67	450.07	490.74	2281.22	1217.91	1430.96	401.09	277.06	115.14
13.0	1475.93	1208.24	10159.54	433.27	422.92	2207.90	1218.48	1111.64	394.91	255.52	125.01
13.5	1223.13	1207.47	10460.70	418.41	371.54	2140.84	1219.30	783.30	388.66	234.91	134.01
14.0	1074.33	1206.66	10258.17	404.44	322.90	2054.75	1220.00	502.83	382.03	213.44	143.03
14.5	959.22	1205.72	9831.20	392.62	285.56	1945.08	1220.32	301.89	374.90	194.07	152.06
15.0	825.84	1204.48	9494.08	382.34	261.44	1814.99	1220.50	154.67	368.23	172.93	161.10
15.5	687.19	1202.93	9221.88	372.02	235.30	1648.52	1219.51	91.58	356.60	155.28	170.15
16.0	582.34	1201.44	8886.18	361.07	214.06	1471.92	1217.77	73.06	349.40	136.72	179.21
16.5	522.33	1200.11	8517.77	347.47	201.93	1310.72	1219.71	25.72	342.61	118.47	188.27
17.0	462.30	1198.49	8201.79	333.03	181.54	1140.02	1232.42	2.62	335.89	101.48	197.34
17.5	388.14	1196.14	8086.54	320.25	154.66	982.25	1247.77	0.09	319.35	88.88	206.40
18.0	334.42	1193.50	8097.22	308.14	132.07	856.27	1250.00	0.11	310.19	79.00	215.45
18.5	300.17	1190.66	8172.03	296.34	111.48	745.49	1246.15	0.13	303.05	75.32	224.50
19.0	249.01	1187.99	7975.41	285.43	93.94	648.70	1239.56	0.21	294.81	72.42	233.54

Time (seconds)	Reactor Vessel Side					Pump Discharge Side					
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
19.5	171.69	1185.35	7496.61	273.86	88.14	572.76	1221.23	1.02	285.27	70.02	242.58
20.0	125.51	1181.92	7477.24	258.83	68.46	510.71	1203.59	5.30	281.20	68.44	251.61
20.5	85.76	1178.12	7206.32	234.47	58.72	461.12	1198.73	16.35	279.10	67.69	251.64
21.0	41.52	1172.48	6823.43	209.85	43.15	423.82	1195.20	34.96	277.24	67.20	251.67
21.5	24.30	1169.09	6869.18	199.55	37.14	393.55	1190.35	56.72	275.83	66.92	251.68
22.0	16.74	1167.35	6706.53	193.57	35.06	368.52	1186.88	77.95	274.67	66.61	251.69
22.5	13.23	1166.81	6332.16	191.06	33.87	343.15	1185.05	100.84	273.64	66.33	251.70
23.0	11.13	1166.81	5975.03	190.89	35.99	318.22	1184.14	118.38	272.77	66.03	251.72
23.5	8.81	1166.62	5793.32	188.98	33.97	297.75	1183.51	129.30	272.05	65.84	251.73
24.0	6.98	1166.70	5463.94	188.53	33.11	278.42	1182.96	137.99	271.41	65.63	251.74
24.5	6.18	1167.51	5209.50	188.10	33.87	260.48	1182.47	137.95	270.81	65.37	251.75
25.0	8.81	1172.33	5088.87	192.17	34.44	239.74	1182.10	129.04	270.16	65.16	251.77
25.5	13.66	1177.36	5061.48	191.39	49.33	221.36	1181.90	121.85	269.57	64.91	251.77
26.0	13.92	1179.01	4819.75	183.61	49.14	210.18	1182.30	112.02	269.24	64.80	251.79
26.5	12.38	1178.14	4099.11	191.56	55.62	183.79	1184.18	87.49	268.66	64.46	251.81
27.0	9.08	1178.57	3385.51	196.88	54.40	152.31	1187.39	61.24	267.95	64.29	251.80
27.5	4.62	1182.12	2978.50	191.22	56.41	118.94	1190.83	41.35	267.47	64.12	251.83
28.0	1.67	1186.52	1546.48	190.48	62.83	56.84	1193.16	20.05	267.00	63.94	251.86
28.5	0.00	1173.07	97.41	190.70	61.92	8.18	1191.67	4.20	266.56	63.85	251.86
29.0	0.00	1169.54	0.00	261.52	55.11	0.00	1174.65	0.00	261.50	63.81	251.87

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
29.5	0.00	1168.90	0.00	261.67	53.33	0.00	1174.36	0.00	261.63	63.35	251.87
30.0	0.00	1169.17	0.00	261.47	54.14	0.00	1174.26	0.00	261.68	63.14	251.87
31	0.00	1167.33	0.00	262.99	49.67	0.00	1173.95	0.00	261.82	62.58	251.89
32	0.00	1168.81	0.00	261.39	52.98	14.15	1207.90	0.04	269.33	62.69	251.87
33	0.00	1172.52	0.00	262.87	60.22	14.24	1207.93	0.04	267.47	63.33	251.85
34	0.00	1169.02	0.00	260.98	53.42	9.28	1202.56	0.02	260.61	62.61	251.87
35	0.00	1170.08	0.00	260.67	55.62	11.91	1199.71	0.02	264.86	62.76	251.86
36	12.25	1202.55	120.64	226.64	56.40	31.16	1216.23	0.04	265.91	62.79	251.86
37	12.81	1201.81	133.73	225.33	62.25	31.38	1219.40	0.05	265.31	62.82	251.86
38	114.71	1187.73	259.64	265.32	63.96	70.37	1251.25	0.03	265.62	63.18	251.82
39	287.46	1190.16	392.15	268.51	64.44	148.11	1233.85	2.85	266.58	62.71	251.80
40	379.29	1189.84	362.22	270.53	64.37	177.09	1205.36	16.57	266.97	62.71	251.80
41	391.99	1187.18	375.78	270.82	65.50	184.09	1191.36	34.19	266.69	62.76	251.78
42	357.15	1185.55	421.36	270.33	63.22	170.81	1187.04	46.01	266.36	62.37	251.81
43	371.22	1186.09	475.78	270.67	67.23	177.56	1184.23	62.23	266.42	62.80	251.78
44	358.14	1185.62	373.60	269.60	63.36	168.68	1183.55	65.23	266.10	62.24	251.80
45	301.98	1183.54	317.79	267.52	62.84	140.01	1184.02	64.73	265.36	62.03	251.81
46	292.95	1183.15	305.97	267.16	62.79	130.70	1182.49	81.70	265.12	61.95	251.81
47	298.85	1183.16	315.79	267.17	62.58	130.47	1181.63	93.87	265.01	61.80	251.82
48	302.29	1183.22	337.72	267.17	62.67	131.96	1181.30	98.58	264.91	61.71	251.81

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
49	304.79	1183.28	336.95	267.10	62.59	132.09	1180.90	105.03	264.78	61.60	251.81
50	299.65	1183.10	328.89	266.84	62.38	128.95	1180.52	113.38	264.61	61.47	251.81
51	282.29	1182.63	313.69	266.34	62.12	122.57	1180.41	117.85	264.39	61.34	251.82
52	260.99	1182.20	300.55	265.76	61.72	114.38	1180.57	117.71	264.14	61.17	251.82
53	249.94	1181.97	302.22	265.43	61.58	109.41	1180.67	117.90	263.94	61.04	251.82
54	245.26	1181.81	306.17	265.23	61.48	108.17	1180.58	119.63	263.79	60.92	251.82
55	232.70	1181.79	292.61	264.89	61.24	104.07	1180.70	117.76	263.60	60.78	251.83
56	218.64	1181.80	281.43	264.50	60.99	98.82	1180.94	114.52	263.40	60.63	251.83
57	212.67	1181.80	277.39	264.28	60.85	96.38	1181.04	113.40	263.23	60.50	251.83
58	205.27	1181.90	258.90	264.02	60.70	93.57	1181.17	111.40	263.06	60.37	251.83
59	205.83	1182.09	295.46	264.49	60.46	90.84	1181.39	109.86	262.91	60.23	251.83
60	241.80	1182.13	361.54	265.08	62.43	110.30	1180.18	132.93	263.20	60.43	251.82
61	242.62	1181.86	314.13	264.64	60.52	113.22	1180.08	130.16	263.16	60.12	251.83
62	216.16	1181.77	243.87	263.80	60.43	96.33	1181.28	102.44	262.73	60.06	251.83
63	211.13	1182.03	224.70	263.67	60.31	93.84	1181.45	100.33	262.66	60.01	251.83
64	196.74	1182.09	212.49	263.41	60.20	88.70	1181.63	101.00	262.57	59.96	251.84
65	188.06	1182.12	205.51	263.26	60.15	85.51	1181.76	102.27	262.50	59.93	251.84
66	184.70	1182.18	191.29	263.15	60.05	83.60	1181.90	101.57	262.45	59.89	251.84
67	176.40	1182.12	189.67	262.97	59.98	81.07	1182.14	98.32	262.38	59.85	251.84
68	205.52	1181.96	268.47	263.92	59.93	96.50	1181.12	115.51	262.77	59.82	251.84

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
69	228.28	1181.58	314.22	264.12	60.56	105.73	1180.77	114.93	262.83	59.86	251.82
70	211.39	1181.50	260.95	263.51	60.05	96.34	1181.79	87.90	262.43	59.76	251.84
71	205.62	1182.15	211.03	263.29	60.03	92.69	1182.19	83.58	262.34	59.74	251.83
72	195.59	1182.56	181.51	263.07	59.89	87.25	1182.01	91.87	262.25	59.69	251.84
73	186.06	1182.68	167.17	262.88	59.81	82.39	1181.86	101.60	262.17	59.66	251.84
74	182.09	1182.72	152.77	262.73	59.73	79.81	1181.80	106.64	262.12	59.62	251.84
75	174.34	1182.42	167.84	262.59	59.67	78.35	1181.84	107.38	262.07	59.59	251.84
76	167.76	1182.02	194.13	262.51	59.66	78.08	1181.88	106.55	262.03	59.55	251.84
77	171.14	1181.79	211.29	262.57	59.62	79.29	1181.86	105.66	262.00	59.52	251.84
78	180.39	1181.60	229.44	262.71	59.74	82.74	1181.66	106.10	262.00	59.51	251.84
79	186.18	1181.59	227.52	262.75	59.70	85.12	1181.56	105.29	261.98	59.47	251.84
80	187.40	1181.76	216.34	262.72	59.65	85.92	1181.56	103.65	261.95	59.44	251.84
81	189.20	1182.09	193.61	262.68	59.61	85.20	1181.72	99.97	261.91	59.39	251.84
82	189.21	1182.36	169.14	262.61	59.52	83.05	1182.06	93.54	261.84	59.36	251.84
83	182.44	1182.30	174.37	262.46	59.48	81.51	1182.24	90.08	261.79	59.32	251.84
84	173.12	1182.11	187.45	262.29	59.40	79.56	1182.26	91.10	261.73	59.28	251.84
85	166.15	1181.96	191.34	262.15	59.35	77.67	1182.18	95.13	261.68	59.25	251.84
86	160.21	1181.90	185.84	262.03	59.28	75.57	1182.12	99.01	261.62	59.21	251.84
87	154.33	1181.85	180.63	261.92	59.22	73.36	1182.13	101.85	261.57	59.17	251.84
88	150.02	1181.84	173.45	261.83	59.17	71.37	1182.12	104.41	261.51	59.14	251.84

Time (seconds)	Reactor Vessel Side					Pump Discharge Side					
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
89	146.81	1181.87	163.70	261.75	59.12	69.25	1182.01	106.84	261.46	59.10	251.84
90	145.08	1182.03	144.75	261.71	59.08	66.73	1181.81	108.90	261.40	59.06	251.84
91	142.31	1182.13	132.30	261.67	59.06	64.49	1181.63	110.74	261.37	59.05	251.85
92	140.24	1182.31	118.47	261.65	59.05	62.77	1181.49	112.28	261.34	59.03	251.85
93	138.59	1182.51	101.62	261.63	59.03	60.68	1181.37	111.96	261.31	59.02	251.85
94	135.67	1182.75	90.54	261.61	59.01	58.76	1181.30	109.76	261.28	59.00	251.85
95	132.34	1183.11	75.58	261.59	59.00	57.23	1181.30	105.54	261.26	58.99	251.85
96	128.05	1183.34	66.81	261.55	58.98	56.13	1181.38	99.03	261.24	58.97	251.85
97	124.92	1183.63	56.19	261.53	58.97	55.40	1181.51	91.22	261.22	58.96	251.85
98	121.64	1183.88	47.33	261.51	58.96	54.29	1181.62	83.38	261.20	58.95	251.85
99	117.13	1184.02	40.18	261.48	58.94	52.44	1181.65	77.13	261.17	58.93	251.85
100	111.09	1184.10	33.74	261.45	58.92	50.11	1181.58	73.41	261.14	58.92	251.85
101	104.19	1184.15	29.03	261.41	58.91	47.06	1181.40	72.24	261.12	58.90	251.85
102	97.68	1184.23	25.76	261.34	58.91	43.21	1181.17	71.12	261.09	58.89	251.85
103	92.03	1184.39	23.33	261.28	58.89	39.93	1180.96	69.33	261.06	58.87	251.85
104	87.56	1184.59	21.68	261.25	58.87	38.11	1180.82	68.30	261.04	58.86	251.85
105	85.72	1185.08	20.35	261.23	58.87	37.50	1180.80	66.37	261.02	58.85	251.85
106	84.95	1186.62	18.17	261.22	58.86	37.70	1180.95	61.67	261.02	58.84	251.85
107	84.60	1188.89	15.56	261.21	58.86	40.14	1181.38	54.67	261.02	58.83	251.85
108	86.92	1190.59	14.32	261.18	58.84	43.40	1181.91	49.81	261.02	58.84	251.85

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
109	85.56	1191.89	11.98	261.16	58.83	39.54	1181.95	42.35	261.00	58.81	251.85
110	79.56	1193.00	8.41	261.13	58.82	34.12	1181.74	33.81	260.96	58.80	251.85
111	75.29	1193.63	6.58	261.07	58.81	33.16	1181.58	34.06	260.94	58.79	251.85
112	73.24	1194.03	6.34	261.02	58.80	32.67	1181.17	41.18	260.92	58.78	251.85
113	73.47	1193.95	7.97	261.02	58.79	33.24	1180.87	49.57	260.91	58.77	251.85
114	74.47	1193.93	10.91	261.08	58.77	34.71	1180.96	51.47	260.91	58.76	251.85
115	75.20	1194.45	12.40	261.06	58.77	37.11	1181.63	43.45	260.92	58.76	251.85
116	76.21	1195.58	10.62	261.03	58.77	39.94	1183.13	29.36	260.93	58.75	251.85
117	77.94	1196.99	6.96	260.98	58.75	43.21	1185.50	16.82	260.93	58.75	251.85
118	76.80	1198.30	3.77	260.92	58.74	43.01	1186.48	12.18	260.92	58.73	251.85
119	73.04	1198.00	3.72	261.02	58.73	40.91	1185.19	16.21	260.90	58.72	251.85
120	71.80	1192.62	17.04	260.98	58.73	43.25	1181.99	53.40	260.88	58.71	251.85
125	76.74	1192.45	19.02	260.97	58.67	44.71	1181.31	66.34	260.85	58.68	251.85
130	80.32	1193.99	13.63	260.95	58.63	44.73	1183.14	49.67	260.81	58.63	251.85
135	77.98	1198.43	4.59	260.88	58.58	42.47	1189.86	15.96	260.75	58.58	251.85
140	106.76	1198.56	54.64	261.64	58.54	54.59	1188.32	19.19	260.86	58.53	251.85
145	141.38	1190.46	106.37	261.59	58.50	65.70	1182.93	53.92	260.85	58.49	251.85
150	151.29	1183.48	116.84	261.51	58.49	66.58	1181.41	74.15	260.80	58.49	251.85
155	159.11	1182.54	125.19	261.45	58.43	69.29	1181.15	83.06	260.75	58.44	251.85
160	163.67	1182.52	124.93	261.41	58.37	68.87	1180.80	90.80	260.70	58.38	251.85

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
165	163.65	1182.12	142.01	261.30	58.86	70.41	1180.88	85.43	260.66	58.48	251.84
170	156.93	1181.96	146.92	261.14	58.30	68.83	1180.92	83.45	260.57	58.29	251.85
175	149.54	1182.01	134.68	261.00	58.27	64.30	1180.75	88.06	260.48	58.25	251.85
180	146.79	1182.10	131.98	260.94	58.19	61.47	1180.38	95.10	260.41	58.19	251.85
185	136.31	1184.21	101.69	260.81	58.14	55.55	1180.44	83.27	260.32	58.14	251.85
190	118.19	1185.09	74.19	260.50	58.09	49.80	1181.02	58.11	260.19	58.08	251.85
195	93.44	1184.22	69.65	260.36	58.01	44.53	1183.00	28.88	260.13	58.01	251.85
200	61.38	1188.49	36.98	260.22	57.96	34.83	1183.95	9.20	259.98	57.95	251.85
205	34.94	1195.83	6.77	260.06	57.90	22.27	1182.35	6.50	259.91	57.90	251.86
210	18.66	1201.86	0.15	259.81	57.86	15.18	1181.60	4.62	259.81	57.86	251.86
215	12.87	1206.61	0.03	257.58	57.81	15.20	1183.23	3.73	259.77	57.81	251.86
220	12.25	1209.83	0.02	256.04	57.76	15.49	1184.96	1.68	259.71	57.76	251.86
225	13.75	1210.42	0.02	257.86	57.71	14.96	1203.17	0.89	259.70	57.71	251.86
230	34.98	1205.70	0.75	259.95	57.67	18.79	1249.57	0.02	260.50	57.67	251.86
235	58.49	1200.67	20.78	259.72	57.57	26.81	1245.36	0.59	259.53	57.61	251.85
240	63.22	1191.11	77.61	259.73	57.57	32.35	1205.38	4.95	259.54	57.57	251.86
245	59.61	1185.05	110.68	259.69	57.52	31.36	1188.44	5.09	259.53	57.53	251.86
250	58.98	1183.14	250.47	260.07	57.46	28.68	1195.90	1.86	259.42	57.48	251.86
255	76.45	1181.50	295.98	260.01	57.65	35.55	1190.11	8.87	259.38	57.44	251.85
260	85.21	1182.24	161.11	259.63	57.41	40.11	1183.19	32.03	259.32	57.38	251.85



Time (seconds)	Reactor Vessel Side					Pump Discharge Side					
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
265	70.56	1183.17	115.93	259.52	57.35	33.17	1180.38	48.45	259.27	57.36	251.86
270	58.17	1182.98	108.49	259.40	57.31	26.47	1179.67	33.27	259.21	57.29	251.86
275	46.24	1183.17	86.62	259.30	57.24	20.51	1180.49	11.18	259.15	57.24	251.86
280	26.43	1185.23	34.42	259.18	57.19	11.67	1181.14	2.33	259.08	57.19	251.86
285	16.46	1190.90	3.02	259.06	57.15	7.89	1193.57	0.28	259.04	57.14	251.86
290	15.98	1195.10	0.74	258.89	57.10	8.23	1221.46	0.01	259.42	57.09	251.86
295	17.43	1189.80	14.99	258.90	57.05	8.47	1240.39	0.00	253.86	57.04	251.86
300	16.37	1184.34	24.97	258.86	56.99	8.31	1241.14	0.00	253.81	57.00	251.86
305	14.46	1184.34	21.97	258.80	56.96	7.54	1247.83	0.00	253.77	56.96	251.86
310	17.52	1183.79	35.47	258.75	56.92	8.48	1251.49	0.00	253.72	56.92	251.86
315	19.05	1183.48	39.99	258.72	56.88	8.37	1249.76	0.00	253.68	56.88	251.86
320	14.62	1183.70	30.07	258.66	56.83	6.54	1245.51	0.00	253.61	56.83	251.86
325	9.47	1183.70	25.79	258.60	56.79	5.94	1242.48	0.00	253.57	56.79	251.86
330	7.57	1183.88	16.45	258.56	56.76	5.54	1246.80	0.00	253.52	56.75	251.86
335	7.09	1184.10	10.49	258.49	56.71	5.11	1255.87	0.00	253.47	56.71	251.86
340	14.81	1183.32	43.87	258.47	56.67	7.70	1258.51	0.00	253.43	56.67	251.86
345	20.13	1183.07	65.11	258.44	56.63	9.05	1239.76	0.01	253.38	56.62	251.86
350	23.28	1182.59	75.27	258.40	56.59	9.91	1196.69	0.34	258.35	56.58	251.86
355	30.57	1181.98	105.94	258.39	56.55	12.29	1181.00	2.02	258.25	56.54	251.86
360	36.96	1180.30	143.28	258.36	56.51	13.69	1179.20	7.16	258.22	56.50	251.86

Time (seconds)	Reactor Vessel Side					Pump Discharge Side					
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
365	41.06	1178.74	172.25	258.34	56.48	14.17	1178.68	15.04	258.18	56.46	251.86
370	40.77	1178.35	174.37	258.30	56.43	13.65	1178.45	22.60	258.13	56.42	251.86
375	38.97	1178.34	169.67	258.25	56.39	12.99	1178.34	26.98	258.09	56.37	251.86
380	33.45	1178.37	140.89	258.18	56.34	11.07	1178.26	24.72	258.04	56.33	251.86
385	27.20	1178.63	98.55	258.09	56.30	7.50	1178.18	15.53	258.00	56.29	251.86
390	28.82	1178.66	99.17	258.02	56.26	7.00	1178.43	7.38	257.95	56.25	251.86
395	32.44	1178.47	115.24	258.00	56.22	9.47	1178.40	12.48	257.87	56.21	251.86
400	31.88	1178.37	106.91	257.95	56.18	10.31	1178.23	17.71	257.85	56.17	251.86
405	29.51	1178.32	101.09	257.89	56.13	10.26	1178.28	14.18	257.80	56.13	251.86
410	24.79	1178.47	87.79	257.83	56.09	8.95	1178.26	11.06	257.75	56.08	251.86
415	20.89	1178.63	76.83	257.75	56.05	6.85	1178.22	7.42	257.70	56.04	251.86
420	15.30	1178.65	60.79	257.68	55.99	5.07	1178.43	3.47	257.66	56.00	251.86
425	8.58	1179.04	31.53	257.62	55.94	3.36	1178.84	0.95	257.62	55.95	251.86
430	4.02	1179.46	14.93	257.58	55.90	1.87	1179.23	0.19	257.55	55.91	251.86
435	2.93	1179.87	13.75	257.53	55.87	1.39	1184.60	0.03	257.64	55.87	251.86
440	4.49	1180.02	15.59	257.49	55.78	1.67	1193.87	0.00	252.45	55.83	251.86
445	5.57	1180.39	23.49	257.42	55.79	2.67	1219.61	0.00	252.39	55.78	251.86
450	11.89	1179.28	66.46	257.35	55.75	5.21	1250.75	0.00	252.35	55.75	251.86
455	19.39	1178.21	138.34	257.35	55.71	7.91	1238.88	0.01	252.30	55.71	251.86
460	22.16	1177.81	196.83	257.34	55.67	9.88	1199.92	0.31	257.17	55.67	251.86

Time (seconds)	Reactor Vessel Side					Pump Discharge Side					
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
465	24.64	1177.94	243.61	257.31	55.65	10.55	1180.22	3.39	257.18	55.62	251.86
470	27.67	1179.91	298.59	257.29	55.60	10.26	1178.20	11.27	257.14	55.58	251.86
475	28.62	1181.51	325.73	257.25	55.54	9.68	1177.91	19.07	257.10	55.54	251.86
480	28.02	1182.12	333.19	257.20	55.50	9.05	1177.81	21.34	257.05	55.50	251.86
485	28.65	1182.16	335.36	257.15	55.47	8.39	1177.78	20.06	257.00	55.46	251.86
490	29.05	1181.28	336.11	257.10	55.43	7.47	1177.80	14.55	256.96	55.42	251.86
495	29.37	1181.87	337.37	257.05	55.38	7.05	1178.10	6.07	256.93	55.37	251.86
500	30.06	1181.96	314.79	257.00	55.34	6.56	1179.58	1.25	256.89	55.33	251.86
505	29.34	1181.65	297.75	256.94	55.30	5.94	1190.02	0.11	256.89	55.29	251.86
510	28.32	1182.08	311.80	256.89	55.26	6.03	1202.14	0.00	251.76	55.25	251.86
515	28.06	1181.89	317.88	256.84	55.22	5.93	1204.84	0.00	251.71	55.21	251.86
520	27.50	1182.20	300.49	256.78	55.17	5.60	1205.03	0.00	251.66	55.17	251.86
525	26.91	1182.39	290.72	256.73	55.11	5.56	1205.12	0.00	251.61	55.13	251.86
530	26.49	1181.89	289.91	256.68	55.09	5.43	1205.28	0.00	251.56	55.08	251.86
535	24.18	1182.01	262.12	256.62	55.05	4.72	1205.46	0.00	251.51	55.04	251.86
540	17.20	1181.75	153.46	256.56	55.00	2.76	1206.62	0.00	251.45	55.00	251.87
545	17.48	1178.41	119.78	256.47	54.96	5.26	1212.00	0.05	256.26	54.96	251.87
550	26.48	1177.45	191.53	256.46	54.92	7.48	1198.97	1.63	256.34	54.92	251.87
555	30.38	1179.49	256.27	256.44	54.88	6.17	1178.09	2.40	256.33	54.87	251.87
560	30.27	1181.52	287.52	256.39	54.84	6.18	1178.98	0.93	256.27	54.83	251.87

Time (seconds)	Reactor Vessel Side					Pump Discharge Side					
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
565	29.68	1182.10	289.02	256.34	54.80	5.81	1188.63	0.12	256.17	54.79	251.87
570	29.00	1182.49	319.90	256.30	54.76	6.16	1201.20	0.00	251.16	54.75	251.87
575	28.82	1181.95	349.48	256.26	54.72	6.22	1204.55	0.00	251.11	54.71	251.87
580	28.74	1181.58	335.08	256.21	54.67	5.72	1204.78	0.00	251.06	54.67	251.87
585	27.90	1181.53	317.08	256.14	54.63	5.57	1204.95	0.00	251.01	54.62	251.87
590	27.41	1181.83	332.46	256.10	54.59	5.59	1204.91	0.00	250.96	54.58	251.87
595	27.02	1181.85	350.62	256.05	54.55	5.76	1204.89	0.00	250.91	54.54	251.87
600	27.14	1181.99	337.96	256.00	54.51	5.61	1204.90	0.00	250.86	54.50	251.87
605	27.77	1182.06	322.40	255.94	54.46	5.39	1204.93	0.00	250.81	54.46	301.87
610	27.77	1181.46	288.88	255.89	54.42	5.23	1205.08	0.00	250.76	54.42	301.87
615	27.53	1181.16	250.34	255.82	54.38	5.07	1205.32	0.00	250.71	54.37	301.87
620	27.37	1180.31	236.36	255.77	54.34	4.90	1205.47	0.00	250.66	54.33	301.87
625	27.22	1180.09	225.57	255.71	54.30	4.86	1205.47	0.00	250.61	54.29	301.87
630	26.99	1180.08	227.60	255.66	54.26	4.82	1205.47	0.00	250.56	54.25	301.87
635	26.77	1180.58	241.34	255.61	54.21	4.96	1205.40	0.00	250.51	54.21	301.87
640	26.59	1180.51	255.24	255.57	54.17	5.13	1205.37	0.00	250.45	54.16	301.87
645	26.66	1180.38	247.06	255.52	54.13	4.77	1205.40	0.00	250.40	54.12	301.87
650	26.69	1180.58	248.12	255.47	54.09	4.85	1205.32	0.00	250.35	54.08	301.87
655	26.72	1180.03	252.04	255.42	54.05	5.15	1205.32	0.00	250.30	54.04	301.87
660	25.87	1178.97	226.41	255.37	54.01	4.74	1205.45	0.00	250.25	54.00	301.87

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
665	25.53	1177.48	234.07	255.31	53.96	4.81	1205.27	0.00	250.21	53.96	301.87
670	26.01	1178.19	258.72	255.01	53.92	5.81	1201.25	0.09	255.07	53.92	301.87
675	26.88	1178.10	255.58	254.96	53.88	5.90	1188.49	0.65	255.09	53.87	301.87
680	27.03	1176.99	222.88	255.18	53.84	5.51	1177.89	0.82	255.08	53.83	301.87
685	27.32	1177.77	234.35	255.13	53.79	5.89	1179.08	0.53	254.98	53.79	301.87
690	28.96	1178.60	266.16	255.09	53.75	6.21	1178.94	0.68	254.92	53.75	301.87
695	28.67	1178.30	285.31	255.04	53.71	6.39	1180.46	0.47	254.89	53.71	301.87
700	28.28	1177.69	275.35	254.99	53.67	5.93	1191.03	0.07	254.68	53.67	301.87
705	27.51	1177.10	221.73	254.92	53.63	5.34	1202.99	0.00	249.80	53.62	301.87
710	26.20	1176.76	226.97	254.87	53.59	5.30	1204.57	0.00	249.75	53.58	301.87
715	26.07	1176.68	231.41	254.82	53.55	5.32	1204.70	0.00	249.70	53.54	301.87
720	25.81	1176.68	231.83	254.77	53.50	5.36	1204.69	0.00	249.65	53.50	301.87
725	25.40	1176.71	237.27	254.72	53.46	5.36	1204.67	0.00	249.59	53.46	301.87
730	25.32	1176.70	229.92	254.67	53.42	5.25	1204.74	0.00	249.54	53.42	301.87
735	25.25	1176.68	222.03	254.61	53.38	5.06	1204.75	0.00	249.49	53.37	301.87
740	25.02	1176.65	217.70	254.56	53.34	5.17	1204.76	0.00	249.44	53.33	301.87
745	24.79	1176.65	220.01	254.51	53.29	5.22	1204.87	0.00	249.39	53.29	301.87
750	24.75	1176.63	213.97	254.46	53.25	5.01	1204.80	0.00	249.34	53.25	301.87
755	24.42	1176.63	220.85	254.40	53.21	5.22	1204.76	0.00	249.29	53.21	301.87
760	24.31	1176.56	224.99	254.35	53.17	5.13	1204.87	0.00	249.24	53.17	301.87

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
765	24.26	1176.52	215.18	254.30	53.13	4.96	1204.83	0.00	249.19	53.12	301.87
770	24.09	1176.51	209.85	254.25	53.09	5.17	1204.80	0.00	249.13	53.08	301.87
775	24.14	1176.53	208.88	254.20	53.04	4.88	1204.89	0.00	249.08	53.04	301.87
780	23.63	1176.59	229.88	254.15	53.00	5.03	1204.74	0.00	249.03	53.00	301.87
785	23.58	1176.58	239.83	254.10	52.96	5.18	1204.74	0.00	248.98	52.96	301.87
790	23.65	1176.55	235.12	254.05	52.92	4.94	1204.78	0.00	248.93	52.92	301.87
795	23.33	1176.54	234.43	254.00	52.88	5.02	1204.74	0.00	248.88	52.87	301.87
800	23.14	1176.52	231.85	253.94	52.84	5.20	1204.80	0.00	248.83	52.83	301.87
805	23.29	1176.48	218.85	253.89	52.80	4.81	1204.83	0.00	248.78	52.79	301.87
810	22.99	1176.78	229.13	253.70	52.75	5.11	1204.73	0.00	248.72	52.75	301.87
815	22.80	1176.78	225.98	253.45	52.71	5.01	1204.83	0.00	248.67	52.71	301.87
820	22.32	1176.52	210.71	252.33	52.67	4.71	1192.86	0.12	253.64	52.67	301.87
825	21.72	1177.67	227.24	249.12	52.63	5.20	1180.62	0.23	253.55	52.62	301.87
830	22.54	1177.92	222.46	246.63	52.59	4.78	1177.85	0.28	253.56	52.58	301.87
835	21.51	1177.71	240.40	242.95	52.54	4.79	1178.20	0.31	253.46	52.54	301.87
840	19.39	1178.97	280.58	235.87	52.50	5.22	1178.16	0.35	253.37	52.50	301.87
845	20.33	1178.39	266.18	229.96	52.47	4.81	1177.39	0.52	253.35	52.46	301.87
850	19.72	1177.20	243.59	230.57	52.41	4.86	1177.31	0.64	253.32	52.42	301.87
855	18.44	1178.05	299.71	226.22	52.37	5.30	1177.45	0.53	253.31	52.37	301.87
860	18.92	1179.02	326.12	214.84	52.34	5.05	1179.15	0.29	253.18	52.33	301.87

Time (seconds)	Reactor Vessel Side					Pump Discharge Side					
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
865	17.80	1178.83	252.70	216.09	52.29	3.99	1179.33	0.34	253.10	52.29	301.87
870	16.97	1179.99	271.38	218.34	52.24	4.75	1177.27	0.74	253.10	52.25	301.87
875	17.45	1180.78	310.02	210.19	52.21	5.82	1177.34	0.92	253.05	52.21	301.87
880	17.93	1179.19	232.52	217.26	52.16	4.08	1177.10	0.87	253.02	52.16	301.87
885	17.29	1179.86	254.57	215.56	52.17	4.74	1177.10	0.96	252.93	52.13	301.87
890	17.24	1180.18	310.69	205.39	52.08	5.53	1177.37	0.83	252.91	52.08	301.88
895	17.26	1178.74	256.64	212.66	52.03	3.82	1177.25	0.91	252.86	52.04	301.88
900	16.92	1180.56	265.04	213.30	52.00	5.05	1177.03	1.18	252.79	52.00	301.87
905	17.88	1180.52	252.95	206.59	51.97	5.21	1177.15	0.95	252.75	51.96	301.88
910	18.01	1179.30	244.00	209.84	51.94	3.74	1177.14	0.97	252.69	51.93	301.87
915	18.20	1180.43	248.91	212.02	51.90	4.87	1177.18	0.96	252.68	51.90	301.88
920	17.89	1179.43	178.18	222.76	51.87	6.27	1181.07	0.47	252.67	51.87	301.88
925	16.65	1179.34	166.34	223.40	51.83	6.84	1207.64	0.14	252.61	51.83	301.88
930	16.95	1178.97	137.39	223.31	51.80	6.70	1233.76	0.00	247.55	51.80	301.88
935	16.88	1178.70	176.77	227.14	51.77	6.93	1236.87	0.00	247.50	51.77	301.88
940	17.01	1178.26	174.69	228.48	51.73	7.04	1236.49	0.00	247.46	51.73	301.88
945	17.74	1177.65	193.15	237.64	51.70	6.00	1226.72	0.18	252.38	51.70	301.88
950	20.25	1179.17	266.62	232.52	51.67	5.46	1195.25	0.50	252.38	51.67	301.88
955	23.16	1177.96	249.89	239.34	51.61	4.86	1176.95	0.83	252.34	51.63	301.88
960	23.46	1178.00	278.10	240.43	51.60	4.36	1176.89	0.70	252.28	51.60	301.88

Time (seconds)	Reactor Vessel Side					Pump Discharge Side					
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
965	24.63	1177.51	209.56	239.31	51.57	4.08	1178.42	0.22	252.24	51.56	301.88
970	24.97	1175.87	147.55	252.24	51.53	4.27	1184.28	0.04	252.24	51.53	301.88
975	24.22	1175.78	184.87	252.27	51.50	4.60	1184.47	0.04	251.82	51.50	301.88
980	24.53	1175.75	196.38	252.24	51.47	4.23	1190.20	0.02	251.95	51.47	301.88
985	24.32	1175.77	212.19	252.20	51.44	4.58	1201.71	0.00	247.08	51.43	301.88
990	24.62	1175.77	208.66	252.16	51.40	4.09	1204.52	0.00	247.04	51.40	301.88
995	23.90	1175.83	231.24	252.11	51.37	4.34	1195.99	0.06	252.21	51.37	301.88
1000	23.39	1175.81	251.65	252.08	51.34	4.60	1184.97	0.14	251.92	51.33	301.88
1005	23.31	1175.75	234.44	252.03	51.30	4.37	1184.25	0.08	251.91	51.30	301.88
1010	23.02	1175.95	222.89	251.76	51.27	4.40	1195.80	0.00	246.87	51.27	301.88
1015	23.16	1176.03	246.80	251.63	51.24	4.31	1192.74	0.23	251.79	51.23	301.88
1020	22.90	1175.84	265.86	251.81	51.20	4.78	1180.37	0.42	251.79	51.20	301.88
1025	22.97	1175.79	252.45	251.86	51.17	4.68	1180.14	0.21	251.76	51.17	301.88
1030	23.05	1175.74	226.25	251.82	51.14	4.37	1191.89	0.02	252.25	51.13	301.88
1035	22.50	1175.75	218.13	251.77	51.10	4.53	1202.71	0.00	246.66	51.10	301.88
1040	22.45	1176.29	270.51	251.39	51.06	4.50	1204.33	0.00	246.62	51.07	301.88
1045	22.73	1176.19	269.50	251.35	51.03	4.37	1204.63	0.00	246.58	51.03	301.88
1050	22.53	1175.62	219.91	251.64	51.00	4.06	1204.65	0.00	246.53	51.00	301.88
1055	22.27	1175.59	207.85	251.59	50.97	4.18	1202.38	0.01	246.49	50.97	301.88
1060	21.94	1175.65	231.20	251.56	50.94	4.49	1190.07	0.07	251.53	50.93	301.88



Time (seconds)	Reactor Vessel Side					Pump Discharge Side					
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
1065	21.83	1175.66	239.80	251.52	50.90	4.40	1182.25	0.07	251.60	50.90	301.88
1070	21.74	1175.59	216.69	251.47	50.87	4.42	1193.73	0.01	246.36	50.87	301.88
1075	22.23	1175.53	184.92	251.42	50.84	4.05	1203.35	0.00	246.32	50.83	301.88
1080	21.72	1175.56	203.55	251.38	50.80	4.44	1191.70	0.16	251.25	50.80	301.88
1085	21.65	1175.54	224.82	251.34	50.77	4.44	1179.26	0.27	251.26	50.77	301.88
1090	21.68	1175.49	201.62	251.30	50.74	4.32	1177.75	0.17	251.15	50.73	301.88
1095	20.75	1176.03	208.73	243.76	50.70	4.34	1178.26	0.10	250.96	50.70	301.88
1100	21.15	1176.56	234.28	243.60	50.68	4.33	1179.36	0.13	251.23	50.67	301.88
1105	20.75	1176.57	274.99	244.68	50.61	4.84	1179.36	0.15	251.13	50.63	301.88
1110	19.43	1177.52	322.60	233.27	50.60	4.94	1186.80	0.06	251.02	50.60	301.88
1115	19.64	1177.89	294.36	228.42	50.57	4.14	1198.38	0.00	245.98	50.57	301.88
1120	18.01	1177.68	273.20	226.40	50.54	4.06	1188.84	0.28	250.85	50.53	301.88
1125	16.54	1179.09	332.81	213.41	50.50	5.01	1177.77	0.59	250.92	50.50	301.88
1130	17.76	1178.55	283.41	215.83	50.45	3.91	1176.57	0.54	250.86	50.47	301.88
1135	16.13	1177.66	266.68	213.73	50.44	3.98	1176.56	0.64	250.81	50.43	301.88
1140	14.99	1177.93	316.84	202.77	50.40	4.86	1176.71	0.61	250.80	50.40	301.88
1145	14.80	1176.97	237.35	213.26	50.37	4.66	1176.56	0.56	250.70	50.37	301.88
1150	13.70	1177.28	254.22	211.19	50.34	6.32	1178.75	0.58	250.71	50.33	301.88
1155	13.34	1177.99	268.99	199.08	50.30	6.66	1197.44	0.24	250.67	50.30	301.88
1160	13.50	1177.15	209.90	208.50	50.25	4.01	1208.01	0.08	250.46	50.26	301.88

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
1165	14.02	1178.05	254.88	205.99	50.24	4.17	1177.60	0.27	250.55	50.23	301.88
1170	14.37	1178.61	286.20	199.32	50.20	4.74	1177.27	0.37	250.50	50.20	301.88
1175	15.61	1177.42	256.10	209.72	50.18	3.42	1176.60	0.43	250.48	50.17	301.88
1180	16.30	1177.73	280.26	203.37	50.14	4.37	1176.61	0.51	250.44	50.13	301.88
1185	16.18	1177.32	235.82	204.44	49.91	3.76	1176.64	0.41	250.39	50.10	301.88
1190	16.31	1177.06	241.18	214.02	50.06	4.11	1176.55	0.55	250.32	50.07	301.88
1195	16.88	1178.14	308.80	204.13	50.03	5.04	1176.59	0.62	250.31	50.03	301.88
1200	17.66	1178.06	259.68	210.10	49.99	4.41	1176.40	0.66	250.23	50.00	301.88
1210	17.72	1177.84	240.85	215.72	49.94	4.63	1176.38	0.68	250.17	49.93	301.88
1220	17.51	1177.09	235.10	215.37	49.87	4.55	1176.45	0.62	250.08	49.87	301.88
1230	18.72	1176.41	231.44	219.72	49.81	4.31	1176.40	0.59	249.99	49.80	301.88
1240	21.09	1176.21	207.39	233.01	49.74	4.09	1177.28	0.37	249.93	49.73	301.88
1250	23.14	1175.55	202.50	246.80	49.67	4.20	1184.65	0.12	249.94	49.67	301.88
1260	23.98	1174.94	193.33	249.71	49.60	4.40	1191.81	0.03	250.09	49.60	301.88
1270	23.41	1174.80	185.95	249.75	49.54	4.34	1198.41	0.00	244.65	49.53	301.88
1280	22.81	1174.84	211.46	249.67	49.47	4.26	1203.96	0.00	244.56	49.47	301.88
1290	22.16	1174.87	218.76	249.58	49.40	4.26	1204.00	0.00	244.48	49.40	301.88
1300	21.47	1174.88	225.03	249.49	49.34	4.22	1203.81	0.00	244.39	49.33	301.88
1310	21.03	1175.37	244.42	248.91	49.27	4.15	1203.36	0.00	244.30	49.27	301.88
1320	20.14	1176.36	269.26	245.05	49.20	4.26	1203.45	0.00	244.22	49.20	301.88

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
1330	19.25	1177.07	302.52	241.29	49.14	4.13	1203.83	0.00	244.13	49.13	301.88
1340	17.51	1177.87	301.64	228.48	49.06	4.13	1201.34	0.01	248.64	49.07	301.88
1350	15.22	1178.03	299.56	215.78	49.00	4.21	1189.09	0.05	248.88	49.00	301.89
1360	13.85	1176.85	268.95	213.24	48.94	3.84	1178.18	0.06	248.96	48.93	301.89
1370	12.01	1177.05	264.88	200.87	48.86	4.28	1181.28	0.06	248.66	48.87	301.89
1380	10.33	1177.45	267.46	196.56	48.81	4.51	1180.14	0.19	248.65	48.80	301.89
1390	10.13	1176.65	210.18	197.46	48.73	3.92	1176.10	0.31	248.61	48.73	301.89
1400	13.37	1176.88	335.28	194.41	48.65	6.34	1177.45	20.09	248.47	48.67	301.88
1410	16.72	1176.82	355.03	201.37	48.60	6.40	1177.10	24.47	248.45	48.60	301.89
1420	17.47	1176.03	279.69	205.55	48.53	4.81	1175.22	11.82	248.33	48.53	301.89
1430	18.74	1175.81	219.60	201.59	48.47	4.62	1175.42	8.40	248.27	48.46	301.89
1440	20.18	1176.11	184.84	213.17	48.41	4.33	1175.43	7.14	248.14	48.41	301.89
1450	19.34	1175.89	193.95	219.68	48.34	4.64	1175.29	7.45	248.11	48.33	301.89
1460	16.65	1175.97	141.72	232.04	48.27	5.12	1179.23	1.76	248.02	48.27	301.89
1470	14.30	1176.75	188.04	225.87	48.20	6.17	1202.78	0.33	247.93	48.20	301.89
1480	13.06	1176.69	212.12	224.13	48.14	6.01	1224.85	0.00	242.81	48.13	301.89
1490	13.28	1176.35	206.06	225.06	48.07	5.92	1225.40	0.00	242.73	48.07	301.89
1500	19.00	1176.82	335.32	222.56	48.00	6.27	1204.08	0.22	247.64	48.00	301.89
1510	24.99	1176.14	328.41	228.87	47.96	6.10	1180.85	0.72	247.58	47.96	301.89
1520	26.02	1175.15	185.76	246.53	47.93	5.44	1185.14	0.51	247.57	47.92	301.89

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
1530	26.49	1175.75	175.36	247.48	47.88	5.28	1198.68	0.00	242.48	47.88	301.89
1540	26.34	1175.74	199.51	247.53	47.84	5.15	1202.14	0.00	242.42	47.84	301.89
1550	25.25	1175.40	250.22	241.71	47.80	5.24	1201.94	0.00	242.37	47.80	301.89
1560	25.43	1175.75	245.85	241.44	47.76	5.32	1201.89	0.00	242.31	47.76	301.89
1570	25.50	1177.09	206.55	246.32	47.72	5.14	1202.04	0.00	242.26	47.72	301.89
1580	24.59	1178.05	200.98	246.37	47.68	4.99	1202.03	0.00	242.21	47.68	301.89
1590	24.11	1177.08	197.40	247.25	47.64	5.01	1201.98	0.00	242.16	47.64	301.89
1600	22.33	1177.17	232.84	247.20	47.60	5.13	1201.87	0.00	242.10	47.60	301.89
1610	20.28	1177.76	254.97	244.06	47.56	5.24	1201.79	0.00	242.05	47.56	301.89
1620	17.68	1177.26	247.30	231.92	47.53	5.06	1200.06	0.00	242.00	47.52	301.89
1630	13.96	1176.36	262.39	213.34	47.48	4.86	1190.71	0.06	246.79	47.48	301.89
1640	11.02	1176.44	321.56	198.17	47.40	4.98	1179.97	0.35	246.87	47.44	301.89
1650	9.39	1176.63	306.59	193.47	47.41	4.56	1176.27	0.45	246.83	47.40	301.89
1660	7.78	1175.66	237.10	189.19	47.35	4.41	1183.71	0.19	246.85	47.36	301.89
1670	6.12	1175.64	267.73	186.38	47.24	4.36	1201.56	0.03	247.18	47.32	301.89
1680	5.19	1176.46	255.85	187.94	47.28	3.62	1215.01	0.00	241.67	47.28	301.89
1690	6.41	1175.88	239.39	191.14	47.25	3.63	1213.63	0.00	241.62	47.24	301.89
1700	7.59	1176.08	290.02	192.98	47.11	4.02	1210.67	0.00	241.57	47.20	301.89
1710	7.88	1176.07	266.98	195.92	47.16	3.82	1210.99	0.00	241.51	47.16	301.89
1720	9.09	1175.35	249.26	198.13	47.13	4.02	1212.99	0.00	241.45	47.12	301.89

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
1730	9.61	1175.52	275.56	199.15	47.05	4.39	1212.27	0.00	241.40	47.08	301.89
1740	9.98	1175.72	249.71	204.12	47.04	4.40	1211.30	0.00	241.35	47.04	301.89
1750	11.00	1177.76	270.22	208.78	47.00	4.31	1203.13	0.80	246.24	47.00	301.89
1760	21.34	1176.20	356.99	214.03	46.98	5.01	1183.15	2.13	246.23	46.95	301.89
1770	24.77	1174.79	240.94	216.75	46.92	5.12	1176.04	1.38	246.22	46.92	301.89
1780	17.12	1174.84	98.05	213.69	46.88	5.13	1190.72	0.06	246.18	46.88	301.89
1790	16.22	1174.80	116.91	228.22	46.84	6.10	1204.39	0.00	241.08	46.84	301.89
1800	17.25	1174.23	127.18	243.23	46.80	6.28	1207.93	0.00	241.02	46.80	301.89
1810	17.50	1174.08	141.14	245.99	46.76	6.22	1207.68	0.00	240.97	46.76	301.89
1820	16.84	1174.39	161.10	245.97	46.72	6.10	1207.41	0.00	240.92	46.72	301.89
1830	15.45	1174.72	204.02	241.42	46.68	6.01	1207.04	0.00	240.86	46.68	301.89
1840	14.44	1175.16	274.64	228.25	46.70	5.46	1200.52	0.01	240.81	46.64	301.89
1850	15.13	1175.41	289.94	225.31	46.58	4.76	1186.36	0.04	245.58	46.60	301.89
1860	15.53	1175.41	225.40	232.52	46.56	4.72	1182.65	0.05	245.57	46.56	301.89
1870	14.74	1175.39	215.79	226.43	46.52	4.67	1184.99	0.04	245.49	46.52	301.89
1880	15.10	1175.49	241.89	223.04	46.48	4.10	1183.17	0.03	245.44	46.48	301.89
1890	15.33	1175.40	263.41	217.54	46.45	3.42	1186.32	0.02	245.79	46.44	301.89
1900	13.46	1175.00	275.44	208.62	46.41	3.96	1195.75	0.01	240.47	46.40	301.89
1910	13.27	1175.31	278.26	210.65	46.33	4.46	1190.70	0.05	245.41	46.36	301.89
1920	14.26	1175.39	272.39	210.74	46.32	4.12	1182.76	0.06	245.43	46.32	301.89

Time (seconds)	Reactor Vessel Side					Pump Discharge Side					
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
1930	14.31	1175.81	249.44	205.85	46.28	4.02	1182.61	0.02	245.33	46.28	301.89
1940	14.21	1176.77	246.04	203.64	46.24	3.81	1184.61	0.01	244.97	46.24	301.89
1950	14.93	1177.36	223.18	209.53	46.20	2.89	1190.19	0.00	240.21	46.19	301.89
1960	15.10	1178.01	240.46	209.78	46.16	2.42	1197.24	0.00	240.15	46.16	301.89
1970	14.28	1178.43	257.28	205.60	46.13	3.13	1199.86	0.00	240.09	46.12	301.89
1980	13.36	1177.80	264.47	200.20	46.09	3.40	1201.40	0.00	240.03	46.08	301.90
1990	12.99	1176.04	257.97	198.59	45.91	2.69	1205.61	0.00	239.98	46.04	301.90
2000	12.92	1174.94	254.80	203.30	46.00	2.51	1205.71	0.00	239.92	46.00	301.90
2010	12.75	1174.22	245.29	206.08	45.97	2.53	1200.04	0.00	239.88	45.97	301.90
2020	11.55	1173.98	257.56	198.31	45.95	2.63	1200.30	0.00	239.84	45.94	301.90
2030	10.08	1174.43	292.00	191.62	45.86	2.54	1203.35	0.00	239.80	45.91	301.90
2040	10.09	1174.63	235.62	195.59	45.88	2.07	1203.49	0.00	239.76	45.88	301.90
2050	10.03	1175.88	241.87	195.99	45.86	2.85	1202.80	0.00	239.72	45.85	301.90
2060	9.86	1177.89	293.14	191.70	45.79	3.07	1201.26	0.00	239.68	45.82	301.90
2070	9.78	1179.03	261.28	191.51	45.79	2.56	1200.54	0.00	239.64	45.79	301.90
2080	10.01	1178.70	214.97	194.45	45.76	2.73	1199.97	0.00	239.59	45.76	301.90
2090	10.58	1177.97	268.62	193.91	45.72	2.74	1200.03	0.00	239.55	45.73	301.90
2100	11.03	1178.51	288.25	195.35	45.71	2.91	1199.45	0.02	244.64	45.70	301.90
2110	12.18	1178.52	238.53	201.04	45.63	2.96	1192.60	0.02	244.40	45.67	301.90
2120	13.02	1178.10	206.77	205.20	45.64	2.95	1194.38	0.01	243.49	45.64	301.90

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
2130	13.30	1178.00	204.62	203.40	45.61	3.39	1191.05	0.02	244.14	45.61	301.90
2140	14.27	1178.18	235.21	203.05	45.58	3.30	1188.69	0.01	239.34	45.58	301.90
2150	14.87	1177.50	229.89	206.74	45.55	2.59	1194.16	0.00	239.30	45.55	301.90
2160	14.37	1177.31	230.56	206.44	45.52	2.61	1196.63	0.00	239.26	45.52	301.90
2170	13.85	1177.59	254.91	205.77	45.49	3.45	1197.19	0.00	239.22	45.49	301.90
2180	14.12	1177.95	262.08	209.85	45.44	3.12	1197.23	0.00	239.18	45.46	301.90
2190	13.81	1179.09	255.27	207.35	45.43	2.43	1199.91	0.00	239.13	45.43	301.90
2200	14.07	1177.70	214.48	208.84	45.40	2.37	1195.09	0.00	239.09	45.40	301.90
2210	13.43	1176.81	187.24	212.76	45.37	2.76	1198.58	0.00	239.05	45.37	301.90
2220	13.32	1177.65	242.68	210.36	45.34	2.50	1201.72	0.00	239.01	45.34	301.90
2230	13.82	1178.41	282.79	208.21	45.31	2.34	1196.71	0.00	238.97	45.31	301.90
2240	13.14	1178.98	268.70	207.36	45.26	3.09	1198.51	0.00	238.93	45.28	301.90
2250	13.53	1178.46	261.03	209.29	45.26	2.76	1202.82	0.00	238.88	45.25	301.90
2260	13.32	1178.04	274.96	202.13	45.22	2.67	1199.81	0.00	238.84	45.22	301.90
2270	13.28	1177.08	269.13	200.05	45.19	2.99	1194.71	0.00	238.80	45.19	301.90
2280	13.33	1176.87	250.29	201.40	45.16	2.62	1192.34	0.00	238.76	45.16	301.90
2290	13.31	1176.55	236.84	202.66	45.13	2.36	1198.39	0.00	238.72	45.13	301.90
2300	13.13	1176.26	228.27	202.59	45.10	2.20	1203.37	0.00	238.67	45.10	301.90
2310	12.83	1176.65	232.93	200.49	45.07	2.56	1193.79	0.00	238.63	45.07	301.90
2320	13.65	1177.12	250.72	200.33	45.03	2.25	1190.38	0.00	238.59	45.04	301.90

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
2330	13.36	1178.13	253.86	198.64	45.01	2.28	1198.25	0.00	238.55	45.01	301.90
2340	11.86	1178.02	243.56	202.12	44.98	3.20	1201.87	0.00	238.51	44.98	301.90
2350	12.58	1177.50	249.14	206.92	45.24	2.72	1202.30	0.00	238.46	44.95	301.90
2360	13.07	1177.71	257.10	204.79	44.92	2.12	1200.34	0.00	238.42	44.92	301.90
2370	12.57	1177.12	243.77	202.99	44.89	2.35	1193.70	0.01	238.38	44.89	301.90
2380	13.04	1177.21	233.84	203.63	44.86	2.67	1194.61	0.00	238.34	44.86	301.90
2390	13.07	1178.08	275.37	199.92	44.83	2.08	1198.56	0.00	238.29	44.83	301.90
2400	12.37	1177.64	282.07	195.14	44.80	2.41	1201.80	0.00	238.25	44.80	301.90
2410	12.32	1177.33	269.60	196.07	44.74	2.68	1201.89	0.00	238.21	44.77	301.90
2420	12.20	1177.24	254.49	198.27	44.74	1.93	1198.91	0.00	238.17	44.74	301.90
2430	11.72	1176.69	221.21	196.59	44.71	2.23	1194.68	0.00	238.13	44.71	301.90
2440	12.69	1177.22	252.21	196.43	44.68	1.99	1193.15	0.00	238.08	44.68	301.90
2450	12.51	1177.78	265.72	193.28	44.65	2.36	1199.83	0.00	238.04	44.65	301.90
2460	12.65	1178.19	254.90	194.74	44.63	2.47	1197.10	0.00	238.00	44.62	301.90
2470	12.85	1178.38	251.42	196.83	44.59	2.11	1194.65	0.00	237.96	44.59	301.90
2480	12.48	1178.28	235.33	200.14	44.53	2.40	1196.66	0.00	237.91	44.56	301.90
2490	12.49	1177.67	235.09	201.13	44.53	2.05	1197.94	0.00	237.87	44.53	301.90
2500	12.50	1177.55	232.66	200.30	44.50	2.24	1194.70	0.00	237.83	44.50	301.90
2510	12.63	1178.05	241.38	201.11	44.47	2.20	1193.51	0.00	237.79	44.47	301.90
2520	12.50	1177.46	253.89	198.59	44.42	2.32	1193.52	0.00	237.74	44.44	301.90



Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
2530	12.36	1177.08	256.25	196.96	44.39	2.90	1195.30	0.00	237.70	44.41	301.90
2540	12.42	1176.77	276.94	194.54	44.37	2.37	1198.47	0.00	237.66	44.38	301.90
2550	13.02	1176.60	270.95	194.95	44.36	2.10	1200.07	0.00	237.62	44.35	301.90
2560	12.83	1176.32	239.93	195.60	44.32	2.76	1202.47	0.00	237.57	44.32	301.90
2570	12.63	1176.57	260.29	194.28	44.30	2.35	1199.10	0.00	237.53	44.29	301.90
2580	13.01	1176.58	262.47	194.97	44.26	2.07	1195.19	0.00	237.49	44.26	301.90
2590	12.49	1176.20	241.81	193.09	44.24	2.80	1199.10	0.00	237.45	44.23	301.90
2600	11.90	1176.68	263.70	192.76	44.20	2.62	1199.78	0.00	237.40	44.20	301.90
2610	11.92	1177.05	256.18	193.58	44.17	2.66	1198.93	0.00	237.36	44.17	301.90
2620	11.74	1176.89	254.17	193.50	44.12	2.58	1196.77	0.00	237.32	44.14	301.90
2630	11.57	1176.38	257.59	196.02	44.10	2.36	1197.02	0.00	237.28	44.11	301.90
2640	11.49	1176.99	233.90	196.75	44.08	2.34	1201.14	0.00	237.23	44.08	301.90
2650	11.75	1177.26	223.96	195.71	44.05	2.11	1201.55	0.00	237.19	44.05	301.90
2660	12.17	1177.16	238.23	192.24	44.02	2.47	1201.57	0.00	237.15	44.02	301.90
2670	12.37	1177.10	249.44	192.82	43.99	2.21	1200.03	0.00	237.10	43.99	301.90
2680	12.45	1177.07	242.01	195.94	43.96	2.18	1200.83	0.00	237.06	43.96	301.90
2690	12.55	1177.10	253.23	193.86	43.93	2.62	1202.68	0.00	237.02	43.93	301.90
2700	11.92	1176.98	266.46	190.97	43.90	2.49	1200.44	0.00	236.97	43.90	301.90
2710	11.78	1176.70	248.67	191.94	43.86	2.66	1198.77	0.00	236.93	43.87	301.90
2720	11.79	1176.34	263.58	192.28	43.82	2.56	1198.63	0.00	236.89	43.84	301.90

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
2730	12.10	1175.81	268.62	192.53	43.82	2.37	1198.77	0.00	236.84	43.81	301.90
2740	12.14	1175.67	245.70	191.94	43.78	2.82	1200.23	0.00	236.80	43.78	301.90
2750	12.50	1176.39	287.69	192.08	43.76	2.21	1202.02	0.00	236.76	43.75	301.90
2760	12.47	1176.72	290.53	194.33	43.66	1.71	1204.48	0.00	236.72	43.72	301.90
2770	11.48	1176.15	242.01	198.55	43.69	2.05	1202.19	0.00	236.67	43.69	301.90
2780	11.35	1175.76	240.22	199.20	43.66	1.66	1200.45	0.00	236.63	43.66	301.90
2790	11.56	1175.37	265.35	194.94	43.60	1.76	1199.10	0.00	236.59	43.63	301.90
2800	12.02	1174.67	261.00	194.16	43.58	2.51	1200.63	0.00	236.54	43.60	301.90
2810	11.42	1175.70	270.84	192.43	43.56	2.38	1201.49	0.00	236.50	43.57	301.90
2820	11.30	1176.67	264.28	191.41	43.55	2.59	1198.99	0.00	236.46	43.54	301.90
2830	11.65	1177.26	263.93	191.62	43.52	2.50	1195.94	0.00	236.41	43.51	301.90
2840	11.49	1177.21	261.57	192.70	43.48	2.43	1196.19	0.00	236.37	43.48	301.90
2850	12.04	1177.02	258.58	194.77	43.45	2.38	1196.77	0.00	236.33	43.45	301.90
2860	12.31	1176.92	271.84	191.11	43.42	2.01	1198.09	0.00	236.28	43.42	301.90
2870	11.55	1176.27	241.87	189.90	42.95	2.57	1202.40	0.00	236.24	43.39	301.90
2880	11.20	1177.21	238.23	196.05	43.36	2.66	1201.80	0.00	236.20	43.36	301.90
2890	12.36	1177.88	251.71	195.46	43.33	2.17	1200.89	0.00	236.15	43.33	301.90
2900	12.87	1177.12	267.37	191.13	43.30	1.98	1201.10	0.00	236.11	43.30	301.90
2910	11.76	1176.44	248.01	191.13	43.27	2.23	1201.34	0.00	236.07	43.27	301.90
2920	12.12	1177.06	240.84	193.95	43.24	2.28	1198.69	0.00	236.02	43.24	301.90

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
2930	11.36	1176.82	231.17	190.99	43.21	2.33	1199.43	0.00	235.98	43.21	301.90
2940	10.44	1176.89	220.55	193.30	43.18	2.55	1202.91	0.00	235.94	43.18	301.91
2950	10.96	1176.79	210.61	198.58	43.15	2.17	1202.53	0.00	235.89	43.15	301.91
2960	10.72	1176.04	223.22	195.07	43.12	2.22	1200.24	0.00	235.85	43.12	301.90
2970	11.24	1175.52	296.82	192.76	43.09	2.08	1198.37	0.00	235.81	43.09	301.90
2980	11.56	1174.62	272.49	191.73	43.06	2.22	1196.87	0.00	235.76	43.06	301.90
2990	9.97	1175.47	240.42	189.17	43.03	2.80	1199.91	0.00	235.72	43.03	301.90
3000	10.14	1175.85	276.97	190.89	42.99	2.39	1201.57	0.00	235.68	43.00	301.91
3010	10.85	1174.77	266.93	192.80	42.95	2.43	1199.28	0.00	235.60	42.95	301.91
3020	10.78	1173.96	266.06	192.12	42.91	2.48	1196.46	0.00	235.53	42.90	301.91
3030	11.91	1174.53	280.03	189.86	42.85	2.13	1196.89	0.00	235.45	42.85	301.91
3040	11.60	1175.13	245.12	188.77	42.80	2.09	1200.95	0.00	235.38	42.80	301.91
3050	11.44	1175.69	246.09	192.54	42.75	2.23	1199.19	0.00	235.31	42.75	301.91
3060	11.98	1175.67	265.08	189.70	42.70	2.19	1199.65	0.00	235.24	42.70	301.91
3070	12.01	1174.81	245.72	189.16	42.65	1.81	1201.45	0.00	235.16	42.65	301.91
3080	11.90	1175.41	233.14	191.81	42.60	1.84	1198.47	0.00	235.09	42.60	301.91
3090	11.89	1175.40	249.55	189.99	42.56	2.20	1199.12	0.00	235.02	42.55	301.91
3100	12.42	1174.95	274.15	189.16	42.50	2.30	1201.26	0.00	234.94	42.50	301.91
3110	11.31	1175.87	250.18	187.79	42.45	2.38	1199.56	0.00	234.87	42.45	301.91
3120	9.81	1175.20	226.87	188.25	42.40	2.22	1198.76	0.00	234.80	42.40	301.91

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
3130	10.76	1173.55	252.44	191.54	42.35	2.18	1196.63	0.00	234.72	42.35	301.91
3140	10.61	1173.91	231.81	192.09	42.31	2.43	1198.10	0.00	234.65	42.30	301.91
3150	10.67	1175.36	243.62	190.04	42.25	2.06	1201.22	0.00	234.57	42.25	301.91
3160	11.37	1175.07	252.60	188.47	42.19	2.12	1199.26	0.00	234.50	42.20	301.91
3170	9.44	1174.08	237.32	184.24	42.13	2.50	1201.13	0.00	234.43	42.15	301.91
3180	10.16	1174.22	278.28	186.96	42.11	2.00	1199.73	0.00	234.36	42.10	301.91
3190	11.88	1174.80	281.80	188.48	42.05	2.04	1194.80	0.00	234.28	42.05	301.91
3200	10.94	1174.60	259.80	186.33	42.01	2.72	1198.03	0.00	234.21	42.00	301.91
3210	11.29	1174.51	270.78	189.28	41.96	2.31	1197.94	0.00	234.13	41.95	301.91
3220	11.79	1175.02	272.52	186.86	41.88	1.96	1196.61	0.00	234.06	41.90	301.91
3230	11.18	1174.45	247.16	184.92	41.83	2.58	1199.79	0.00	233.98	41.85	301.91
3240	11.76	1174.89	255.00	189.21	41.81	2.15	1199.01	0.00	233.91	41.80	301.91
3250	12.15	1175.34	258.45	185.20	41.74	1.79	1198.39	0.00	233.84	41.75	301.91
3260	10.98	1174.26	232.62	182.65	41.67	2.49	1201.26	0.00	233.76	41.70	301.91
3270	10.09	1174.60	229.02	189.72	41.65	2.84	1201.43	0.00	233.69	41.65	301.91
3280	11.21	1175.25	259.39	190.17	41.60	2.27	1199.10	0.00	233.61	41.60	301.91
3290	11.05	1174.29	237.82	186.57	41.55	2.10	1199.82	0.00	233.54	41.55	301.91
3300	9.52	1173.82	223.23	190.19	41.51	2.37	1202.43	0.00	233.46	41.50	301.91
3310	10.85	1174.76	262.36	194.21	41.45	2.18	1199.64	0.00	233.39	41.45	301.91
3320	11.71	1174.76	278.39	188.92	41.40	2.04	1198.48	0.00	233.31	41.40	301.91

Time (seconds)	Reactor Vessel Side					Pump Discharge Side					
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
3330	11.45	1173.77	283.97	184.57	41.35	2.00	1200.66	0.00	233.24	41.35	301.91
3340	10.98	1173.70	253.54	186.97	41.23	2.39	1200.86	0.00	233.16	41.30	301.91
3350	10.40	1173.84	238.19	192.40	41.25	2.49	1200.87	0.00	233.09	41.25	301.91
3360	11.72	1173.56	280.22	192.54	41.20	2.38	1199.29	0.00	233.01	41.20	301.91
3370	12.35	1174.15	309.63	188.37	41.15	2.24	1199.26	0.00	232.93	41.15	301.91
3380	10.98	1173.75	271.47	187.54	41.10	2.06	1201.13	0.00	232.86	41.10	301.91
3390	11.35	1172.80	257.33	192.04	41.01	2.03	1197.94	0.00	232.78	41.05	301.91
3400	11.89	1173.28	284.53	187.19	41.00	2.04	1197.32	0.00	232.71	41.00	301.91
3410	10.48	1173.17	253.59	182.37	40.95	2.38	1200.25	0.00	232.63	40.95	301.91
3420	9.87	1172.69	225.14	189.86	40.90	2.45	1200.19	0.00	232.56	40.90	301.91
3430	11.02	1173.17	250.89	190.08	40.85	2.22	1196.80	0.00	232.48	40.85	301.91
3440	11.53	1173.16	273.45	183.56	40.80	2.04	1195.69	0.00	232.40	40.80	301.91
3450	10.31	1172.61	251.21	184.09	40.75	2.23	1200.09	0.00	232.33	40.75	301.91
3460	9.87	1173.07	230.68	190.11	40.70	2.26	1201.45	0.00	232.25	40.70	301.91
3470	11.17	1173.39	247.89	189.20	40.65	2.06	1199.01	0.00	232.18	40.65	301.91
3480	10.27	1173.42	238.36	185.45	40.60	2.24	1199.52	0.00	232.10	40.60	301.91
3490	9.49	1173.67	233.68	188.23	40.55	2.11	1201.82	0.00	232.02	40.55	301.91
3500	11.04	1173.69	263.30	188.84	40.49	2.05	1197.76	0.00	231.95	40.50	301.91
3510	10.55	1173.12	258.89	185.97	40.43	2.04	1197.49	0.00	231.87	40.45	301.91
3520	10.51	1172.61	258.87	186.41	40.40	2.05	1198.80	0.00	231.80	40.40	301.91

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
3530	11.16	1172.76	279.20	184.26	40.35	2.19	1197.73	0.00	231.72	40.35	301.91
3540	9.47	1172.40	243.04	183.41	40.31	2.14	1200.30	0.00	231.64	40.30	301.91
3550	9.56	1172.24	225.68	188.63	40.25	1.91	1202.55	0.00	231.56	40.25	301.91
3560	10.95	1172.36	254.66	187.57	40.21	2.00	1199.87	0.00	231.49	40.20	301.91
3570	9.27	1172.45	229.46	182.82	40.15	2.26	1199.84	0.00	231.41	40.15	301.92
3580	9.86	1172.80	230.74	188.24	40.10	1.85	1202.37	0.00	231.33	40.10	301.91
3590	11.01	1172.95	258.78	189.85	40.04	2.02	1198.04	0.00	231.26	40.05	301.91
3600	8.87	1173.06	244.76	184.16	40.00	2.34	1198.71	0.00	231.18	40.00	301.92
3610	9.66	1172.73	267.47	188.44	39.93	1.76	1202.65	0.00	231.10	39.95	301.91
3620	10.89	1172.39	266.96	190.79	39.89	1.99	1200.09	0.00	231.02	39.90	301.91
3630	8.89	1172.53	250.00	185.78	39.82	2.44	1200.71	0.00	230.95	39.85	301.91
3640	9.60	1172.69	277.46	186.87	39.80	1.78	1201.49	0.00	230.87	39.80	301.92
3650	10.61	1172.42	259.62	187.01	39.76	2.03	1199.20	0.00	230.79	39.75	301.92
3660	8.63	1172.37	245.75	184.84	39.69	2.45	1201.23	0.00	230.72	39.70	301.92
3670	9.58	1172.57	272.09	187.39	39.66	1.69	1200.90	0.00	230.64	39.65	301.92
3680	10.56	1172.26	257.78	186.84	39.61	2.01	1198.09	0.00	230.56	39.60	301.92
3690	8.52	1172.17	243.60	185.49	39.56	2.51	1201.14	0.00	230.48	39.55	301.92
3700	9.29	1172.47	269.74	186.50	39.51	1.78	1199.23	0.00	230.41	39.50	301.92
3710	10.62	1172.17	279.28	183.99	39.45	1.72	1193.49	0.00	230.33	39.45	301.92
3720	9.70	1171.83	253.68	182.34	39.41	2.43	1198.44	0.00	230.25	39.40	301.92

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
3730	8.49	1171.85	242.06	183.93	39.36	2.65	1201.59	0.00	230.17	39.35	301.92
3740	9.35	1171.80	269.87	185.29	39.31	1.96	1199.08	0.00	230.09	39.30	301.92
3750	10.22	1171.70	263.03	184.42	39.25	2.21	1197.26	0.00	230.02	39.25	301.92
3760	10.74	1172.05	261.15	186.25	39.21	1.92	1196.64	0.00	229.94	39.20	301.92
3770	10.79	1172.45	248.31	186.01	39.14	1.76	1197.44	0.00	229.86	39.15	301.92
3780	8.65	1172.62	233.27	184.47	39.10	2.45	1202.15	0.00	229.78	39.10	301.92
3790	9.43	1172.48	271.43	184.97	39.04	1.73	1198.62	0.00	229.70	39.05	301.92
3800	10.57	1172.00	275.24	182.16	38.96	1.61	1193.60	0.00	229.62	39.00	301.92
3810	9.56	1171.51	253.48	182.76	38.95	2.32	1200.18	0.00	229.54	38.95	301.92
3820	8.21	1171.63	245.66	185.51	38.91	2.50	1203.09	0.00	229.46	38.90	301.92
3830	9.47	1172.09	263.98	186.24	38.85	1.76	1199.94	0.00	229.39	38.85	301.92
3840	10.17	1171.87	249.10	183.42	38.80	1.93	1198.00	0.00	229.31	38.80	301.92
3850	7.95	1171.64	232.95	182.63	38.72	2.45	1201.86	0.00	229.23	38.75	301.92
3860	9.05	1171.98	269.68	184.88	38.69	1.80	1198.24	0.00	229.15	38.70	301.92
3870	10.19	1171.68	283.63	182.05	38.65	1.65	1194.28	0.00	229.07	38.65	301.92
3880	9.07	1171.29	257.36	180.86	38.60	2.37	1199.05	0.00	228.99	38.60	301.92
3890	8.28	1171.48	238.84	184.94	38.53	2.60	1201.44	0.00	228.91	38.55	301.92
3900	9.73	1171.90	258.76	185.13	38.50	1.82	1198.38	0.00	228.83	38.50	301.92
3910	10.26	1171.61	249.68	183.10	38.43	1.95	1196.49	0.00	228.75	38.45	301.92
3920	8.19	1171.33	239.06	184.13	38.39	2.51	1201.56	0.00	228.67	38.40	301.92

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
3930	9.26	1171.75	267.74	184.79	38.33	1.71	1198.80	0.00	228.59	38.35	301.92
3940	10.34	1171.57	274.24	182.10	38.28	1.52	1193.40	0.00	228.51	38.30	301.92
3950	9.31	1171.18	249.18	180.42	38.25	2.36	1199.07	0.00	228.43	38.25	301.92
3960	8.41	1171.22	236.40	184.16	38.21	2.61	1201.60	0.00	228.35	38.20	301.92
3970	9.49	1171.60	262.67	185.68	38.16	1.82	1199.09	0.00	228.27	38.15	301.92
3980	10.19	1171.41	254.87	183.44	38.10	1.98	1197.48	0.00	228.19	38.10	301.92
3990	8.31	1171.13	233.62	182.92	38.06	2.48	1200.93	0.00	228.11	38.05	301.92
4000	9.27	1171.57	265.68	185.35	38.01	1.60	1199.94	0.00	228.03	38.00	301.92
4010	9.95	1171.42	261.01	184.42	37.98	1.95	1197.56	0.00	228.00	37.98	301.92
4020	7.83	1171.15	231.08	181.53	37.96	2.45	1200.64	0.00	227.96	37.96	301.92
4030	8.32	1171.46	262.98	182.16	37.95	1.66	1199.92	0.00	227.93	37.94	301.92
4040	9.58	1171.38	279.54	181.17	37.93	1.71	1194.91	0.00	227.90	37.92	301.92
4050	9.63	1171.29	243.89	180.34	37.90	1.96	1196.73	0.00	227.87	37.90	301.92
4060	9.22	1171.41	250.01	179.99	37.86	2.12	1198.53	0.00	227.84	37.88	301.92
4070	7.81	1171.39	245.93	178.64	37.86	2.41	1199.85	0.00	227.80	37.86	301.92
4080	8.57	1171.10	232.45	182.74	37.84	1.94	1201.65	0.00	227.77	37.84	301.92
4090	9.49	1171.31	270.79	182.32	37.83	2.00	1196.98	0.00	227.74	37.82	301.92
4100	7.93	1171.58	259.83	177.64	37.80	2.53	1197.61	0.00	227.70	37.80	301.92
4110	7.80	1171.16	245.77	179.51	37.79	2.12	1201.20	0.00	227.67	37.78	301.92
4120	8.83	1171.19	278.95	181.37	37.76	1.92	1197.70	0.00	227.64	37.76	301.92



Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
4130	9.40	1171.32	294.00	180.76	37.74	2.14	1197.71	0.00	227.61	37.74	301.92
4140	8.84	1171.05	259.29	181.26	37.72	2.35	1200.85	0.00	227.58	37.72	301.92
4150	7.81	1170.92	236.50	182.66	37.70	2.24	1201.08	0.00	227.54	37.70	301.92
4160	8.71	1171.34	269.84	180.62	37.68	2.01	1197.83	0.00	227.51	37.68	301.92
4170	9.78	1171.49	288.14	177.12	37.66	1.99	1195.90	0.00	227.48	37.66	301.92
4180	8.84	1171.25	251.75	177.17	37.63	2.27	1199.09	0.00	227.45	37.64	301.92
4190	7.64	1171.02	225.48	180.25	37.62	2.51	1200.45	0.00	227.41	37.62	301.92
4200	8.56	1171.15	259.92	181.14	37.61	1.79	1197.77	0.00	227.38	37.60	301.92
4210	8.83	1171.04	260.28	180.29	37.58	1.98	1198.06	0.00	227.35	37.58	301.92
4220	7.68	1170.80	231.08	180.48	37.56	2.53	1200.87	0.00	227.32	37.56	301.92
4230	8.64	1171.13	260.93	181.44	37.51	1.72	1197.92	0.00	227.28	37.54	301.92
4240	8.86	1171.02	262.73	181.09	37.49	1.93	1197.24	0.00	227.26	37.52	301.92
4250	7.42	1170.73	231.38	180.81	37.50	2.65	1200.46	0.00	227.22	37.50	301.92
4260	8.01	1171.01	262.96	182.08	37.48	1.96	1198.33	0.00	227.19	37.48	301.92
4270	8.72	1170.94	285.16	181.24	37.46	1.56	1194.49	0.00	227.16	37.46	301.92
4280	8.44	1170.61	247.85	181.18	37.45	2.27	1198.63	0.00	227.12	37.44	301.92
4290	7.80	1170.67	228.28	181.93	37.42	2.59	1200.44	0.00	227.09	37.42	301.92
4300	8.35	1170.99	247.21	181.42	37.40	1.80	1199.75	0.00	227.06	37.40	301.92
4310	8.52	1170.99	252.46	180.96	37.37	1.94	1199.63	0.00	227.02	37.38	301.92
4320	7.62	1170.79	234.23	180.11	37.33	2.62	1200.60	0.00	226.99	37.36	301.92

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
4330	8.43	1170.95	249.61	182.54	37.33	1.97	1200.64	0.00	226.96	37.34	301.92
4340	8.73	1171.02	269.58	182.15	37.29	1.85	1197.56	0.00	226.93	37.32	301.92
4350	8.42	1170.71	275.62	179.86	37.30	2.30	1197.67	0.00	226.89	37.30	301.92
4360	7.78	1170.69	267.45	179.40	37.28	2.41	1199.53	0.00	226.86	37.28	301.92
4370	7.85	1170.66	252.31	179.68	37.26	2.07	1200.66	0.00	226.83	37.26	301.92
4380	8.70	1170.86	276.49	179.26	37.23	1.93	1198.14	0.00	226.80	37.24	301.92
4390	8.21	1171.02	268.59	178.83	37.22	2.26	1197.91	0.00	226.76	37.22	301.92
4400	8.19	1170.81	265.48	178.96	37.21	2.13	1199.06	0.00	226.73	37.20	301.92
4410	8.20	1170.76	256.66	179.61	37.18	2.17	1199.36	0.00	226.70	37.18	301.93
4420	9.08	1170.85	238.18	182.57	37.16	2.01	1199.14	0.00	226.67	37.16	301.93
4430	9.68	1170.75	219.16	183.90	37.14	2.18	1199.48	0.00	226.63	37.14	301.93
4440	9.09	1170.61	183.19	187.03	37.09	2.63	1200.84	0.00	226.60	37.12	301.93
4450	10.95	1171.02	203.00	187.54	37.11	1.77	1197.62	0.00	226.57	37.10	301.92
4460	11.53	1170.84	188.86	187.19	37.06	1.77	1197.09	0.00	226.54	37.08	301.93
4470	10.30	1170.51	149.90	192.53	37.07	2.48	1200.49	0.00	226.50	37.06	301.92
4480	11.30	1170.70	166.68	194.43	37.04	1.90	1199.90	0.00	226.47	37.04	301.92
4490	11.98	1170.96	206.84	189.31	37.02	1.94	1197.44	0.00	226.44	37.02	301.92
4500	11.31	1171.09	209.05	186.73	37.00	2.35	1198.85	0.00	226.40	37.00	301.93
4510	11.75	1171.37	213.42	185.15	36.98	2.06	1200.17	0.00	226.37	36.98	301.93
4520	11.15	1171.45	199.03	182.99	36.96	2.19	1200.78	0.00	226.34	36.96	301.93

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
4530	11.20	1171.08	178.13	186.70	36.94	1.62	1199.63	0.00	226.31	36.94	301.93
4540	11.64	1171.08	161.19	191.30	36.92	1.69	1200.28	0.00	226.27	36.92	301.93
4550	10.37	1171.17	151.73	191.07	36.88	2.67	1201.38	0.00	226.24	36.90	301.92
4560	10.79	1171.34	173.37	193.32	36.88	2.43	1200.64	0.00	226.20	36.88	301.93
4570	10.97	1171.65	194.79	195.90	36.86	1.76	1200.82	0.00	226.17	36.86	301.93
4580	10.96	1171.31	200.58	201.77	36.84	1.98	1201.21	0.00	226.14	36.84	301.93
4590	11.05	1171.47	177.91	203.20	36.82	2.58	1200.99	0.00	226.11	36.82	301.93
4600	10.51	1172.67	170.85	197.66	36.80	2.54	1200.77	0.00	226.07	36.80	301.93
4610	10.78	1173.10	187.47	196.40	36.78	2.28	1200.15	0.00	226.04	36.78	301.93
4620	11.62	1172.95	226.93	191.94	36.76	2.02	1197.61	0.00	226.01	36.76	301.93
4630	11.50	1172.03	205.17	191.31	36.74	2.23	1198.60	0.00	225.97	36.74	301.93
4640	10.31	1171.54	170.63	189.53	36.72	2.57	1200.30	0.00	225.94	36.72	301.93
4650	11.19	1171.65	193.55	189.14	36.70	1.64	1197.90	0.00	225.91	36.70	301.93
4660	11.65	1170.83	179.24	192.84	36.68	1.59	1198.06	0.00	225.88	36.68	301.93
4670	10.55	1170.33	152.38	193.82	36.65	2.60	1200.44	0.00	225.84	36.66	301.93
4680	10.34	1171.21	155.21	194.04	36.64	2.53	1200.68	0.00	225.81	36.64	301.93
4690	11.01	1172.55	189.43	192.97	36.62	1.97	1199.58	0.00	225.77	36.62	301.93
4700	11.96	1172.31	206.45	192.35	36.60	1.68	1197.70	0.00	225.74	36.60	301.93
4710	11.04	1172.09	192.96	190.64	36.58	2.20	1199.62	0.00	225.71	36.58	301.93
4720	8.36	1171.58	141.13	186.65	36.56	1.90	1201.74	0.00	225.68	36.56	301.93

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
4730	7.88	1169.89	149.45	193.70	36.54	1.75	1205.09	0.00	225.64	36.54	301.93
4740	10.20	1169.97	196.81	199.19	36.52	2.07	1203.34	0.00	225.61	36.52	301.93
4750	12.21	1170.61	213.27	192.22	36.50	1.93	1198.06	0.00	225.58	36.50	301.93
4760	11.78	1170.83	205.44	184.99	36.48	2.27	1197.56	0.00	225.54	36.48	301.93
4770	12.33	1170.70	173.88	188.62	36.39	1.56	1196.97	0.00	225.51	36.46	301.93
4780	12.95	1170.99	155.65	194.43	36.45	1.57	1197.99	0.00	225.48	36.44	301.93
4790	11.51	1171.13	130.54	198.92	36.41	2.46	1200.27	0.00	225.44	36.42	301.93
4800	11.31	1171.13	142.54	201.12	36.40	2.42	1200.97	0.00	225.41	36.40	301.93
4810	12.07	1171.12	164.12	200.56	36.38	2.06	1200.60	0.00	225.38	36.38	301.93
4820	12.76	1171.64	184.21	200.05	36.36	2.00	1199.69	0.00	225.34	36.36	301.93
4830	12.12	1171.61	167.15	201.13	36.34	2.48	1200.21	0.00	225.31	36.34	301.93
4840	11.29	1170.67	154.12	202.44	36.32	2.57	1201.25	0.00	225.28	36.32	301.93
4850	11.51	1170.75	168.96	204.22	36.30	2.36	1201.23	0.00	225.24	36.30	301.93
4860	12.62	1171.65	200.72	203.69	36.28	2.03	1200.84	0.00	225.21	36.28	301.93
4870	12.30	1171.85	196.58	202.07	36.26	2.26	1200.88	0.00	225.17	36.26	301.93
4880	11.02	1171.47	160.80	203.24	36.24	2.61	1200.99	0.00	225.14	36.24	301.93
4890	10.97	1171.48	153.73	206.70	36.22	2.60	1200.96	0.00	225.11	36.22	301.93
4900	11.71	1171.59	171.45	206.11	36.20	2.07	1200.23	0.00	225.07	36.20	301.93
4910	12.14	1172.28	241.08	193.92	36.18	1.96	1200.19	0.00	225.04	36.18	301.93
4920	12.09	1172.20	259.43	186.75	36.16	1.90	1200.09	0.00	225.01	36.16	301.93

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
4930	11.78	1170.56	177.50	187.97	36.14	2.00	1201.03	0.00	224.98	36.14	301.93
4940	11.07	1170.22	131.88	194.56	36.12	2.57	1201.30	0.00	224.94	36.12	301.93
4950	10.44	1170.87	146.73	197.05	36.08	2.55	1200.62	0.00	224.91	36.10	301.93
4960	9.28	1170.35	168.33	193.04	36.09	2.56	1200.66	0.00	224.87	36.08	301.93
4970	10.49	1170.20	194.53	193.47	36.07	1.78	1199.38	0.00	224.84	36.06	301.93
4980	11.78	1171.05	219.17	191.43	36.03	1.71	1196.08	0.00	224.81	36.04	301.93
4990	11.55	1171.41	237.87	186.73	36.02	2.35	1197.99	0.00	224.78	36.02	301.93
5000	11.19	1170.78	212.91	185.92	36.00	2.50	1200.24	0.00	224.74	36.00	301.93
5010	11.55	1171.29	189.32	181.28	36.00	1.93	1199.96	0.00	224.74	36.00	301.93
5020	11.52	1171.51	169.65	183.67	35.99	1.82	1201.35	0.00	224.74	36.00	301.93
5030	11.46	1170.93	145.48	193.38	36.01	1.80	1200.60	0.00	224.74	36.00	301.93
5040	11.46	1170.45	166.49	190.35	36.02	1.68	1197.49	0.00	224.74	36.00	301.93
5050	10.59	1170.00	192.87	185.94	36.00	2.36	1199.12	0.00	224.74	36.00	301.93
5060	11.61	1171.96	218.48	184.14	36.00	2.18	1199.63	0.00	224.74	36.00	301.93
5070	11.24	1172.88	194.70	183.39	36.00	2.26	1200.01	0.00	224.74	36.00	301.93
5080	11.71	1171.18	147.68	189.98	35.99	1.38	1199.77	0.00	224.74	36.00	301.93
5090	12.03	1170.10	138.18	193.57	36.00	1.23	1197.64	0.00	224.74	36.00	301.93
5100	10.14	1169.74	143.77	189.99	35.98	2.30	1199.77	0.00	224.74	36.00	301.93
5110	10.68	1170.81	188.41	190.05	36.00	1.96	1200.69	0.00	224.74	36.00	301.93
5120	9.20	1170.84	164.15	195.10	36.00	1.76	1198.68	0.00	224.74	36.00	301.93

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
5130	13.53	1169.80	252.02	204.92	36.01	2.21	1197.54	0.00	224.74	36.00	301.93
5140	15.88	1169.76	261.95	200.50	36.00	2.63	1196.93	0.00	224.74	36.00	301.93
5150	13.46	1169.68	103.37	187.50	36.00	2.53	1195.41	0.00	224.74	36.00	301.93
5160	16.09	1170.32	95.15	188.75	35.98	1.66	1194.54	0.00	224.74	36.00	301.93
5170	16.14	1171.89	125.64	191.39	36.00	1.95	1196.84	0.00	224.74	36.00	301.93
5180	14.95	1173.17	145.74	191.47	36.00	2.56	1198.26	0.00	224.74	36.00	301.93
5190	15.00	1174.01	174.95	190.73	36.00	2.10	1198.94	0.00	224.74	36.00	301.93
5200	14.62	1174.12	172.55	191.32	36.00	2.36	1199.30	0.00	224.74	36.00	301.93
5210	14.50	1174.05	169.77	189.21	36.00	1.95	1199.56	0.00	224.74	36.00	301.93
5220	15.67	1173.70	171.43	194.64	36.01	1.34	1201.72	0.00	224.74	36.00	301.93
5230	15.48	1172.72	184.42	194.20	35.99	1.90	1201.36	0.00	224.74	36.00	301.93
5240	14.99	1173.54	233.19	186.76	36.00	2.28	1198.78	0.00	224.74	36.00	301.93
5250	14.92	1174.05	212.67	182.95	36.00	1.68	1197.46	0.00	224.74	36.00	301.93
5260	14.44	1172.88	145.09	188.87	36.00	1.89	1200.03	0.00	224.74	36.00	301.93
5270	14.40	1172.38	138.45	196.72	35.99	2.15	1200.55	0.00	224.74	36.00	301.93
5280	14.20	1173.00	170.10	190.18	36.00	1.79	1198.82	0.00	224.74	36.00	301.93
5290	12.57	1172.25	182.66	188.98	36.00	2.35	1199.72	0.00	224.74	36.00	301.93
5300	11.66	1171.87	180.78	184.95	36.00	2.56	1199.57	0.00	224.74	36.00	301.93
5310	11.66	1172.21	127.89	190.13	36.00	1.22	1198.03	0.00	224.74	36.00	301.93
5320	13.07	1169.96	185.42	212.05	35.98	1.34	1196.44	0.01	224.74	36.00	301.93

Reactor Vessel Side						Pump Discharge Side					
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy Btu/lbm)	Pressure (psi)	Spilled HPI Flow (gpm)
5330	16.16	1168.56	177.12	215.15	35.96	2.60	1189.95	0.01	230.08	36.00	301.93
5340	16.29	1169.11	101.32	198.85	36.00	2.44	1189.32	0.00	224.74	36.00	301.93
5350	15.15	1170.34	158.45	180.98	36.00	2.09	1197.23	0.00	224.74	36.00	301.93
5360	14.68	1171.32	147.86	178.48	36.00	2.13	1199.31	0.00	224.74	36.00	301.93
5370	14.76	1171.98	117.27	186.78	36.00	1.66	1199.23	0.00	224.74	36.00	301.93
5380	15.86	1172.83	158.02	192.27	36.00	1.70	1196.44	0.00	224.74	36.00	301.93
5390	15.44	1173.84	201.41	190.11	36.00	2.35	1196.62	0.00	224.74	36.00	301.93
5400	13.60	1174.34	195.33	186.41	36.00	2.55	1198.57	0.00	224.74	36.00	301.93
5410	13.68	1173.84	181.14	183.49	36.00	1.92	1199.56	0.00	224.74	36.00	301.93
5420	15.41	1172.81	149.62	190.78	35.98	1.17	1201.90	0.00	224.74	36.00	301.93
5430	14.90	1173.15	154.24	194.17	35.99	2.03	1200.15	0.00	224.74	36.00	301.93
5440	13.31	1174.10	194.49	187.81	36.00	2.62	1199.03	0.00	224.74	36.00	301.93
5450	13.25	1175.02	215.33	182.62	36.00	2.30	1199.91	0.00	224.74	36.00	301.93
5460	14.59	1173.67	166.76	186.09	36.00	1.45	1199.67	0.00	224.74	36.00	301.93
5466.85	15.50	1171.05	70.54	218.83	36.00	0.58	1198.07	0.00	224.74	36.00	301.93

Table 6-31. BFLOW/FATHOMS Long-Term Mass and Energy Releases

Time (sec)	Time (Days)	Steam Flow (lbm/sec)	Steam Enthalpy (Btu/lbm)	Bk liq flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)
4561		25.24	1163.93	358.19	170.13
4811		24.63	1164.56	350.28	169.97
7211		19.56	1166.13	356.92	162.03
10012		18.25	1165.98	359.64	154.52
24012		15.16	1163.50	371.60	128.60
36013		13.98	1161.70	373.59	117.93
49415		13.25	1160.26	374.87	110.18
72815		12.07	1158.49	376.61	102.09
87216	1.01	11.71	1157.80	377.19	98.73
	2.1	9.86	1155.60	379.67	89.18
	3.1	8.41	1154.24	381.39	85.79
	4.0	7.41	1153.41	382.54	84.13
	5.1	6.55	1152.74	383.52	82.85
	6.1	5.91	1152.25	384.26	81.81
	7.0	5.36	1152.62	384.96	80.19
	8.1	4.75	1153.15	386.07	74.55
	9.0	4.45	1152.58	386.39	74.21
	10.0	4.16	1152.16	386.69	73.98
	11.1	3.91	1151.83	386.95	73.81
	12.0	3.71	1151.57	387.16	73.69
	13.0	3.51	1151.33	386.91	73.59
	14.1	3.34	1151.13	387.10	73.49



<b>Time (sec)</b>	<b>Time (Days)</b>	<b>Steam Flow (lbm/sec)</b>	<b>Steam Enthalpy (Btu/lbm)</b>	<b>Bk liq flow (lbm/sec)</b>	<b>Liquid Enthalpy (Btu/lbm)</b>
	15.0	3.19	1150.96	387.69	73.44
	16.1	3.04	1150.79	387.84	73.38
	17.1	2.91	1150.65	387.97	73.32
	18.0	2.80	1150.53	386.18	73.29
	19.1	2.69	1150.42	384.25	73.27
	20.1	2.58	1150.31	388.32	73.18
	21.0	2.49	1150.22	388.41	73.14
	22.1	2.40	1150.13	388.51	73.11
	23.0	2.32	1150.05	388.59	73.08
	24.0	2.23	1149.98	388.67	73.05
	25.1	2.16	1149.88	388.75	73.01
	26.0	2.09	1149.79	388.82	72.98
	27.1	2.02	1149.69	388.89	72.94
	28.1	1.96	1149.60	384.45	72.96
	29.0	1.90	1149.53	389.02	72.88
	30.1	1.84	1149.45	389.08	72.85
	31.1	1.78	1149.38	389.14	72.82
	32.0	1.73	1149.31	389.19	72.80
	33.1	1.68	1149.24	387.48	72.79
	34.0	1.63	1149.18	389.29	72.75
	35.0	1.57	1149.11	389.35	72.72

**Table 6-32. Steam Line Break Mass and Energy Releases for Double-Ended Guillotine Break**

Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)	Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)	Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)
0.0	0.0	1261.9	944.1	2.1	6737.0	1270.7	834.7	4.2	3029.1	1275.1	784.7
0.1	16210.7	1262.9	933.9	2.2	6687.0	1270.8	833.4	4.3	2947.1	1275.2	783.2
0.2	11175.3	1265.2	909.5	2.3	6646.9	1271.0	831.8	4.4	2893.7	1275.3	781.8
0.3	9092.1	1266.6	895.2	2.4	6618.9	1271.1	830.0	4.5	2885.6	1275.3	780.2
0.4	8239.2	1267.5	884.4	2.5	6586.4	1271.4	827.3	4.6	2878.4	1275.3	778.4
0.5	8007.2	1268.1	876.9	2.6	6495.0	1271.6	824.4	4.7	2871.9	1275.4	776.1
0.6	8083.4	1268.6	871.5	2.7	6341.9	1271.9	821.6	4.8	2866.1	1275.6	773.8
0.7	8133.4	1268.9	867.3	2.8	6147.2	1272.0	818.8	4.9	2860.2	1275.8	771.5
0.8	8100.8	1269.1	863.6	2.9	5915.9	1272.2	816.1	5.0	2894.2	1276.0	769.4
0.9	7998.8	1269.3	860.4	3.0	5645.9	1272.4	813.3	5.5	2795.1	1276.6	759.4
1.0	7858.0	1269.6	856.9	3.1	5354.2	1272.6	810.7	6.0	2728.0	1277.4	743.2
1.1	7705.4	1269.9	853.0	3.2	5038.2	1272.7	808.3	6.5	2687.9	1277.7	724.7
1.2	7556.9	1270.2	849.0	3.3	4673.2	1272.9	806.1	7.0	2616.5	1277.3	712.3
1.3	7420.6	1270.5	845.3	3.4	4219.5	1273.1	803.7	7.5	2557.0	1277.7	693.3
1.4	7297.7	1270.7	842.3	3.5	3923.4	1273.3	801.4	8.0	2473.2	1277.6	674.9
1.5	7188.1	1270.7	840.0	3.6	3711.9	1273.6	798.6	8.5	2422.2	1277.4	658.9
1.6	7089.9	1270.7	838.1	3.7	3539.0	1273.9	795.7	9.0	2364.1	1276.5	649.7
1.7	7005.0	1270.6	837.4	3.8	3391.3	1274.1	793.2	9.5	2351.6	1275.2	644.6
1.8	6929.4	1270.6	837.0	3.9	3278.9	1274.4	790.9	10.0	2322.4	1273.9	639.7
1.9	6859.9	1270.5	836.4	4.0	3196.1	1274.6	788.7	10.5	2309.3	1272.6	635.2
2.0	6795.3	1270.6	835.7	4.1	3117.8	1274.9	786.5	11.0	2289.4	1271.4	630.2

Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)	Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)	Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)
11.5	2263.4	1270.4	623.9	22.5	2165.9	1252.6	569.4	33.5	1832.3	1244.4	495.4
12.0	2234.8	1269.8	616.0	23.0	2109.0	1248.9	574.6	34.0	1824.5	1244.1	493.4
12.5	2199.7	1269.3	609.2	23.5	2098.7	1247.4	575.6	34.5	1817.9	1243.8	491.3
13.0	2176.4	1268.9	602.6	24.0	2088.9	1247.0	572.6	35.0	1809.5	1243.4	489.2
13.5	2131.2	1269.1	591.1	24.5	2077.7	1246.8	567.0	35.5	1801.6	1242.9	487.1
14.0	2088.8	1269.3	579.4	25.0	2063.4	1246.7	560.7	36.0	1792.4	1242.4	484.8
14.5	2035.1	1269.3	569.9	25.5	2049.0	1246.6	554.6	36.5	1782.9	1241.9	482.3
15.0	2026.8	1268.6	568.5	26.0	2030.4	1246.4	548.5	37.0	1773.0	1241.5	479.7
15.5	2040.1	1267.4	571.8	26.5	2008.4	1246.3	542.8	37.5	1762.5	1241.1	477.0
16.0	2054.8	1266.1	575.8	27.0	1990.3	1246.2	537.7	38.0	1751.8	1240.7	474.1
16.5	2069.9	1265.0	579.6	27.5	1971.6	1246.1	532.8	38.5	1740.8	1240.4	471.1
17.0	2091.3	1263.9	582.9	28.0	1956.4	1245.9	528.3	39.0	1729.9	1240.1	468.2
17.5	2091.6	1263.1	583.0	28.5	1940.4	1245.8	524.3	39.5	1718.4	1239.8	465.1
18.0	2090.9	1262.7	580.1	29.0	1926.8	1245.6	520.6	40.0	1707.5	1239.5	462.1
18.5	2097.9	1262.1	577.6	29.5	1913.8	1245.5	517.5	40.5	1695.8	1239.3	458.9
19.0	2083.5	1261.5	575.2	30.0	1901.5	1245.3	514.3	41.0	1685.6	1239.1	455.9
19.5	2067.7	1260.8	574.1	30.5	1889.7	1245.2	511.0	41.5	1674.8	1238.9	453.0
20.0	2053.4	1260.2	573.3	31.0	1878.2	1245.2	507.9	42.0	1664.8	1238.8	449.9
20.5	2052.9	1259.4	572.2	31.5	1867.4	1245.1	504.8	42.5	1653.9	1238.6	447.1
21.0	2060.6	1258.6	569.7	32.0	1856.7	1245.0	502.1	43.0	1644.1	1238.4	444.6
21.5	2081.0	1257.6	566.8	32.5	1848.0	1244.8	499.8	43.5	1634.8	1238.3	442.1
22.0	2066.0	1256.3	565.5	33.0	1839.3	1244.6	497.6	44.0	1625.9	1238.1	440.1

Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)	Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)	Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)
44.5	1617.3	1238.0	437.7	56.0	1445.1	1235.1	391.5	79.0	1235.5	1231.0	338.7
45.0	1609.4	1237.8	436.3	57.0	1432.4	1234.9	388.9	80.0	1227.6	1230.9	336.5
45.5	1602.7	1237.6	434.3	59.0	1412.0	1234.4	384.5	81.0	1219.2	1230.8	334.4
46.0	1595.5	1237.4	432.5	60.0	1403.8	1234.1	382.9	82.0	1210.9	1230.6	332.3
46.5	1589.0	1237.3	430.4	61.0	1396.1	1233.8	380.9	83.0	1203.1	1230.5	330.4
47.0	1582.0	1237.0	429.0	62.0	1387.7	1233.5	378.9	85.0	1188.4	1230.4	326.3
47.5	1575.5	1236.9	426.8	63.0	1378.7	1233.3	376.2	86.0	1181.2	1230.3	324.3
48.0	1568.3	1236.7	424.8	64.0	1369.2	1233.1	373.3	87.0	1173.5	1230.2	322.3
48.5	1561.9	1236.5	423.3	65.0	1358.7	1233.1	370.6	88.0	1165.9	1230.0	320.4
49.0	1554.6	1236.3	421.3	66.0	1348.7	1233.0	368.0	89.0	1158.6	1229.7	318.7
49.5	1547.4	1236.1	419.5	67.0	1338.3	1233.0	364.4	90.0	1150.9	1229.4	316.6
50.0	1540.0	1236.0	417.6	68.0	1326.6	1232.9	361.2	91.0	1142.4	1229.1	314.2
50.5	1532.4	1235.9	414.8	69.0	1317.5	1232.8	359.4	92.0	1133.3	1228.8	312.2
51.0	1524.4	1235.8	412.4	70.0	1309.8	1232.5	357.5	93.0	1123.3	1228.5	309.1
51.5	1515.7	1235.7	410.4	71.0	1302.9	1232.2	356.0	94.0	1112.9	1228.2	306.6
52.0	1507.3	1235.6	408.2	72.0	1294.8	1232.1	353.7	95.0	1102.1	1227.8	303.7
52.5	1499.5	1235.5	406.3	73.0	1285.4	1232.0	351.4	96.0	1090.8	1227.5	301.1
53.0	1491.6	1235.4	404.2	74.0	1275.8	1231.9	348.9	97.0	1078.3	1226.9	297.8
53.5	1483.5	1235.3	401.9	75.0	1266.3	1231.7	346.5	98.0	1064.5	1226.4	294.4
54.0	1475.3	1235.2	400.1	76.0	1257.7	1231.6	344.4	99.0	1051.0	1226.0	291.0
54.5	1466.7	1235.2	397.8	77.0	1250.1	1231.4	342.4	100.0	1039.2	1226.0	287.9
55.0	1459.7	1235.1	396.0	78.0	1242.9	1231.2	340.8	101.0	1028.7	1226.6	283.8

Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)	Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)	Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)
102.0	1019.3	1227.2	280.9	124.0	895.0	1220.9	252.5	146.0	709.1	1222.7	206.6
103.0	1009.5	1227.8	277.7	125.0	886.7	1220.4	250.6	147.0	681.2	1223.4	202.9
104.0	1000.0	1228.1	274.9	126.0	878.0	1220.3	248.4	148.0	714.2	1223.9	198.7
105.0	991.5	1227.9	273.2	127.0	871.4	1220.5	246.6	149.0	689.0	1223.9	194.5
106.0	984.6	1227.3	272.3	128.0	867.7	1220.8	244.9	150.0	662.3	1224.0	190.2
107.0	977.9	1226.5	271.5	129.0	863.1	1221.0	243.1	151.0	640.4	1224.1	184.7
108.0	971.1	1225.7	270.4	130.0	855.0	1221.1	240.7	152.0	623.1	1224.1	178.6
109.0	964.3	1224.9	268.8	131.0	846.8	1220.9	238.7	153.0	607.7	1224.3	172.1
110.0	958.3	1224.5	267.1	132.0	838.0	1220.3	236.7	154.0	591.5	1225.0	164.6
111.0	951.9	1224.3	264.9	133.0	828.7	1219.8	234.1	155.0	571.4	1226.1	156.5
112.0	945.5	1224.3	262.8	134.0	819.0	1219.5	231.4	156.0	545.0	1227.4	147.4
113.0	938.6	1224.0	260.9	135.0	811.1	1219.6	229.1	157.0	511.4	1228.8	138.1
114.0	930.6	1223.7	259.2	136.0	804.5	1220.0	227.0	158.0	471.5	1230.1	128.1
115.0	924.6	1223.3	257.6	137.0	799.3	1220.4	225.5	159.0	429.0	1231.2	118.0
116.0	918.2	1223.4	256.2	138.0	795.6	1220.6	224.3	160.0	387.2	1232.2	107.8
117.0	911.6	1223.7	255.1	139.0	793.9	1220.4	223.6	161.0	346.1	1233.3	97.2
118.0	909.1	1224.0	254.7	140.0	781.4	1220.6	222.1	162.0	305.5	1234.5	86.1
119.0	910.5	1224.0	254.8	141.0	773.9	1220.5	220.3	163.0	275.5	1235.4	77.5
120.0	911.9	1223.6	255.3	142.0	765.9	1220.5	218.2	164.0	249.6	1236.1	70.5
121.0	911.2	1223.0	255.7	143.0	755.4	1220.6	215.4	165.0	224.6	1236.7	64.0
122.0	908.2	1222.4	255.3	144.0	743.9	1221.1	212.5	166.0	201.9	1237.5	57.6
123.0	902.3	1221.7	254.1	145.0	731.9	1221.9	209.5	167.0	195.1	1238.1	55.1

Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)	Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)	Time (sec)	Flow (lbm/sec)	Enthalpy (Btu/lbm)	Pressure (psia)
168.0	173.0	1239.5	49.5	177.0	55.7	1243.3	27.4	186.0	37.9	1245.2	27.8
169.0	151.3	1241.0	44.1	178.0	53.3	1243.3	27.6	187.0	37.0	1245.2	27.6
170.0	174.4	1240.9	49.1	179.0	51.4	1243.7	27.4	188.0	32.6	1245.2	27.5
171.0	154.1	1241.7	45.2	180.0	46.8	1244.3	27.3	190.0	32.4	1245.2	27.9
172.0	137.3	1242.3	40.9	181.0	43.0	1244.8	27.5	192.0	26.8	1245.3	27.6
173.0	122.7	1242.6	37.5	182.0	45.0	1245.1	27.7	194.0	28.3	1246.0	28.1
174.0	112.1	1242.8	34.7	183.0	43.6	1245.3	27.5	196.0	22.1	1246.9	27.8
175.0	98.5	1243.1	31.4	184.0	39.1	1245.3	27.3	198.0	25.0	1246.8	28.3
176.0	87.7	1243.3	28.6	185.0	35.3	1245.2	27.7	200.0	17.7	1246.5	27.9

**Table 6-33. NPSH Available and Required for LPI and BS Pumps (Limiting Flow Case)**

	<b>Flow</b>	<b>NPSHr</b>	<b>NPSHa</b>
BS	1110 gpm	15.0 ft	21.33 ft
LPI	3840 gpm	16.5 ft	18.09 ft

**Note:**

The above information is currently being revised as part of the Reactor Building Emergency Sump Screen replacement project and will be replaced with updated valves at the completion of that effort.

**Table 6-34. Deleted Per 2008 Update**

**(31 DEC 2008)**



Table 6-35. ROTSG Peak Pressure Mass and Energy Release Data

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
0.0	2952.54	1185.14	50071.66	586.96	2194.9	3246.74	1185.47	53239.03	586.22	2195.9
0.1	3252.01	1186.21	49158.25	582.61	1184.1	3591.04	1186.39	50260.68	580.74	1187.2
0.2	3480.73	1187.49	47758.00	578.56	1155.1	3667.39	1188.29	44940.82	575.74	1078.4
0.3	3491.71	1188.37	44815.42	576.24	1108.5	3528.65	1190.47	39264.74	574.99	1010.7
0.4	3572.82	1189.50	40849.95	571.75	1049.1	3814.95	1192.29	33527.03	569.28	962.7
0.5	3582.23	1190.37	38848.06	569.99	1033.8	4077.28	1194.93	30429.58	558.98	923.0
0.6	3603.98	1190.57	38417.86	569.85	1032.2	4555.21	1200.03	30843.14	537.92	849.1
0.7	3631.00	1190.50	38565.54	570.09	1034.6	4940.88	1203.72	31095.94	521.43	807.9
0.8	3681.98	1190.50	38455.83	570.10	1035.7	4877.74	1204.80	29888.32	515.67	776.7
0.9	3757.54	1190.61	37989.32	569.90	1031.9	4689.83	1205.30	29486.80	511.62	754.1
1.0	3857.08	1190.78	37278.62	569.65	1029.8	4451.19	1205.38	29643.73	509.03	742.1
1.1	3998.17	1191.12	36168.17	569.06	1022.8	4192.05	1205.19	30189.31	507.64	736.7
1.2	4164.63	1191.64	34711.18	567.89	1012.0	3936.15	1204.89	30906.12	506.99	735.4
1.3	4325.52	1192.23	33257.31	566.34	999.0	3706.45	1204.57	31632.17	506.74	735.9
1.4	4885.59	1195.32	32760.04	558.32	988.0	3515.74	1204.30	32257.22	506.65	736.9
1.5	5584.34	1199.42	30882.26	544.85	873.7	3370.40	1204.10	32701.09	506.54	737.3
1.6	5860.66	1201.32	29087.52	537.20	912.6	3273.78	1203.98	32895.95	506.36	737.1
1.7	6167.30	1203.04	28953.62	533.36	884.2	3214.41	1203.93	32897.65	506.07	736.0
1.8	6527.57	1205.91	27179.85	525.07	806.8	3178.33	1203.95	32817.10	505.55	733.3

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
1.9	6729.14	1208.08	25068.96	517.96	766.6	3163.92	1204.06	32678.24	504.79	729.2
2.0	6928.72	1209.35	23784.28	515.08	758.2	3172.02	1204.22	32466.24	503.84	723.8
2.1	7030.19	1210.21	22869.40	512.77	733.3	3207.95	1204.43	32106.56	502.78	717.6
2.2	6979.55	1210.67	22385.05	510.46	724.0	3265.28	1204.66	31601.79	501.67	711.2
2.3	6907.46	1210.93	22100.22	508.65	713.2	3329.78	1204.92	31039.75	500.48	704.3
2.4	6861.16	1211.26	21717.82	506.83	703.7	3397.75	1205.19	30450.86	499.22	696.9
2.5	6859.45	1211.75	21169.86	504.92	692.3	3468.03	1205.48	29853.11	497.92	689.3
2.6	6897.89	1212.43	20433.47	502.80	679.2	3538.34	1205.78	29265.49	496.63	681.9
2.7	6946.79	1213.25	19584.63	500.40	663.8	3606.07	1206.08	28677.95	495.32	674.5
2.8	6972.43	1214.01	18804.56	497.95	648.7	3670.47	1206.40	28063.32	493.89	666.5
2.9	6965.69	1214.59	18207.22	495.77	636.2	3733.35	1206.74	27429.91	492.32	657.7
3.0	6929.04	1214.96	17795.66	493.90	625.8	3792.59	1207.12	26777.52	490.47	647.6
3.1	6864.79	1215.14	17567.74	492.36	617.9	3842.57	1207.49	26105.76	488.42	636.0
3.2	6784.36	1215.15	17506.03	491.21	612.8	3877.66	1207.82	25467.85	486.44	625.4
3.3	6698.04	1215.06	17543.30	490.34	609.6	3895.99	1208.09	24920.13	484.63	616.2
3.4	6605.71	1214.92	17611.35	489.54	606.6	3926.78	1208.38	24355.35	482.94	607.4
3.5	6506.09	1214.76	17695.64	488.72	603.7	3983.00	1208.74	23690.59	481.19	597.9
3.6	6399.97	1214.56	17815.95	487.95	601.1	4041.44	1209.13	23004.56	479.38	588.2
3.7	6291.48	1214.31	17985.53	487.32	599.3	4091.37	1209.50	22330.49	477.50	578.4
3.8	6189.08	1214.05	18192.78	486.90	598.9	4132.22	1209.86	21676.24	475.58	568.2

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
3.9	6093.43	1213.81	18364.62	486.43	598.2	4166.94	1210.20	21051.50	473.67	558.5
4.0	6002.18	1213.65	18455.89	485.75	595.6	4197.72	1210.53	20464.28	471.84	549.2
4.1	5911.43	1213.51	18513.10	484.94	592.6	4223.01	1210.84	19912.58	470.07	540.3
4.2	5816.88	1213.37	18590.20	484.14	589.5	4242.05	1211.12	19393.09	468.34	531.6
4.3	5723.32	1213.20	18694.91	483.44	587.5	4255.78	1211.39	18902.81	466.64	523.3
4.4	5636.97	1213.05	18782.69	482.76	585.1	4265.65	1211.64	18437.72	464.97	515.2
4.5	5564.71	1212.95	18826.56	482.08	582.7	4272.74	1211.89	17995.82	463.35	507.6
4.6	5509.04	1212.91	18804.40	481.36	579.8	4277.21	1212.11	17578.40	461.79	499.9
4.7	5462.44	1212.92	18716.22	480.50	575.8	4278.83	1212.31	17196.05	460.31	493.2
4.8	5420.41	1212.96	18600.10	479.59	571.6	4275.28	1212.50	16828.26	458.83	486.3
4.9	5384.66	1213.01	18470.19	478.68	567.3	4271.12	1212.70	16445.34	457.27	479.1
5.0	5355.41	1213.09	18322.90	477.77	563.1	4271.49	1212.92	16042.20	455.68	471.8
5.1	5331.29	1213.19	18153.43	476.84	558.7	4276.89	1213.18	15619.78	454.08	464.4
5.2	5313.06	1213.31	17958.80	475.89	554.0	4287.63	1213.45	15191.15	452.52	457.0
5.3	5301.69	1213.46	17733.09	474.89	549.1	4300.49	1213.72	14774.33	451.03	450.1
5.4	5294.20	1213.64	17480.21	473.84	543.8	4312.15	1213.98	14377.30	449.60	443.4
5.5	5286.91	1213.82	17214.45	472.74	538.2	4322.38	1214.24	13995.30	448.20	437.0
5.6	5275.98	1214.00	16947.60	471.59	532.5	4331.98	1214.49	13619.61	446.82	430.6
5.7	5251.41	1214.14	16715.41	470.39	526.7	4341.53	1214.74	13244.54	445.44	424.3
5.8	5209.31	1214.20	16562.60	469.26	521.7	4351.99	1215.01	12866.73	444.06	417.9

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
5.9	5158.60	1214.20	16472.15	468.24	517.5	4364.10	1215.30	12483.40	442.68	411.5
6.0	5106.65	1214.18	16399.34	467.29	513.6	4377.46	1215.62	12092.86	441.28	405.1
6.1	5058.53	1214.18	16312.48	466.33	509.7	4391.25	1215.96	11695.23	439.85	398.5
6.2	5021.41	1214.22	16171.40	465.30	505.4	4405.59	1216.32	11292.11	438.40	391.8
6.3	5008.39	1214.37	15923.55	464.18	500.1	4420.27	1216.70	10885.50	436.94	385.1
6.4	5028.54	1214.69	15526.34	462.92	493.6	4434.26	1217.10	10478.32	435.47	378.3
6.5	5073.99	1215.17	14990.52	461.44	485.4	4446.69	1217.50	10073.97	433.98	371.4
6.6	5131.58	1215.76	14374.32	459.81	476.3	4457.04	1217.91	9674.69	432.48	364.6
6.7	5192.27	1216.42	13736.12	458.12	466.8	4465.40	1218.32	9281.44	430.98	357.7
6.8	5249.12	1217.09	13113.67	456.44	457.3	4472.38	1218.73	8892.40	429.48	350.9
6.9	5296.99	1217.74	12529.17	454.80	448.2	4478.43	1219.16	8504.16	427.96	344.0
7.0	5332.93	1218.34	11994.73	453.20	439.6	4482.85	1219.62	8117.96	426.43	337.0
7.1	5356.00	1218.89	11511.85	451.64	431.4	4484.09	1220.10	7740.85	424.88	330.1
7.2	5366.87	1219.38	11074.62	450.09	423.4	4480.96	1220.57	7380.27	423.32	323.2
7.3	5367.60	1219.82	10674.91	448.55	415.8	4472.86	1221.03	7040.36	421.75	316.5
7.4	5360.53	1220.23	10304.23	447.02	408.4	4459.67	1221.46	6723.53	420.19	309.9
7.5	5347.24	1220.62	9952.78	445.47	401.1	4441.79	1221.87	6430.98	418.65	303.6
7.6	5329.40	1221.01	9610.96	443.89	393.9	4420.44	1222.25	6159.93	417.13	297.6
7.7	5309.32	1221.40	9272.87	442.29	386.5	4397.48	1222.62	5903.92	415.65	291.8
7.8	5289.64	1221.80	8939.86	440.72	379.4	4374.99	1222.97	5655.91	414.21	286.1

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
7.9	5268.74	1222.20	8605.68	439.13	372.0	4354.75	1223.35	5409.71	412.83	280.6
8.0	5248.62	1222.62	8268.98	437.54	364.9	4337.88	1223.77	5160.27	411.50	275.1
8.1	5230.61	1223.05	7936.95	436.00	357.8	4324.49	1224.26	4904.01	410.20	269.7
8.2	5210.71	1223.48	7610.42	434.47	350.8	4314.28	1224.82	4639.68	408.94	264.2
8.3	5185.50	1223.90	7290.51	432.88	343.7	4306.97	1225.45	4368.42	407.72	258.6
8.4	5149.89	1224.29	6981.38	431.16	336.3	4301.07	1226.14	4090.33	406.52	253.0
8.5	5100.61	1224.64	6679.60	429.25	328.6	4294.15	1226.91	3802.16	405.28	247.1
8.6	5041.01	1224.99	6373.97	427.14	320.3	4284.88	1227.80	3496.22	403.95	240.7
8.7	4978.61	1225.36	6064.05	424.95	311.6	4274.21	1228.88	3160.36	402.53	233.6
8.8	4918.44	1225.77	5753.83	422.78	303.5	4264.47	1230.27	2780.89	401.03	225.7
8.9	4859.23	1226.22	5444.20	420.61	295.1	4251.25	1231.89	2383.49	399.48	216.8
9.0	4794.44	1226.62	5150.07	418.40	286.7	4228.88	1233.57	2005.01	397.92	208.0
9.1	4717.10	1226.84	4907.84	416.13	278.8	4188.11	1235.11	1676.80	396.21	199.4
9.2	4624.94	1226.89	4713.82	413.76	271.5	4112.29	1236.10	1442.54	394.02	191.3
9.3	4525.57	1226.87	4533.67	411.27	263.9	3998.83	1236.25	1317.06	391.19	183.9
9.4	4422.59	1226.80	4361.82	408.70	256.4	3861.17	1235.62	1286.28	387.94	177.7
9.5	4315.34	1226.64	4203.04	406.06	249.0	3715.11	1234.44	1319.44	384.55	172.6
9.6	4208.39	1226.45	4054.94	403.42	241.8	3573.79	1233.01	1380.84	381.29	168.3
9.7	4104.11	1226.25	3915.19	400.81	235.0	3445.38	1231.61	1443.70	378.29	164.5
9.8	4002.98	1226.03	3788.12	398.26	228.3	3332.54	1230.37	1493.29	375.59	161.1

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
9.9	3908.74	1225.76	3686.30	395.90	222.8	3235.32	1229.36	1523.70	373.18	157.8
10.0	3801.62	1225.32	3605.12	393.31	217.0	3153.27	1228.60	1532.33	371.06	154.7
10.1	3687.34	1224.80	3519.22	385.59	210.5	3071.49	1227.93	1523.21	363.94	151.6
10.2	3598.56	1224.52	3405.70	383.18	205.0	2967.43	1226.83	1549.42	361.12	147.2
10.3	3531.04	1224.44	3275.64	381.14	199.7	2870.76	1225.59	1600.47	358.61	144.8
10.4	3452.24	1224.25	3152.52	378.85	194.4	2817.51	1225.22	1574.44	357.04	142.2
10.5	3373.12	1224.02	3041.46	376.54	188.9	2800.35	1225.91	1439.72	356.10	138.8
10.6	3318.92	1223.97	2937.43	374.82	185.2	2805.61	1227.46	1230.88	355.62	134.6
10.7	3269.83	1223.96	2833.32	373.22	181.2	2817.97	1229.48	997.89	355.40	130.1
10.8	3218.68	1223.93	2728.20	371.54	177.3	2819.66	1231.40	793.71	355.12	125.7
10.9	3169.92	1223.96	2615.11	369.88	173.3	2801.31	1232.76	646.69	354.42	121.7
11.0	3125.78	1224.06	2493.59	368.29	169.4	2769.07	1233.57	549.41	353.39	118.3
11.1	3082.71	1224.18	2371.39	366.71	165.5	2733.85	1234.12	477.96	352.30	115.4
11.2	3033.10	1224.22	2253.22	364.98	161.5	2701.95	1234.66	411.81	351.34	112.6
11.3	2978.77	1224.19	2143.80	363.14	157.3	2674.46	1235.34	340.97	350.52	109.9
11.4	2917.64	1224.00	2054.52	361.15	153.5	2655.81	1236.24	261.71	349.97	107.4
11.5	2828.28	1223.26	2024.93	358.55	149.4	2634.93	1237.07	183.28	349.40	105.1
11.6	2701.04	1221.73	2072.60	355.13	145.6	2591.18	1237.36	132.54	348.04	102.0
11.7	2555.45	1219.84	2134.30	351.21	141.0	2532.07	1237.23	110.37	346.19	99.0
11.8	2436.12	1218.47	2116.77	347.68	136.2	2469.99	1237.01	96.33	344.28	96.2

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
11.9	2362.55	1218.10	1983.73	344.92	131.5	2387.35	1236.41	96.19	341.42	93.1
12.0	2299.06	1217.99	1823.81	342.21	125.6	2290.04	1235.13	128.95	337.94	88.7
12.1	2231.38	1217.45	1749.89	339.65	122.2	2214.12	1233.88	164.33	335.58	87.4
12.2	2156.97	1216.50	1740.04	337.15	119.1	2164.22	1233.34	169.13	333.89	85.3
12.3	2086.06	1215.54	1733.57	334.74	116.9	2115.02	1232.75	136.58	332.50	83.6
12.4	2000.08	1214.39	1719.46	331.65	113.3	1983.88	1227.32	85.18	328.13	89.1
12.5	1888.23	1212.76	1721.13	327.54	108.5	1842.30	1221.08	68.73	320.75	87.8
12.6	1790.06	1211.21	1731.31	323.87	104.3	1770.92	1219.50	84.20	318.18	87.0
12.7	1699.34	1209.85	1697.05	320.14	100.3	1696.64	1218.10	88.07	315.82	85.9
12.8	1635.43	1208.94	1652.94	317.23	96.5	1625.43	1218.07	69.02	313.51	84.1
12.9	1604.09	1208.60	1605.97	315.61	94.4	1597.64	1219.20	56.24	312.47	84.1
13.0	1562.55	1208.19	1524.04	313.36	91.8	1562.54	1218.43	60.74	311.14	83.7
13.1	1506.14	1207.46	1456.85	310.43	87.3	1478.04	1216.79	57.02	308.37	82.2
13.2	1426.02	1206.05	1435.39	306.58	83.5	1382.20	1215.66	50.38	304.67	80.9
13.3	1341.05	1204.34	1439.95	302.58	80.5	1271.34	1213.67	49.85	300.87	79.4
13.4	1284.05	1202.63	1427.75	300.78	77.8	1148.56	1212.05	44.11	296.93	77.9
13.5	1245.77	1201.26	1370.61	299.99	81.8	1055.04	1211.63	39.42	293.67	76.9
13.6	1219.57	1200.67	1313.42	298.86	80.6	992.54	1211.09	40.57	291.74	76.6
13.7	1176.63	1199.67	1294.43	297.08	79.7	921.42	1209.96	41.28	289.68	76.0
13.8	1109.17	1197.98	1281.82	294.30	77.6	847.66	1209.21	40.34	287.58	75.4

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
13.9	1036.37	1196.13	1258.32	291.69	76.8	783.40	1208.74	40.25	285.91	75.1
14.0	958.19	1194.18	1229.61	289.47	76.2	706.24	1207.53	42.45	284.02	74.6
14.1	872.95	1192.17	1177.32	287.22	75.5	615.42	1205.51	47.28	282.05	74.4
14.2	788.89	1190.28	1097.60	285.16	75.0	520.17	1203.40	51.66	280.37	74.2
14.3	718.62	1188.80	999.35	283.60	74.7	398.36	1202.09	48.53	278.82	73.8
14.4	656.81	1187.68	894.77	282.35	74.4	246.09	1201.97	35.16	277.43	73.6
14.5	600.47	1186.91	814.76	281.31	74.2	128.05	1201.52	20.20	276.64	73.6
14.6	552.32	1186.50	769.06	280.53	74.1	124.91	1198.52	19.51	276.67	73.8
14.7	506.53	1186.20	731.54	279.86	74.0	106.18	1197.65	18.85	276.60	73.6
14.8	466.33	1185.95	689.70	279.30	74.0	25.93	1197.03	6.47	276.43	73.6
14.9	424.01	1185.72	643.05	278.80	73.8	0.00	1178.28	0.12	284.00	73.7
15.0	375.60	1185.54	584.78	278.30	73.8	0.00	1178.14	0.00	271.42	73.5
15.1	337.56	1185.36	529.24	277.94	73.8	0.00	1178.24	0.00	271.43	73.6
15.2	317.03	1185.18	492.40	277.74	73.8	0.00	1178.09	0.00	271.49	73.4
15.3	305.80	1184.98	477.44	277.63	73.8	0.00	1178.09	0.00	271.52	73.4
15.4	281.06	1184.75	461.91	277.46	73.7	0.00	1178.04	0.00	271.59	73.3
15.5	236.22	1184.58	411.74	277.23	73.7	0.00	1177.90	0.00	271.73	73.1
15.6	190.97	1184.41	336.17	276.98	73.7	0.00	1177.81	0.00	271.85	72.9
15.7	159.07	1184.23	273.40	276.77	73.7	0.00	1177.80	0.00	271.87	72.8
15.8	145.83	1184.09	237.46	276.71	73.7	0.00	1177.78	0.00	271.89	72.8



Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
15.9	162.79	1184.08	234.57	276.80	73.8	0.00	1177.83	0.00	271.87	72.9
16.0	204.82	1183.92	287.14	277.05	73.9	0.00	1178.21	0.00	271.48	73.6
16.1	263.22	1183.94	395.96	277.64	73.9	0.00	1178.06	0.00	271.58	73.3
16.2	353.08	1184.07	577.52	278.45	74.5	0.00	1177.94	0.00	271.69	73.1
16.3	364.98	1184.35	642.89	278.36	73.7	0.00	1177.56	0.00	272.04	72.5
16.4	300.17	1184.95	529.82	277.74	73.7	0.00	1177.06	0.00	272.62	71.5
16.5	302.18	1185.10	470.69	277.74	73.9	111.37	1197.18	0.18	277.14	74.1
16.6	346.51	1184.78	526.70	278.13	74.0	132.52	1198.18	0.22	277.78	73.4
16.7	377.87	1184.68	605.16	278.38	74.0	21.16	1203.47	0.05	280.00	73.2
16.8	388.91	1184.93	629.58	278.46	74.0	0.00	1178.09	0.00	271.51	73.4
16.9	404.55	1185.15	643.68	278.67	74.0	0.00	1178.13	0.00	271.53	73.5
17.0	426.13	1185.16	670.75	278.91	74.1	0.00	1178.10	0.00	271.59	73.4
17.1	423.44	1185.24	669.67	278.82	74.0	0.00	1178.20	0.00	271.49	73.6
17.2	414.13	1185.43	651.39	278.72	74.0	0.00	1178.21	0.00	271.48	73.6
17.3	419.35	1185.35	656.09	278.80	74.1	0.00	1178.01	0.00	271.53	73.3
17.4	422.88	1185.38	662.39	278.86	73.9	0.00	1177.81	0.00	271.83	72.9
17.5	463.43	1185.55	718.56	279.57	74.3	0.00	1177.77	0.00	271.92	72.8
17.6	533.97	1185.84	823.64	280.52	74.6	0.00	1178.08	0.00	271.65	73.3
17.7	513.09	1186.16	791.87	280.13	73.8	6.58	1187.22	0.00	272.09	72.2
17.8	450.98	1186.10	693.63	279.12	73.9	106.67	1198.85	0.00	272.62	74.5

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
17.9	478.30	1186.17	730.24	279.88	74.0	110.32	1200.25	0.00	271.27	73.5
18.0	573.32	1186.80	877.21	281.40	75.3	10.23	1206.49	0.00	271.40	73.7
18.1	587.98	1186.84	889.92	281.30	74.1	62.46	1208.55	0.00	271.41	73.8
18.2	531.31	1186.47	779.51	280.27	74.0	94.26	1210.86	0.00	271.75	73.6
18.3	536.99	1186.32	791.79	280.43	74.9	31.80	1215.40	0.00	271.42	73.5
18.4	525.84	1186.22	792.74	280.25	73.9	15.26	1195.91	0.00	271.48	73.6
18.5	483.93	1186.08	736.24	279.57	74.0	82.90	1210.27	0.00	271.91	73.9
18.6	514.15	1186.25	780.92	280.32	74.1	70.67	1213.79	0.00	271.28	73.5
18.7	617.22	1187.39	950.24	282.25	75.1	3.04	1219.95	0.00	271.49	73.4
18.8	667.82	1187.83	1102.16	282.78	74.9	0.00	1178.30	0.00	271.48	73.7
18.9	645.51	1187.42	1141.82	282.31	74.7	0.00	1178.22	0.00	271.48	73.6
19.0	628.92	1187.12	1126.53	282.04	74.6	4.03	1186.52	0.00	271.72	73.1
19.1	622.35	1187.00	1097.76	281.92	74.6	26.97	1193.74	0.00	271.80	74.0
19.2	627.60	1187.10	1089.15	282.03	74.6	22.94	1195.01	0.00	271.96	72.5
19.3	634.07	1187.20	1089.87	282.13	74.8	0.00	1176.90	0.00	272.77	71.2
19.4	628.25	1187.10	1061.93	281.98	74.7	0.00	1176.11	0.00	273.36	69.7
19.5	615.30	1186.87	1021.49	281.73	74.5	0.00	1175.67	0.00	273.59	68.8
19.6	615.67	1186.88	1017.16	281.75	74.6	0.00	1175.75	0.00	273.56	68.9
19.7	622.13	1187.00	1031.23	281.91	74.5	0.00	1176.61	0.00	273.12	70.5
19.8	641.78	1187.36	1071.28	282.31	75.0	131.44	1201.24	0.01	266.67	74.1

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
19.9	660.65	1187.68	1105.49	282.65	74.7	297.04	1208.90	0.03	280.00	73.9
20.0	693.38	1188.33	1156.25	283.34	74.9	99.94	1213.59	0.01	272.33	73.6
20.5	670.39	1187.93	1106.57	282.89	74.9	29.06	1212.19	0.00	271.41	73.6
21.0	627.19	1187.19	1024.96	282.00	75.2	2.35	1214.04	0.00	271.42	73.5
21.5	622.60	1187.31	942.12	282.04	74.2	6.47	1192.30	0.00	271.41	73.6
22.0	686.28	1188.48	987.12	283.37	75.0	17.12	1198.12	0.00	271.40	73.6
22.5	750.89	1189.44	1103.70	284.44	75.1	19.11	1206.91	0.00	271.34	73.6
23.0	685.30	1188.72	852.21	283.60	74.5	8.32	1214.00	0.00	271.44	73.5
23.5	615.57	1187.41	753.03	281.84	74.2	47.88	1208.63	0.00	271.54	73.6
24.0	637.82	1187.44	1130.65	282.45	75.3	59.58	1208.17	0.00	271.45	73.7
24.5	634.17	1187.47	1069.06	282.31	74.6	14.91	1206.76	0.00	271.43	73.7
25.0	574.77	1186.80	887.07	280.95	74.2	4.34	1203.16	0.00	271.41	73.6
25.5	537.79	1185.98	1117.72	280.56	74.5	5.24	1197.52	0.00	271.43	73.7
26.0	511.36	1185.64	1195.69	280.22	74.4	7.49	1198.95	0.00	271.41	73.7
26.5	458.63	1185.30	1158.46	279.44	74.2	12.45	1207.33	0.00	271.43	73.7
27.0	411.02	1184.92	1179.36	278.87	74.2	13.00	1213.62	0.00	271.40	73.7
27.5	372.88	1184.54	1296.24	278.46	74.1	12.37	1221.75	0.00	271.45	73.7
28.0	344.56	1184.22	1409.40	278.22	74.1	9.15	1221.44	0.00	271.41	73.7
28.5	317.63	1184.07	1368.75	277.94	74.0	2.74	1206.24	0.00	271.42	73.7
29.0	291.03	1184.01	1290.63	277.67	74.0	4.29	1207.32	0.00	271.39	73.7

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
29.5	262.84	1183.99	1173.69	277.42	73.9	2.42	1208.45	0.00	271.37	73.7
30.0	239.91	1183.99	1028.93	277.24	73.8	0.17	1208.16	0.00	271.42	73.7
30.5	222.83	1183.93	933.73	277.12	73.8	0.30	1186.83	0.00	271.40	73.7
31.0	206.51	1183.84	852.42	277.02	73.8	1.01	1188.83	0.00	271.39	73.7
31.5	196.63	1183.76	776.21	276.96	73.8	4.08	1201.34	0.00	271.39	73.7
32.0	190.70	1183.69	775.96	276.93	73.8	13.68	1223.72	0.00	271.42	73.7
32.5	179.66	1183.56	854.17	276.88	73.8	19.86	1235.99	0.00	271.40	73.7
33.0	162.66	1183.39	903.59	276.81	73.8	14.99	1240.65	0.00	271.40	73.7
33.5	148.17	1183.26	783.13	276.74	73.7	6.54	1231.93	0.00	271.40	73.7
34.0	141.77	1183.20	623.80	276.71	73.7	3.27	1203.22	0.00	271.33	73.6
34.5	145.56	1183.16	679.51	276.74	73.8	4.76	1210.38	0.00	271.41	73.7
35.0	148.67	1183.06	1109.38	276.79	73.8	2.59	1216.08	0.00	271.40	73.8
35.5	143.83	1182.84	1858.91	276.87	73.8	16.90	1208.62	0.00	271.55	73.4
36.0	137.78	1182.56	2537.08	276.93	73.9	23.19	1208.76	0.00	271.46	73.8
36.5	132.72	1182.38	2826.84	276.96	74.0	12.90	1214.29	0.00	271.42	73.7
37.0	129.98	1182.29	2876.72	276.97	74.0	9.91	1219.01	0.00	271.40	73.7
37.5	128.23	1182.24	2964.72	276.99	74.0	8.40	1208.43	0.00	271.49	73.8
38.0	127.47	1182.17	3154.39	277.03	74.1	8.06	1204.87	0.00	271.40	73.7
38.5	126.26	1182.12	3340.97	277.06	74.1	6.62	1217.32	0.00	271.41	73.7
39.0	123.70	1182.09	3378.19	277.04	74.1	9.45	1230.39	0.00	271.40	73.7

Time (seconds)	Reactor Vessel Side					Steam Generator Side				
	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
39.5	119.88	1182.10	3245.16	276.97	74.1	13.37	1239.57	0.00	271.40	73.7
40.0	115.99	1182.13	3085.22	276.91	74.0	17.92	1244.92	0.00	271.41	73.7
40.5	113.36	1182.14	3022.42	276.89	74.0	17.58	1246.55	0.00	271.41	73.7
41.0	111.45	1182.12	3045.18	276.88	74.0	18.08	1247.27	0.00	271.41	73.7
41.5	108.87	1182.10	3107.73	276.87	74.0	18.19	1247.50	0.00	271.38	73.7
42.0	105.23	1182.09	3179.22	276.85	74.0	18.37	1247.68	0.00	271.42	73.7
42.5	100.54	1182.08	3197.31	276.81	74.0	18.19	1247.58	0.00	271.41	73.7
43.0	95.27	1182.06	3102.78	276.71	73.9	17.86	1247.60	0.00	271.42	73.7
43.5	89.48	1182.07	2936.29	276.57	73.7	16.11	1247.82	0.00	271.41	73.7
44.0	81.96	1182.14	2729.48	276.49	73.7	6.77	1246.77	0.00	271.40	73.7
44.5	73.11	1182.20	2494.15	276.47	73.7	1.37	1242.27	0.00	271.39	73.7
45.0	63.95	1182.27	2241.93	276.46	73.7	0.01	1232.88	0.00	271.40	73.7
45.5	55.22	1182.38	1956.43	276.44	73.7	0.00	1178.26	0.00	271.40	73.7
46.0	47.90	1182.48	1663.32	276.43	73.7	0.00	1190.48	0.00	271.40	73.7
46.5	42.12	1182.55	1402.24	276.42	73.7	0.00	1190.48	0.00	271.40	73.7
47.0	38.02	1182.57	1176.52	276.42	73.7	0.00	1178.26	0.00	271.40	73.7
47.5	35.43	1182.54	984.30	276.42	73.7	0.00	1178.26	0.00	271.40	73.7
48.0	33.13	1182.46	796.83	276.41	73.7	0.00	1178.27	0.00	271.40	73.7
48.5	27.86	1182.33	576.53	276.41	73.7	0.00	1178.26	0.00	271.40	73.7
49.0	20.12	1182.33	360.50	276.40	73.7	0.00	1178.26	0.00	271.40	73.7

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
49.5	15.66	1182.63	205.44	276.40	73.7	2.83	1199.98	0.00	271.40	73.7
50.0	14.31	1182.88	109.99	276.40	73.7	10.68	1224.31	0.00	271.41	73.7
50.5	13.18	1183.07	50.45	276.42	73.7	16.67	1242.89	0.00	271.40	73.7
51.0	12.51	1183.25	19.05	276.40	73.7	18.05	1252.86	0.00	271.40	73.7
51.5	12.21	1183.43	6.73	276.36	73.7	19.22	1253.45	0.00	271.41	73.7
52.0	11.87	1183.61	2.34	276.42	73.7	18.79	1252.25	0.00	271.41	73.7
52.5	11.56	1183.83	0.85	276.80	73.7	18.10	1251.16	0.00	271.40	73.7
53.0	10.61	1184.05	0.31	275.97	73.7	19.19	1250.40	0.00	271.41	73.7
53.5	8.27	1184.17	0.11	268.52	73.7	20.75	1249.60	0.00	271.41	73.7
54.0	7.05	1184.30	0.04	282.05	73.7	25.68	1248.39	0.00	271.41	73.7
54.5	7.30	1184.63	0.02	294.12	73.7	31.30	1246.59	0.00	271.42	73.7
55.0	7.41	1185.11	0.01	271.39	73.7	33.32	1244.62	0.00	271.42	73.7
55.5	9.39	1185.63	0.01	271.40	73.7	31.63	1243.25	0.00	271.42	73.7
56.0	12.10	1185.99	0.01	250.00	73.7	25.44	1242.73	0.00	271.41	73.7
56.5	13.96	1186.32	0.01	307.69	73.7	22.89	1243.26	0.00	271.41	73.7
57.0	14.70	1186.66	0.01	307.69	73.7	24.77	1243.80	0.00	271.41	73.7
57.5	14.90	1186.69	0.03	264.71	73.7	25.35	1243.97	0.00	271.41	73.7
58.0	14.52	1186.24	0.09	271.74	73.7	25.52	1244.02	0.00	271.41	73.7
58.5	13.35	1185.60	0.16	280.49	73.7	25.61	1244.01	0.00	271.41	73.7
59.0	15.18	1185.26	0.22	277.27	73.7	25.57	1244.01	0.00	271.41	73.7

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
59.5	19.13	1185.31	0.23	273.50	73.7	25.64	1244.02	0.00	271.41	73.7
60.0	25.72	1184.02	99.31	276.41	73.7	25.82	1243.98	0.00	271.41	73.7
61.0	30.04	1182.83	427.22	276.41	73.7	26.16	1243.96	0.00	271.41	73.7
62.0	31.92	1182.15	831.35	276.41	73.7	27.06	1243.80	0.00	271.41	73.7
63.0	30.90	1182.08	1148.93	276.41	73.7	27.87	1243.49	0.00	271.41	73.7
64.0	30.37	1182.05	1655.04	276.43	73.7	28.48	1243.22	0.00	271.42	73.7
65.0	32.75	1182.00	2211.42	276.44	73.7	29.14	1242.96	0.00	271.42	73.7
66.0	37.71	1181.93	2669.84	276.46	73.7	29.89	1242.70	0.00	271.42	73.7
67.0	43.89	1181.88	3053.06	276.47	73.7	26.48	1242.64	0.00	271.42	73.7
68.0	46.17	1181.94	3056.26	276.46	73.7	24.54	1243.47	0.00	271.42	73.7
69.0	44.31	1182.08	2662.50	276.45	73.7	25.42	1244.21	0.00	271.41	73.7
70.0	42.25	1182.21	2283.35	276.44	73.7	24.27	1244.49	0.00	271.41	73.7
71.0	39.46	1182.33	1940.20	276.43	73.7	24.15	1244.81	0.00	271.41	73.7
72.0	36.35	1182.40	1619.69	276.42	73.7	24.19	1245.02	0.00	271.41	73.7
73.0	34.16	1182.41	1433.50	276.42	73.7	23.40	1245.13	0.00	271.41	73.7
74.0	32.39	1182.37	1420.85	276.42	73.7	15.34	1243.79	0.00	271.38	73.7
75.0	29.01	1182.34	1379.54	276.41	73.7	14.94	1246.29	0.00	271.41	73.7
76.0	25.21	1182.27	1133.99	276.41	73.7	21.09	1248.61	0.00	271.41	73.7
77.0	20.49	1182.07	768.40	276.41	73.7	13.71	1248.25	0.00	271.40	73.7
78.0	13.07	1182.03	327.82	276.40	73.7	8.49	1249.98	0.00	271.40	73.7

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
79.0	6.98	1182.44	52.21	276.41	73.7	7.54	1252.99	0.00	271.40	73.7
80.0	7.00	1183.19	4.79	276.36	73.7	10.24	1257.64	0.00	271.40	73.7
81.0	13.08	1183.97	0.48	275.68	73.7	28.12	1253.17	0.00	271.42	73.7
82.0	16.95	1184.69	0.08	281.44	73.7	38.06	1248.07	0.00	271.43	73.7
83.0	16.93	1185.64	0.02	275.00	73.7	32.77	1243.86	0.00	271.42	73.7
84.0	15.74	1186.35	0.00	271.40	73.7	29.90	1243.17	0.00	271.42	73.7
85.0	12.49	1186.69	0.00	271.40	73.7	29.73	1243.22	0.00	271.42	73.7
86.0	9.03	1186.89	0.00	271.39	73.7	30.38	1243.21	0.00	271.42	73.7
87.0	7.06	1187.06	0.00	271.39	73.7	31.34	1243.04	0.00	271.42	73.7
88.0	7.32	1187.16	0.00	271.39	73.7	31.83	1242.80	0.00	271.42	73.7
89.0	8.50	1187.17	0.00	271.39	73.7	33.49	1242.50	0.00	271.42	73.7
90.0	9.96	1187.12	0.00	271.40	73.7	25.08	1242.66	0.00	271.40	73.7
91.0	9.49	1186.28	0.10	279.19	73.7	11.93	1244.52	0.00	271.41	73.7
92.0	6.89	1184.72	0.13	276.00	73.7	6.03	1238.16	0.00	271.40	73.7
93.0	5.98	1184.21	0.04	271.43	73.7	4.40	1229.30	0.00	271.39	73.7
94.0	11.56	1184.14	29.04	276.43	73.7	14.76	1250.61	0.00	271.41	73.7
95.0	20.35	1182.98	457.00	276.41	73.7	23.87	1252.59	0.00	271.41	73.7
96.0	24.11	1182.12	1181.10	276.42	73.7	22.32	1250.36	0.00	271.41	73.7
97.0	26.24	1182.04	1662.26	276.43	73.7	11.46	1247.09	0.00	271.39	73.7
98.0	30.59	1182.00	2074.41	276.44	73.7	2.40	1210.96	0.00	271.41	73.7



Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
99.0	33.02	1182.01	2352.03	276.44	73.7	2.51	1199.28	0.00	271.41	73.7
100.0	34.11	1182.08	2242.85	276.44	73.7	3.16	1199.39	0.00	271.39	73.7
101.0	41.00	1182.01	2530.23	276.45	73.7	2.13	1199.49	0.00	271.41	73.7
102.0	43.05	1182.07	2549.61	276.45	73.7	1.54	1195.93	0.00	271.40	73.7
103.0	40.88	1182.19	2217.35	276.44	73.7	3.94	1201.74	0.00	271.40	73.7
104.0	42.66	1182.17	2200.29	276.44	73.7	8.60	1226.53	0.00	271.40	73.7
105.0	42.50	1182.22	2064.81	276.43	73.7	7.67	1236.21	0.00	271.40	73.7
106.0	39.63	1182.30	1863.45	276.43	73.7	10.23	1248.74	0.00	271.40	73.7
107.0	35.08	1182.36	1655.03	276.42	73.7	19.95	1251.28	0.00	271.41	73.7
108.0	31.95	1182.34	1542.39	276.42	73.7	22.72	1251.14	0.00	271.41	73.7
109.0	30.93	1182.29	1489.64	276.42	73.7	26.43	1248.84	0.00	271.42	73.7
110.0	31.95	1182.24	1542.24	276.42	73.7	29.30	1246.86	0.00	271.42	73.7
111.0	34.72	1182.19	1710.75	276.43	73.7	29.98	1245.53	0.00	271.42	73.7
112.0	38.13	1182.15	1939.91	276.43	73.7	29.70	1244.89	0.00	271.42	73.7
113.0	41.41	1182.12	2170.53	276.44	73.7	29.36	1244.79	0.00	271.41	73.7
114.0	45.61	1182.06	2419.51	276.45	73.7	30.54	1244.69	0.00	271.42	73.7
115.0	47.92	1182.05	2583.92	276.45	73.7	20.10	1243.91	0.00	271.40	73.7
116.0	41.84	1182.20	2215.63	276.44	73.7	10.62	1236.42	0.00	271.40	73.7
117.0	31.86	1182.38	1646.20	276.42	73.7	8.76	1237.16	0.00	271.41	73.7
118.0	21.12	1182.35	1068.09	276.41	73.7	3.06	1247.95	0.00	271.40	73.7

Reactor Vessel Side						Steam Generator Side				
Time (seconds)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (Btu/lbm)	Pressure (psi)	Gas Mass Flow (lbm/sec)	Gas Enthalpy (Btu/lbm)	Liquid Mass Flow (lbm/sec)	Liquid Enthalpy (lbm/sec)	Pressure (psi)
119.0	7.80	1182.31	382.58	276.41	73.7	1.84	1196.98	0.00	271.40	73.7
120.0	1.89	1182.72	58.32	276.40	73.7	20.89	1228.71	0.00	271.42	73.7
121.0	2.77	1182.88	9.00	276.35	73.7	38.09	1231.78	0.00	271.42	73.7