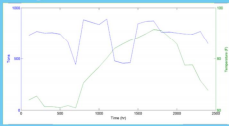


UI SOUTH CHILLER

TEAM: JUST CHILLIN'
ALI ALMATER - CHRIS THILMONY - DARVIN THORNTON - PATRICK FROME

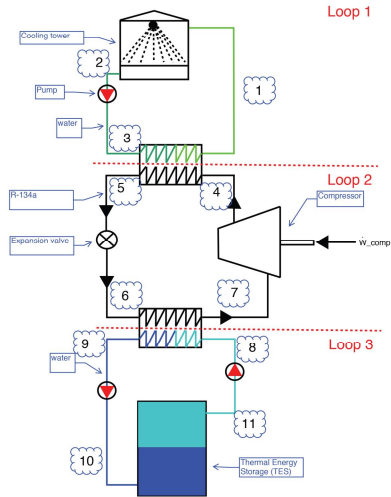


Project Statement: "Data collected from the South Chiller's current operating conditions suggest opportunities for increased efficiency, leading to savings in operating costs."

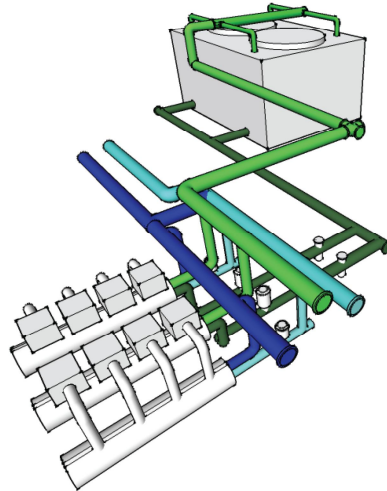


THERMODYNAMIC SYSTEM MODEL/ OPERATING CYCLE

OPERATING CYCLE



SYSTEM MODEL



THERMODYNAMIC MODEL

Unit Settings: Eng F psia mass deg
 h_{ref} = 0.07
 CG = R134a
 Flow = 6433 [ft³/hr]
 m₀ = 72574 [lb_m/hr]
 Power = 799123 [Btu/hr]
 Q_{cool} = 6.115E+06 [Btu/hr] (509.4 [Ton])
 ρ = 62.39 [lb_m/ft³]
 W_{comp,1} = 64797 [Btu/hr] (18.99 [kW])

KEY VARIABLES
 Q_{cool} = 5.353E+06 [Btu/hr] (446 [Ton])
 W_{comp,1} = 696237 [Btu/hr] (203.8 [kW])
 m₀ = 401345 [lb_m/hr]
 m₁ = 651084 [lb_m/hr]
 m₂ = 72574 [lb_m/hr]

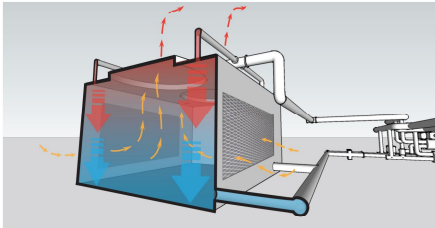
f13 = "Steam_IAPWS"
 f35 = "Steam_IAPWS"
 m1 = 651084 [lb_m/hr]
 m2 = 401345 [lb_m/hr]
 Q_{cool} = 6.048E+06 [Btu/hr] (504 [Ton])
 Q_{cool} = 5.353E+06 [Btu/hr] (446 [Ton])
 W_{comp,1} = 695237 [Btu/hr] (203.8 [kW])

Arrays Table: Main

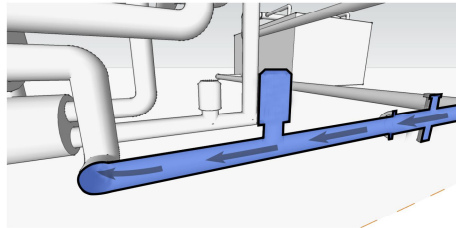
	T _i	P _i	h _i	x _i
	[F]	[psia]	[Btu/lb]	
1	81.6	0.5346	49.66	0
2	72.2	0.3915	40.27	0
3	72.3	0.3929	40.37	0
4	96.95	98.75	118.3	100
5	70.42	98.75	34.92	-100
6	22.74	35.13	34.92	0.1791
7	-33.6	35.13	106.7	100
8	54.2	0.208	22.27	0
9	40.9	0.1261	8.937	0

SYSTEM COMPONENTS

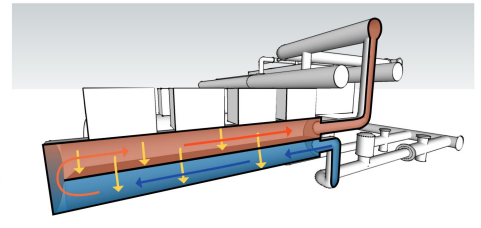
EVAPORATOR



PUMPS



HEAT EXCHANGER



INSTRUMENTATION

FLOW



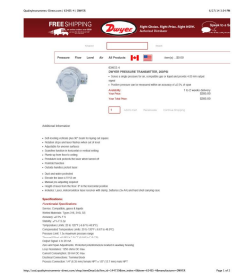
TEMPERATURE



VOLTAGE



PRESSURE



PROJECT PROGRESS

