

Table 4.3-1a

REACTOR RECIRCULATION SYSTEM
DESIGN CHARACTERISTICS
(Pre-Upgraded)

External Loops	
Number of Loops	2
Pipe Sizes (nominal o.d.)	
Pump Suction,in	28
Pump Discharge,in	28
Discharge Manifold,in	22 (Units 1 & 2), 12 & 22 (Unit 3)
Recirculation Inlet Line,in	12
Equalizer Line,in (Unit 2 only)	22
Design Pressure (psig)/Design Temperature(°F)	
Suction Piping	1148/562
Discharge Piping	1326/562
Pumps	1500/575
Operation at Warranted Conditions	
Recirculation Pump	
Flow gpm (approximate)	45,200
Flow,lb/hr	17.1×10^6
Total Developed Head,ft	710
Suction Pressure (static),psia	1,032
Available NPSH*(min.),ft	500
Water Temperature (max.),°F	528
Pump Hydraulic HP (min.),hp	6,130
Flow Velocity at Pump Suction, fps (approximate)	27.5
Variable Frequency Drives (Units 1, 2, and 3) and Power Supply	
Frequency (at warranted),Hz	56
Frequency (operating range),Hz	11.5-57.5
Total Required Power to Variable Frequency Drive (Units 1, 2, and 3)	
kW/set	6,730
kW total	13,460
Jet Pumps	
Number	20
Total Jet pump flow,lb/hr	102.5×10^6
Throat I.D.,in	8.18
Diffuser I.D.,in	19.0
Nozzle I.D.,in. (representative)	3.14
Diffuser Exit Velocity,ft/sec	15.3
Jet Pump Head,ft	76.1

* Includes velocity head.

Table 4.3-1b

REACTOR RECIRCULATION SYSTEM
DESIGN CHARACTERISTICS
(Uprated)

External Loops	
Number of Loops	2
Pipe Sizes (nominal o.d.)	
Pump Suction,in	28
Pump Discharge,in	28
Discharge Manifold,in	22 (Units 1 & 2), 12 & 22 (Unit 3)
Recirculation Inlet Line,in	12
Equalizer Line,in (Unit 2 only)	22
Design Pressure (psig)/Design Temperature(°F)	
Suction Piping	1148/562
Discharge Piping	1326/562
Pumps	1500/575
Operation at Uprated License Conditions (100% Core Flow)	
Recirculation Pump	
Flow gpm (approximate)	46,533
Flow,lb/hr	17.7×10^6
Total Developed Head,ft	628.2
Suction Pressure (static),psia	1,060
Available NPSH*(min.),ft	533
Water Temperature (suction),°F	531
Pump Hydraulic HP,hp	6,456
Flow Velocity at Pump Suction, fps (approximate)	30.1
Variable Frequency Drive (Units 1, 2, and 3) and Power Supply	
Frequency (at uprated license conditions - 100% Core Flow),Hz	54
Frequency (operating range),Hz	11.5-57.5
Total Required Power to Variable Frequency Drive (Units 1, 2, and 3)	
hp/set	8,624
hp total	17,248
Jet Pumps	
Number	20
Total Jet pump flow,lb/hr	102.5×10^6
Throat I.D.,in	8.18
Diffuser I.D.,in	19.0
Nozzle I.D.,in. (representative)	3.14
Diffuser Exit Velocity,ft/sec	15.3
Available Jet Pump Suction NPSH, ft	466
Available Jet Pump Nozzle NPSH, ft	461

* Includes velocity head.