Appendix 9A. Tables

Table 9-1. Spent Fuel Cooling System Data, Units 1, 2

System Design Pressure, psig	125
System Design Temperature, °F	250
Spent Fuel Coolers A&B	
Type	Shell and tube
Material Shell/Tube	SS/SS
Capacity, Btu/hr/cooler	27.2×10^6
Cooling Water Flow, lb/hr/cooler	5×10^5
Code	ASME VIII, III-C
Spent Fuel Cooler C	
Type	Plate
Material	SS
Capacity, Btu/hr	27.2×10^6
Cooling Water Flow, lb/hr	5×10^5
Code	ASME III-3
Spent Fuel Pumps	
Type	Horizontal, centrifugal
Material	SS
Design Flow, gal/min	1,000
Design Head, ft H_2O	100 (Pumps A&B) 110 (Pump C)
Motor Horsepower, hp	40
Spent Fuel Pool Volume, ft^3	73,000
Spent Fuel Filters	
Design Flow, gal/min	180
Material	SS
Design Pressure, psig	150
Design Temperature, °F	200
Code	ASME III-C
Borated Water Recirculation Pump	
Type	Vertical, inline, centrifugal
Material	SS
Design Flow, gal/min	180
Design Head, ft H_2O	140

Motor Horsepower, hp	15
Design Pressure, psig	125
Design Temperature, °F	250
Spent Fuel Demineralizer	
Type	Mixed bed
Material	SS
Resin Volume, ft^3	21
Design Flow, gal/min	180
Design Pressure, psig	125
Design Temperature, °F	250
Code	ASME III-C

Table 9-2. Spent Fuel Cooling System Data, Oconee 3

System Design Pressure, psig	125
System Design Temperature, °F	215
Spent Fuel Coolers A and B	
Type	Tube and shell
Material Tube/Shell	SS/SS
Design Heat Rate, BTU/hr/cooler	27.2×10^6
Cooling Water Flow, lb/h/cooler	5×10^5
Design Inlet Temp., °F	205
Design Outlet Temp., °F	150.6
Code	ASME VIII/III-C
Spent Fuel Cooler C	
Type	Plate
Material	SS
Capacity, Btu/hr	27.2×10^6
Cooling Water Flow, lb/hr	5.0×10^5
Code	ASME III-3
Spent Fuel Pumps	
Type	Horizontal, centrifugal
Material	SS
Flow, gal/min	1,000
Design Head, ft H_2O	100
Motor Horsepower, hp	40
Spent Fuel Pool Volume, ft^3	50,000
Spent Fuel Filters	
Design Flow Rate, gal/min	180
Material	SS
Design Temperature, °F	200
Design Pressure, psig	125

Code	ASME III-C
Borated Water Recirculation Pump	
Type	Vertical, inline, centrifugal
Material	SS
Flow, gal/min	180
Head, ft H_2O	140
Motor Horsepower, hp	15
Design Temperature, °F	250
Design Pressure, psig	125
Spent Fuel Demineralizer	
Type	Mixed bed
Material	SS
Resin Volume, ft^3	21
Flow, gal/min	180
Design Temperature, °F	250
Design Pressure, psig	125
Code	ASME III-C

Table 9-3. Component Cooling System Performance Data (For Normal Operation on a Per Oconee Basis)

Number of Component Cooling Pumps	2
Number of Pumps Normally Operating	1
Design Flow, gpm	766
Number of Component Coolers	
Oconee 1 and 2	1 + 1 Shared Spare
Oconee 3	2
Number of Coolers Normally Operating	1
Design Heat Removal Requirements, Btu/h per cooler	19×10^6

Table 9-4. Cooling Water Systems Component Data (Component Data on a Per Unit Basis)

Parameter	Value
Note: This table contains the original selected nominal design points for few key components. It is not intended to convey design limits or nominal operating conditions. It is not a comprehensive list of components.	
Condenser Circulating Water Pumps	4 per unit
Flow (per pump), gal/min	177,000
Design temperature, °F	90
Total Developed Head at Rated Flow, psig	12.4, at rated flow
High Pressure Service Water Pumps	2 for all units
Flow (per pump), gal/min	6,000
Design temperature, °F	75
Design pressure, psig	117
High Pressure Service Water Jockey Pump	1 for all units
Flow (per pump), gal/min	500
Design temperature, °F	75
Design pressure, psig	117
Low Pressure Service Water Pumps	5 for all units
Flow (per pump), gal/min	15,000
Design temperature, °F	75
Design pressure, psig	65
Recirculated Cooling Water Pumps (Units 1 & 2)	4 shared
Flow (per pump), gal/min	2,400
Design temperature, °F	105
Design pressure, psig	100
Recirculated Cooling Water Pumps (Unit 3)	2
Flow (per pump), gal/min	2,050
Design temperature, °F	150
Design pressure, psig	100
Recirculated Cooling Water Heat Exchangers (Units 1 & 2)	4 shared
Type	Shell and tube
Recirculating cooling water flow, each (shellside), gal/min	1,800

Parameter	Value
Recirculating cooling water inlet temperature, °F	105
Recirculating cooling water outlet temperature, °F	90
Condenser circulating water inlet temperature, °F	80°F
Design pressure, shell/tube, psig	100/50
Design temperature, shell/tube, °F	200/200
Tube material	Admiralty metal (SB-111)
Recirculated Cooling Water Heat Exchangers (Unit 3)	2
Type	Flat plate
Recirculating cooling water flow, each, gal/min	1,800
Recirculating cooling water inlet temperature, °F	109
Recirculating cooling water outlet temperature, °F	89
Condenser circulating water inlet temperature, °F	80
Design pressure, psig	150
Design temperature, °F	150
Plate material	SA-240
Shell material	SA515-70
Essential Siphon Vacuum Pumps	3 per Unit
Type	Liquid ring
Design flow	300 ACFM @ 2l" Hg. Vacuum

Table 9-5. Chemical Addition and Sampling System Component Data

Tanks	
Boric Acid Mix Tank	
Type	Vertical cylindrical
Volume, ft^3	500
Design Pressure, psig	Atmospheric
Design Temperature, °F	250
Material	Al
Code	USAS B96.1
Lithium Hydroxide Mix Tank	
Type	Vertical cylindrical
Volume, gal.	50
Design Pressure, psig	Atmospheric
Design Temperature, °F	140
Material	SS
Caustic Mix Tank	
Type	Vertical cylindrical
Volume, gal.	150
Design Pressure, psig	Atmosphere
Design Temperature, °F	200
Material	SS
Reactor Building TSP Baskets	
Number per unit	7
Mass of TSP per unit	16,000 lbs
Material	SS
Pumps	
Boric Acid Pump	
Type	Reciprocating, variable stroke
Capacity, gal/min	10
Maximum Discharge Pressure, psig	75
Design Pressure, psig	100
Design Temperature, °F	200
Pump Material	SS

Boric Acid Pump (Core Flood Tanks)	
Type	Reciprocating, variable stroke
Capacity, gal/min	1
Maximum Discharge Pressure, psig	630
Design Pressure, psig	700
Design Temperature, °F	300
Pump Material	SS
Lithium Hydroxide Pump	
Type	Reciprocating, variable stroke
Capacity, gal/hr	10
Maximum Discharge Pressure, psig	75
Design Pressure, psig	250
Pump Material	SS
Hydrazine Pump	
Type	Reciprocating, variable stroke
Capacity, gal/hr	10
Maximum Discharge Pressure, psig	100
Design Pressure, psig	100
Design Temperature, °F	200
Pump Material	SS
Caustic Pump	
Type	Reciprocating, variable stroke
Capability, gal/min	2
Maximum Discharge Pressure, psig	50
Design Pressure, psig	100
Design Temperature, °F	200
Pump Material	SS
Pressurizer Sample Cooler	
Type	Shell and spiral tube
Rated Capacity, Btu/h	2.1×10^5
Sample Flow Rate, lb/h	200
Maximum Sample Inlet Temperature, °F	650
Sample Outlet Temperature, °F	120

Cooling Water Flow, lb/h	5,000
Design Temperature Shell/Tube, °F	250/670
Design Pressure Shell/Tube, psig	150/2,500
Code	ASME Sec. III-C & VIII

Steam Generator Sample Cooler	
Type	Shell and spiral tube
Rated Capacity, Btu/h	2.3×10^5
Sample Flow Rate, lb/h	500
Sample Inlet/Outlet Temperature, °F	535/100
Cooling Water Flow, lb/h	5,000
Design Temperature Shell/Tube, °F	300/600
Design pressure Shell/Tube, psig	150/1,050
Code	ASME Sec. VIII

Table 9-6. High Pressure Injection System Performance Data

Nominal Letdown Flow, Cold, gal/min	45
Letdown Flow Maximum, Cold, gal/min	140
Seal Flow to Each Reactor Coolant Pump (excluding makeup), gal/min (Oconee 1)	8
Seal Inleakage to Reactor Coolant System per Reactor Coolant Pump, gal/min (Oconee 1)	5.8 (1A1, 1B2), 6.0 (1A2, 1B1)
Total Seal Flow to Each Reactor Coolant Pump, gal/min (Oconee 2, 3)	10
Seal Inleakage to Reactor Coolant System per Reactor Coolant Pump, gal/min (Oconee 2, 3)	8.5
Injection Pressure to Reactor Coolant Pump Seals, psig	2,190
Temperature to Seals, normal/maximum, °F	120/150
Purification Letdown Fluid Temperature, normal/maximum, °F	120/135
Letdown Storage Tank Normal Operating Pressure, psig	20 - 40
Letdown Storage Tank Volume Between Minimum and Maximum Operating Levels, ft^3	250

Table 9-7. High Pressure Injection System Component Data

High Pressure Injection Pump	
Type	Vertical, multistage, centrifugal, mechanical seal
Capacity, gal/min	(See Figure 6-16)
Head, ft H_2O (at sp. gr. = 1)	(See Figure 6-16)
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/h	16.0×10^6
Letdown Flow, lb/h	3.5×10^4
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/h	2×10^5
Code	ASME Sec. 111-C & VIII
Reactor Coolant Pump Seal Return Cooler	
Type	Shell and tube
Heat Transferred, Btu/h	2.2×10^6
Seal Return Flow, lb/hr	1.25×10^5
Seal Flow Inlet/Outlet Temperature, °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/h	1.25×10^5
Code	ASME Sec. III-C & VIII
Letdown Storage Tank	
Volume, ft^3	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^3	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
Reactor Coolant Pump Seal Injection Filter	
Design Flow Rate, gal/min	50
Material	SS
Design Temperature, °F	200
Design Pressure, psig	3,050 @ 200°F / 3350 @ 150°F
Code	USAS B 31.7, class II
Reactor Coolant Pump Seal Return Filter	
Design Flow Rate, gal/min	50
Material	SS
Design Temperature, °F	286 (Unit 1), 200 (Units 2&3)
Design Pressure, psig	150
Code	ASME Sec. III-C

Table 9-8. Low Pressure Injection System Performance Data

Reactor Coolant Temperature at Startup of Decay Heat Removal, °F	250
Time to Cool Reactor Coolant System From 250°F to 140°F, hr	14
Refueling Temperature, °F	140
Fuel Transfer Canal Fill Time, hr	Not Used
Fuel Transfer Canal Drain Time, hr	8 (nominal)
Boron Concentration in Borated Water Storage Tanks, ppm	Per Core Operating Limits Report

Table 9-9. Low Pressure Injection System Component Data

Pump (3 per unit)	
Type centrifugal	Single stage,
Capacity, gal/min	3,000
Head at Rated Capacity, ft H_2O	350
Motor Horsepower, hp	400
Material	SS (wetted parts)
Design Pressure, psig	560/580
Design Temperature, °F	300/250
Cooler (each) (Oconee 1, 2) (2 per unit)	
Type	Shell and tube
Capacity (at 140°F), Btu/hr	60×10^6
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/Tube	150/515 (1) 150/370 (2)
Design Temperature, °F	250 (1) 300 (2)
Code, Shell/Tube	ASME Section III-C, III, and VIII
Cooler (each) (Oconee 3)	
Type	Shell and Tube
Capacity (at 140°F), Btu/h	60×10^6
Reactor Coolant Flow, gpm	6,000
Low Pressure Service Water Flow, gpm	6,000
Low Pressure Service Water Inlet Temp. °F	75°
Material, Shell/Tube	CS/SS
Shell Design Pressure, psig	150
Tube Design Pressure, psig	470/505
Shell Design Temperature, °F	300
Tube Design Temperature, °F	300/250
Code Shell/Tube	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

Note:

1. A Cooler Units 1&2
2. B Cooler Units 1&2

Table 9-10. Coolant Storage System Component Data (Component Quantities for Three Units)

Reactor Coolant Bleed Holdup Tank	
Number	6
Volume each, cu. ft.	11,000
Material	Stainless Steel
Design Pressure	Vessel Full Plus 10 ft. Hydro Head
Deborating Demineralizer[1]	
Number	5
Resin Volume, cu. ft	62.8
Flow, gal/min	70
Design Pressure, psig	150
Concentrated Boric Acid Storage Tank	
Number	3
Volume each, cu. ft	3,000
Material	Aluminum
Design	Vessel Full Plus 10 ft. Hydro Head
Quench Tank	
Number	3
Volume each, cu. ft.	780
Material	Stainless Steel
Design Pressure, psig	55
Reactor Coolant Bleed Transfer Pump	
Number	6
Capacity each, gal/min	150
Diff. Head, ft.	220
Concentrated Boric Acid Storage Tank Pump	
Number	3
Capacity each, gal/min	50
Type	Centrifugal
Component Drain Pump	
Number	3
Capacity each, gal/min	100
Diff. Head, ft.	100

Coolant Bleed Evaporator Demineralizer	
Number	2
Resin Volume, cu. ft.	11
Flow, gal/min	20
Design Pressure, psig	150
Condensate Demineralizer	
Number	2
Resin Volume, cu. ft.	2
Flow, gal/min	20
Design Pressure, psig	50
Coolant Bleed Evaporate Recirculating Pump	
Number	1
Capacity, gal/min	160
Diff. Head, ft.	53
Distillate Pump	
Number	1
Capacity, gal/min	7-12
Diff. Head, ft.	60
Coolant Bleed Evaporate Feed Pump	
Number	1
Capacity, gal/min	7½
Diff. Head, ft.	60

Note:

1. These demineralizers may be loaded with mixed bed and used as purification demineralizers to support normal purification and boron/lithium coordination programs.

Table 9-11. Ventilation System Major Component Data

System	Equipment	Number Installed	Number Required Normal Operation
Control Room Zone Units 1 & 2	Air Handling Unit [1]	2	1
	Air Handling Unit	1	1
	Air Handling Unit	1	1
	Air Handling Unit	2	2
	Air Handling Unit	2	2
	Booster Fan	2	0
	Outside Air Filter Train	2	0
	Cable Shaft Motorized Dampers	4	4
Control Room Zone Unit 3	Air Handling Unit [1]	2	1
	Air Handling Unit	2	1
	Air Handling Unit	2	1
	Booster Fans	2	0
	Outside Air Filter Train	2	0
Auxiliary Building Units 1 & 2	Ventilation Unit [2] (Spent Fuel Pool)	1	1
	Exhaust Fan (Spent Fuel Pool)	2	1
	Ventilation Unit	1	1
	Ventilation Unit	1	1
	Ventilation Unit	1	1
	Exhaust Fan	2	1
	Exhaust Fan	2	1
	Exhaust Fan	3	2
Auxiliary Building Unit 3	Ventilation Unit [2] (Spent Fuel Pool)	1	1
	Exhaust Fan (Spent Fuel Pool)	2	1
	Ventilation Unit	2	1
	Ventilation Unit	1	1
	Exhaust Fans	3	2
Hot Machine Shop	Exhaust Fans	3	2

System	Equipment	Number Installed	Number Required Normal Operation
	Air Handling Unit [3]	1	1
	Air Handling Unit	1	1
	Booster Fan	2	2
	Outside Air Filter Train	2	2
Turbine Building	Roof Exhaust Fans	12	12
	Exhaust Fans	18	18

Note:

1. Air Handling Units consist of a fan, roughing filters, and chilled water coil.
2. Ventilation Units consist of a fan, service water coil, and steam heating coil.
3. Air Handling Units consist of a fan, roughing filters and direct expansion (DX) coil.

Table 9-12. Deleted Per 2002 Update.

Table 9-13. Component Cooling System Component Data (Component Data on a Per Unit Basis)

Parameter	Value
Component Cooling Pumps	
Type	Centrifugal
Rated Capacity, gpm	766
Rated Head, ft, H_2O	220
Motor Nameplate Horsepower, hp	60
Casing Material	CS
Design Pressure, psig	150
Design Temperature, °F	225
Component Coolers (Oconee 1)	
Type	Shell and Tube
Capacity, Btu/h	19×10^6
Component Cooling Water Inlet Temp, °F	150
Component Cooling Water Outlet Temp, °F	100
Code	ASME Section VIII
Component Coolers (Oconee 2, 3)	
Type	Shell and Tube
Capacity, Btu/h	19×10^6
Component Cooling Water Inlet Temp, °F	150
Component Cooling Water Outlet Temp, °F	100
Code	ASME Section VIII
Surge Tank	
Volume, ft^3	50
Material	CS
Design Pressure, psig	Atmospheric
Design Temperature, F	200
Code	AWWA D-100

Parameter	Value
Control Rod Drive Filter	
Design Flow Rate, gal/min	140
Code	ASME Section VIII

Table 9-14. SSF System Main Components

SSF RC Makeup Pump	
Quantity	1/Unit
Design Pressure (psig)	2790
Design Temperature (°F)	220
Design Flow Rate (gpm)	29 design
Design Head (psig)	2250 normal/ 2790 max.
Type	Pos. Disp.
Material of Construction	S. S.
Fluid	Borated Water
SSF RC Makeup Filter	
Quantity	1/Unit
Design Pressure (psig)	2790
Design Temperature (°F)	220
Design Flow Rate (gpm)	78
Normal Flow Rate (gpm)	29
Retention for 5-Micron Particles (%)	98
Material of Construction	S. S.
Fluid	Borated Water
SSF Auxiliary Service Water Pump	
Quantity	1/Station
Nameplate Design Pressure (psig)	1440
Nameplate Design Temperature (°F)	150
Design Flow Rate (gpm)	1975
Design Head (ft)	2730
Type	
Material of Construction	C. S.
Type	Centrifugal
Fluid	River Water
HVAC Service Water Pump	
Quantity	2/Station
Design Pressure (psig)	210
Design Temperature (°F)	110

Design Flow Rate (gpm)	55
Design Head (ft)	378.5 @55 gpm, pump #1 388.5 @55 gpm, pump #2
Type	Centrifugal
Material of Construction	C. S.
Fluid	Strained River Water
Diesel Engine Service Water Pump	
Quantity	1/Station
Design Pressure (psig)	100
Design Temperature (°F)	110
Design Flow Rate (gpm)	500
Design Head (ft)	90
Type	Centrifugal
Material of Construction	C. S.
Fluid	Strained River Water
SSF Service Water Strainer	
Quantity	1/Station
Design Pressure (psig)	60
Design Temperature (°F)	110
Design Flow Rate (gpm)	600
Mesh Size (inch)	0.1
Deleted row(s) per 2010 Update	
Type	Duplex
Material of Construction	C. S.
SSF Sump Pump	
Quantity	2/Station
Nameplate Design Pressure (psig)	75
Design Temperature (°F)	100
Design Flow Rate (gpm)	100
Design Head from Pump Head Curve (ft)	44
Type	Centrifugal, Vertical Cantilever
Material of Construction	C. S.
Fluid	Floor Drain Liquid

Diesel Engine Fuel Oil Storage Tank	
Quantity	1/Station
Capacity (gal)	50,000
Material of Construction	C. S.
Location	Yard, Underground
Fuel Oil Day Tank	
Quantity	1/Station
Capacity (gal)	550
Material of Construction	C. S.
Location	SSF, Generator Room
Diesel Engine Fuel Oil Transfer Pump	
Quantity	1/Station
Nameplate Design Pressure (psig)	150
Nameplate Design Temperature (°F)	125
Design Flow Rate (gpm)	13.6
Differential Pressure (psid)	30
Type	Rotary
Material of Construction	C. S.
Fluid	No. 2 Diesel Fuel Oil
SSF Fuel Oil Transfer Filter	
Quantity	2/Station
Design Pressure (psig)	150
Design Temperature (°F)	125
Design Flow Rate (gpm)	20
Retention for 25-Micron Particles (%)	99
Maximum Pressure Drop @ 65% Plugged (ft)	32
Type	Duplex Arrangement
Material of Construction	S. S.
Fuel Oil Recirculation Pump	
Quantity	1/Station
Design Pressure (psig)	30
Design Temperature (°F)	90
Design Flow Rate (gpm)	30

Design Head (ft)	32
Type	Rotary
Material of Construction	C. I.
Fluid	No. 2 Diesel Fuel Oil
Fuel Oil Recirculation Filter	
Quantity	1/Station
Design Pressure (psig)	30
Design Temperature (°F)	90
Design Flow Rate (gpm)	30
Retention for 25-Micron Particles (%)	100
Maximum Pressure Drop @ 65% Plugged (ft)	13.5
Type	Simplex
Material of Construction	S. S.
Unloading Oil Spill Sump Pump	
Quantity	1/Station
Design Pressure (psig)	35
Design Temperature (°F)	100
Design Flow Rate (gpm)	32
Type	Centrifugal, Submersible
Material of Construction	C. I.
Fluid	Groundwater and No. 2 Fuel Oil Spillage

Table 9-15. SSF Primary Valves

Valve No.	Control Room Control	SSF Control	SSF D/G Powered	New Valve	Description
FDW-347	No	Yes	Yes	Yes	EFW to "B" OTSG
CCW-269	No	Yes	Yes	Yes	EFW Crossover
CCW-268	No	Yes	Yes	Yes	SSF ASW Throttle Valve
CCW-287	No	Yes	Yes	Yes	SSF ASW Block Valve
HP-3	Yes	Yes	Yes	No	Letdown
HP-4	Yes	Yes	Yes	No	Letdown
HP-20	Yes	Yes	Yes	No	RCP Seal Return
HP-398	No	Yes	Yes	Yes	RCS Makeup Pump Discharge
HP-405	No	Yes	Yes	Yes	RCS Makeup Test
HP-417	No	Yes	Yes	Yes	RCS Makeup Recirculation
HP-426	No	Yes	Yes	Yes	RCS Letdown to Fuel Pool
HP-428	No	Yes	Yes	Yes	Fuel Transfer Tube RCMU Return Iso.
SF-82	No	Yes	Yes	Yes	RCS Makeup Pump Suction
SF-97	No	Yes	Yes	Yes	Fuel Transfer Tube RCMU Supply Isol.
LP2 [(1)]	Yes	No	No	No	Decay Heat Line
LP103	No	Yes	Yes	No	Alt. Decay Heat Line
RC-4	Yes	Yes	Yes	No	PORV Block
RC-5	Yes	Yes	Yes	No	Press. Stm. Sample Isol.
RC-6	Yes	Yes	Yes	No	Press. Wtr. Sample Isol.
RC-159	Yes	No[(2)]	Yes[(2)]	No	
RC-160	Yes	No[(2)]	Yes[(2)]	No	

Valve No.	Control Room Control	SSF Control	SSF D/G Powered	New Valve	Description

Note:

1. This valve is closed, power is removed from the feeder breaker that supplies power to the motor operator, and the feeder breaker is locked during the MODES of Applicability for the SSF with respect to the applicable unit(s). Therefore, no power is required from the SSF power system to operate this valve. In addition to the above table, certain RCS vent lines should be isolated during an SSF event. Each line has two solenoid operated (control room control only) valves in series, a vent valve and a vent block valve. Closure of either the vent or the vent block valve is necessary. These valves are:

a. RC-155 "A" OTSG Hot Leg Vent

b. RC-156 "A" OTSG Hot Leg Vent Block

c. RC-157 "B" OTSG Hot Leg Vent

d. RC-158 "B" OTSG Hot Leg Vent Block

e. RC-159 Reactor Vessel Head Vent

f. RC-160 Reactor Vessel Head Vent Block

2. Control of the RV head vent valves will be accomplished using a portable control panel.

Table 9-16. SSF Instrumentation

PARAMETER MONITORED	INSTRUMENT NO.
RCS Loop A Pressure	PT 225
RCS Loop B Pressure	PT 226
SSF RC Makeup Pump	
Suction Pressure	PT 223
Discharge Pressure	PT 227
Suction Temperature	RD 174
Discharge Flow	FT 157
RC System Temperature	RD-85A,-84A,-8A,-7B,-6A,-5B
Pressurizer Water Level	LT 72
Unit 1 Pressurizer Pressure	1RC PT0224, 1RC P0236
Unit 2 Pressurizer Pressure	2RC PT0224, 2RC P0236
Unit 3 Pressurizer Pressure	3RC PT0224, 3RC P0236
SSF Auxiliary Service Water Water Pump	
Suction Pressure	PG 435
Discharge Pressure	PG 430, PG 431
Unit 1 Discharge Pressure	1 PG 434
Unit 2 Discharge Pressure	2 PG 434
Unit 3 Discharge Pressure	3 PG 434
Discharge Test Flow	FT 71
Suction Temperature	TH 102
Unit 1 Flow	1 FT 225 (1 FE 226, 1P 353)
Unit 2 Flow	2 FT 225 (2 FE 226, 2P 353)
Unit 3 Flow	3 FT 225 (3 FE 226, 3P 353)
Minimum Flow Line Flow	FE 230 (PG 867)
Unit 1 Steam Generator Levels A, B	LT 66, LT 67
Unit 2 Steam Generator Levels A, B	LT 66, LT 67
Unit 3 Steam Generator Levels A, B	LT 66, LT 67
Underground Fuel Oil Storage Tank Level	LT 50
Incore Thermocouples	
D/G Service Water Pump Discharge Flow	FT 73
HVAC Service Water Pump Discharge Flow	FT 72

Table 9-17. Design Basis Tornado Missiles And Their Impact Velocities

No.	Missile Descriptions	Weight (lbs.)	Impact Area (sq. in.)	Design Impact Velocity (Ft/Sec)	
				Horizontal	Vertical
1	WOOD PLANK, 3.62 in. x 11.37 in. x 12 ft.	115	41.2	272	190
2	STEEL PIPE, 6 in. diam. 15 ft. long, Schedule 40	287	34.5	171	120
3	STEEL ROD, 1 in. diam., 3 ft. long	8.8	0.79	167	117
4	UTILITY POLE, 13.5 in. diam., 35 ft. long	1124	143.1	180	126
5	STEEL PIPE, 12 in. diam., 15 ft. long, Schedule 40	750	127.68	154	108
6	AUTOMOBILE, 28 sq. ft. frontal area	3990	4032.0	194	136

Table 9-18. Design Basis Tornado Missiles Minimum Barrier Thicknesses

	Modified Petry Formula				Modified N.D.R.C. Formula			
Missile	Penetration Depth Horiz Strike (D)	Min. Thickness (3D)	Penetration Depth Vert. Strike (D)	Min. Thickness (3D)	Penetration Depth Horiz. Strike (D)	Min. Thickness (D)	Penetration Depth Vert. Strike (D)	Min. Thickness (D)
1	2.64	7.92	1.39	4.17	4.07	12.21	2.95	8.85
2	3.39	10.17	1.72	5.16	4.39	13.17	3.19	9.57
3	4.77	14.31	2.41	7.23	2.02	6.06	1.46	4.38
4	3.54	10.62	1.79	5.37	6.85	20.55	4.97	14.91
5	1.96	5.88	0.99	2.97	4.97	14.91	3.61	10.83
6	0.51	1.53	0.26	0.78	7.08	21.24	5.14	15.42

Note:

1. All Penetration Depths are calculated based on a concrete strength f'c of 5000 PSI.
2. All Penetration Depths and Minimum Barrier Thicknesses are in inches.

Table 9-19. Codes and Specifications For Design of Category I Structures

Structural Component	Design Codes and Specifications
Concrete	ACI 318-71
Concrete Reinforcement	ASTM A615-72, Grades 40 and 60
Cadwelds	Regulatory Guide No. 1.10, Rev. 1 (1)
Structural Steel and Plates	ASTM A-36 AISC, Seventh Edition

Note:

1. Valid test results are used. A valid test is a test whose failure is in the Cadwell Splice and not in the bar or near testing machine grips. Test samples for B Series Splices will be sister Splices only.

Abbreviations:

ACI American Concrete Institute

AISC American Institute of Steel Construction

ASTM American Society for Testing and Materials

Table 9-20. Reverse Osmosis System Data, Common to Units 1 & 2

Reverse Osmosis Feed Booster Pump	
Type	Two Stages
Horsepowerof Motor	2
Material	SS
Process Flow, Gal/min	65 (design)
Design Head, feet H_2O	75
Reverse Osmosis Feed Pump	
Type	Horizontal, Single Stage, gear-driven
Horsepowerof Motor	SS
Material	40
Process Flow, Gal/min	65 (design)
Design Head, feet H_2O	1025
Reverse Osmosis Membrane Filter Housings	
Quantity	6
Material	SS
Process Flow, Gal/min	Varies (<65)
Design Pressure, psig	600
Code	Inspection and Testing: ASME B31.1
	Materials: ASME B&PV II