

System Summary Report

GT PRO 20.0 David Oehl						
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Plant Configuration: GT, HRSG, and condensing non-reheat ST						
One GE LM2500+PR Engine, One Steam Turbine, GT PRO Type 6, Subtype 3						
Steam Property Formulation: Thermoflow - STQUIK						
SYSTEM SUMMARY						
	Power Output kW		LHV Heat Rate BTU/kWh		Elect. Eff. LHV%	
	@ gen. term.	net	@ gen. term.	net	@ gen. term.	net
Gas Turbine(s)	27775		9056		37.68	
Steam Turbine(s)	7232					
Plant Total	35006	31101	7185	8087	47.49	42.19
PLANT EFFICIENCIES						
PURPA efficiency	CHP (Total) efficiency		Power gen. eff. on		Canadian Class 43	
%	%		chargeable energy, %		Heat Rate, BTU/kWh	
43.31	44.42		43.23		7598	
GT fuel HHV/LHV ratio =			1.107			
DB fuel HHV/LHV ratio =			1.107			
Total plant fuel HHV heat input / LHV heat input =			1.107			
Fuel HHV chemical energy input (77F/25C) =			278464	kBTU/hr	77351	BTU/s
Fuel LHV chemical energy input (77F/25C) =			251524	kBTU/hr	69868	BTU/s
Total energy input (chemical LHV + ext. addn.) =			251524	kBTU/hr	69868	BTU/s
Energy chargeable to power (93.0% LHV alt. boiler) =			245491	kBTU/hr	68192	BTU/s
GAS TURBINE PERFORMANCE - GE LM2500+PR						
	Gross power	Gross LHV	Gross LHV Heat Rate	Exh. flow	Exh. temp.	
	output, kW	efficiency, %	BTU/kWh	kpph	F	
per unit	27775	37.68	9056	661	955	
Total	27775			661		
Number of gas turbine unit(s) =			1			
Gas turbine load [%] =			100		%	
Fuel chemical HHV (77F/25C) per gas turbine =			278464	kBTU/hr	77351	BTU/s
Fuel chemical LHV (77F/25C) per gas turbine =			251524	kBTU/hr	69868	BTU/s
STEAM CYCLE PERFORMANCE						
HRSG eff.	Gross power output	Internal gross	Overall	Net process heat output		
%	kW	elect. eff., %	elect. eff., %	kBTU/hr		
76.00	7232	21.09	16.03	5610		
Number of steam turbine unit(s) =			1			
Fuel chemical HHV (77F/25C) to duct burners =			0	kBTU/hr	0	BTU/s
Fuel chemical LHV (77F/25C) to duct burners =			0	kBTU/hr	0	BTU/s
DB fuel chemical LHV + HRSG inlet sens. heat =			153946	kBTU/hr	42763	BTU/s
Net process heat output as % of total output =			5.021		%	

System Summary Report

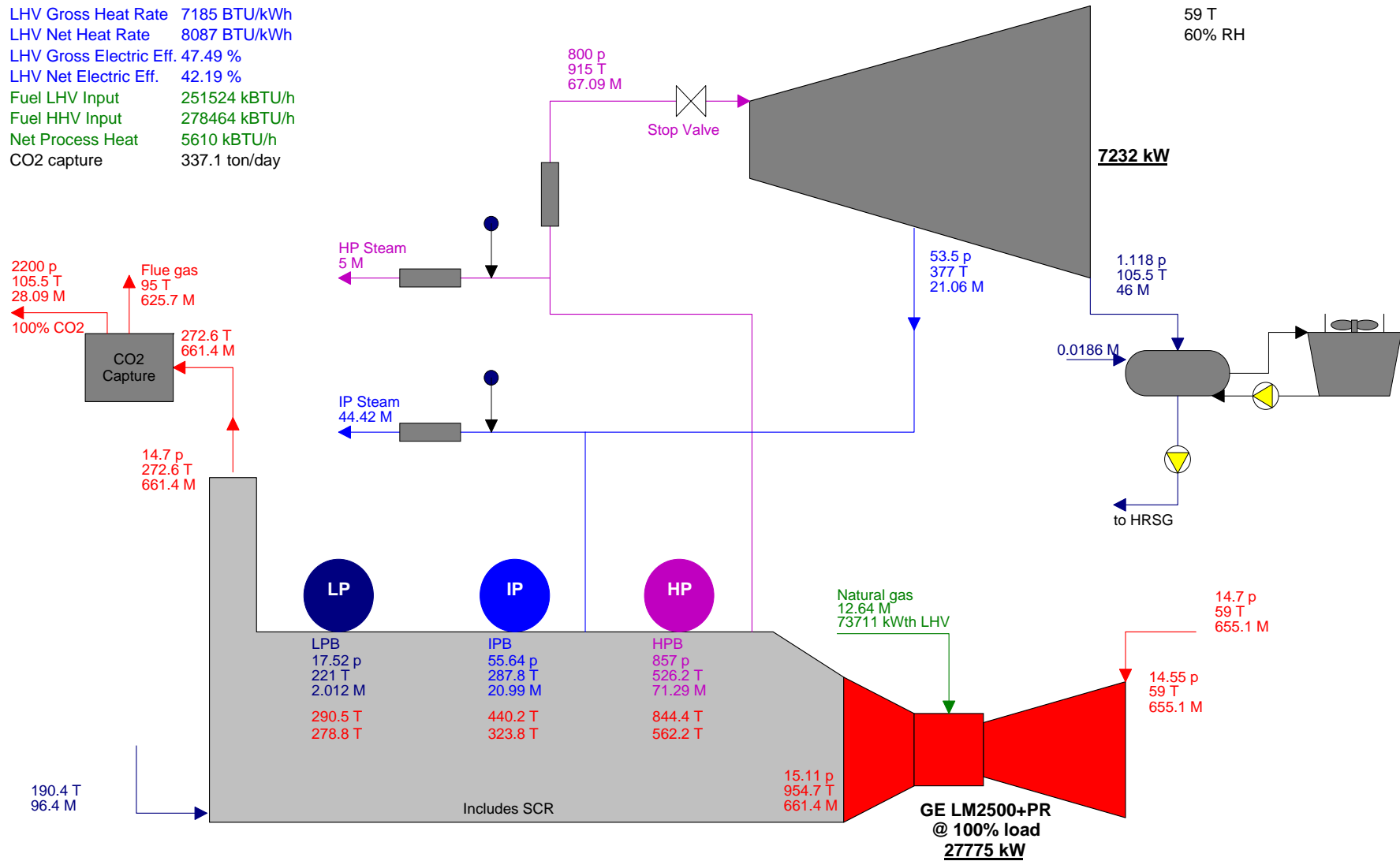
ESTIMATED PLANT AUXILIARIES (kW)		
GT fuel compressor(s)*	470.6	kW
GT supercharging fan(s)*	0	kW
GT electric chiller(s)*	0	kW
GT chiller/heater water pump(s)	0	kW
HRSG feedpump(s)*	116	kW
Condensate pump(s)*	3.822	kW
HRSG forced circulation pump(s)	0	kW
LTE recirculation pump(s)	0	kW
Cooling water pump(s)	29.51	kW
Air cooled condenser fans	0	kW
Cooling tower fans	110.5	kW
HVAC	15	kW
Lights	23	kW
Aux. from PEACE running motor/load list	216.5	kW
Miscellaneous gas turbine auxiliaries	57.1	kW
Miscellaneous steam cycle auxiliaries	15.55	kW
Miscellaneous plant auxiliaries	17.5	kW
Constant plant auxiliary load	0	kW
Gasification plant, ASU*	0	kW
Gasification plant, coal mill	0	kW
Gasification plant, AGR*	0	kW
Gasification plant, other/misc	0	kW
Desalination plant auxiliaries	0	kW
CO2 capture plant auxiliaries*	2655.5	kW
Program estimated overall plant auxiliaries	3731	kW
Actual (user input) overall plant auxiliaries	3731	kW
Transformer losses	175	kW
Total auxiliaries & transformer losses	3906	kW
* Heat balance related auxiliaries		

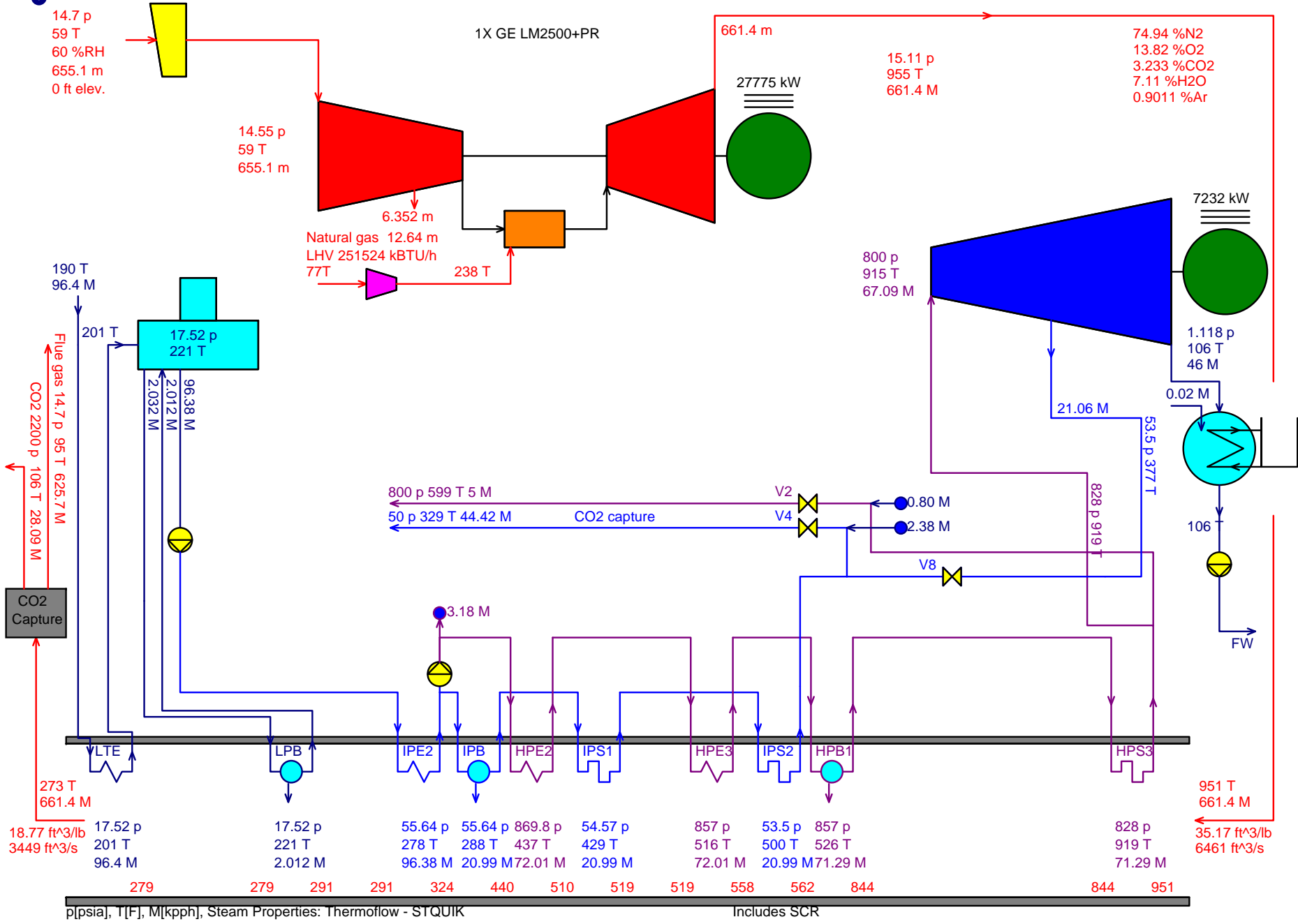
System Summary Report

PLANT HEAT BALANCE			
Energy In	83358	BTU/s	
Ambient air sensible	1189.4	BTU/s	
Ambient air latent	1235.1	BTU/s	
Fuel enthalpy @ supply	77632	BTU/s	
External gas addition to combustor	0	BTU/s	
Steam and water	0	BTU/s	
Makeup and process return	213	BTU/s	
CO2 capture condensate return	3089	BTU/s	
Energy Out	83358	BTU/s	
Net power output	29479	BTU/s	
Stack gas sensible	11077	BTU/s	
Stack gas latent	8887	BTU/s	
GT mechanical loss	279.3	BTU/s	
GT gear box loss	0	BTU/s	
GT generator loss	540.1	BTU/s	
GT miscellaneous losses	317	BTU/s	
GT ancillary heat rejected	83.03	BTU/s	
GT process air bleed	0	BTU/s	
Fuel compressor mech/elec loss	66.91	BTU/s	
Supercharging fan mech/elec loss	0	BTU/s	
Condenser	12147	BTU/s	
Process steam	1764.2	BTU/s	
Process water	0	BTU/s	
Blowdown	123.8	BTU/s	
Heat radiated from steam cycle	471.3	BTU/s	
ST/generator mech/elec/gear loss	187.4	BTU/s	
Non-heat balance related auxiliaries	459.4	BTU/s	
Transformer loss	165.9	BTU/s	
CO2 capture auxiliary	2517.1	BTU/s	
Steam to CO2 capture	14793	BTU/s	
Energy In - Energy Out	-0.3203	BTU/s	-0.0004 %
Zero enthalpy: dry gases & liquid water @ 32 F (273.15 K)			
Gas Turbine and Steam Cycle: Energy In - Energy Out = -.3249 BTU/s			

GT PRO 20.0 David Oehl
 Gross Power 35006 kW
 Net Power 31101 kW
 Aux. & Losses 3906 kW
 LHV Gross Heat Rate 7185 BTU/kWh
 LHV Net Heat Rate 8087 BTU/kWh
 LHV Gross Electric Eff. 47.49 %
 LHV Net Electric Eff. 42.19 %
 Fuel LHV Input 251524 kBTU/h
 Fuel HHV Input 278464 kBTU/h
 Net Process Heat 5610 kBTU/h
 CO2 capture 337.1 ton/day

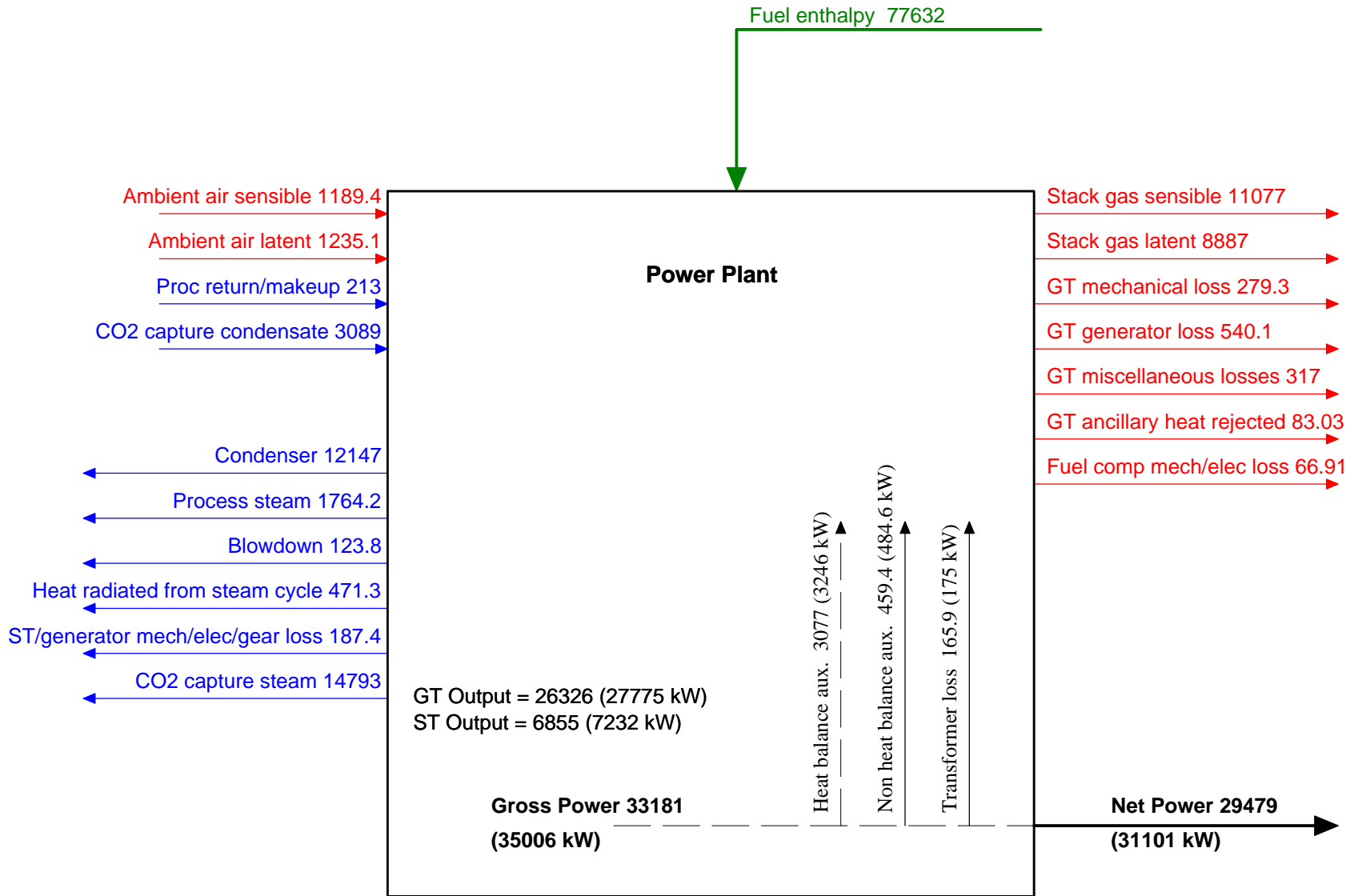
Ambient
 14.7 P
 59 T
 60% RH





Fuel chemical LHV input = 69868 BTU/s
 Fuel chemical HHV input = 77351 BTU/s

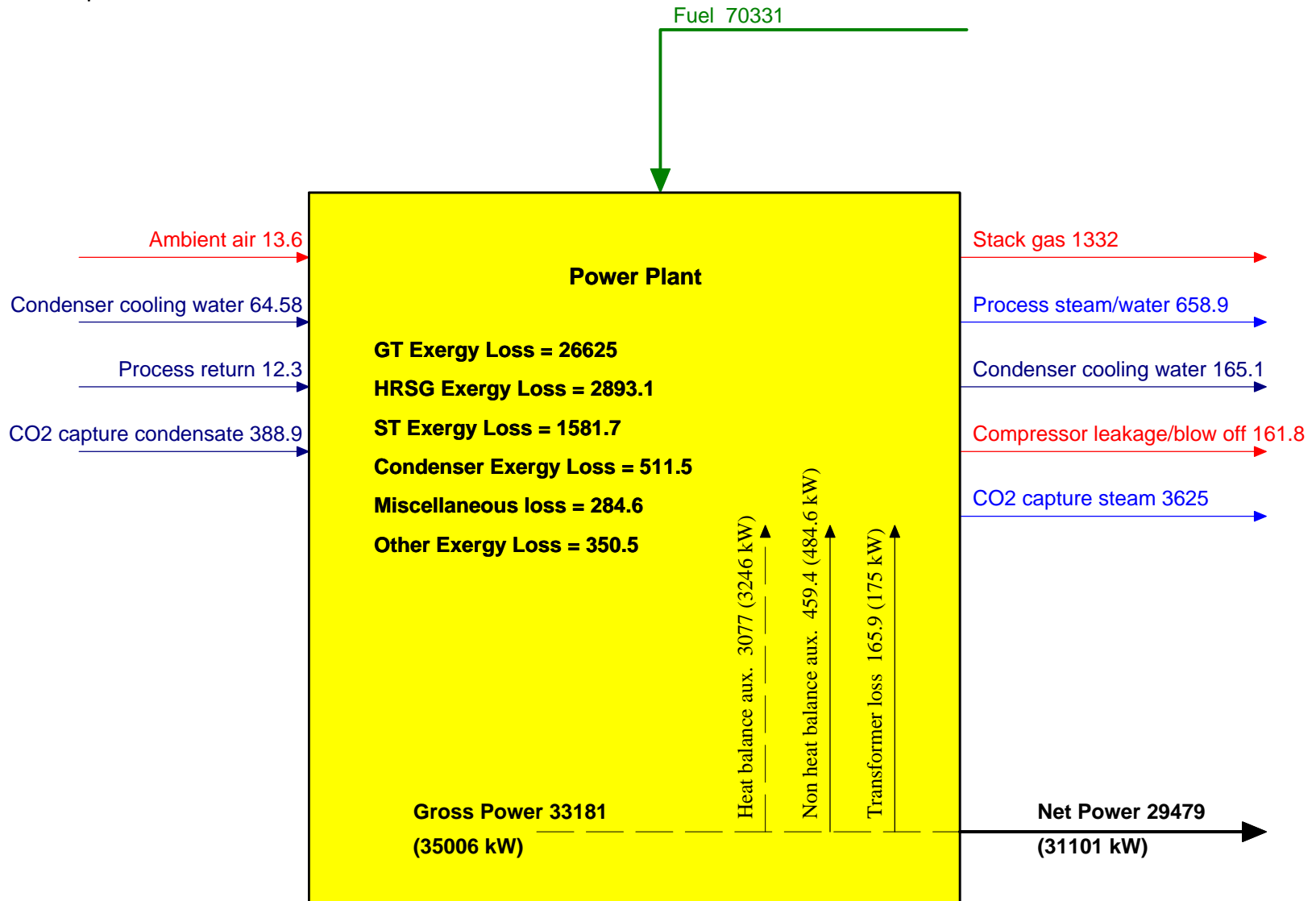
Power Plant Energy Flow Schematic [BTU/s]



Zero enthalpy: dry gases & liquid water @ 32 F (273.15 K)

Fuel exergy input = 70331 BTU/s
 Fuel chemical LHV input = 69868 BTU/s
 Fuel chemical HHV input = 77351 BTU/s

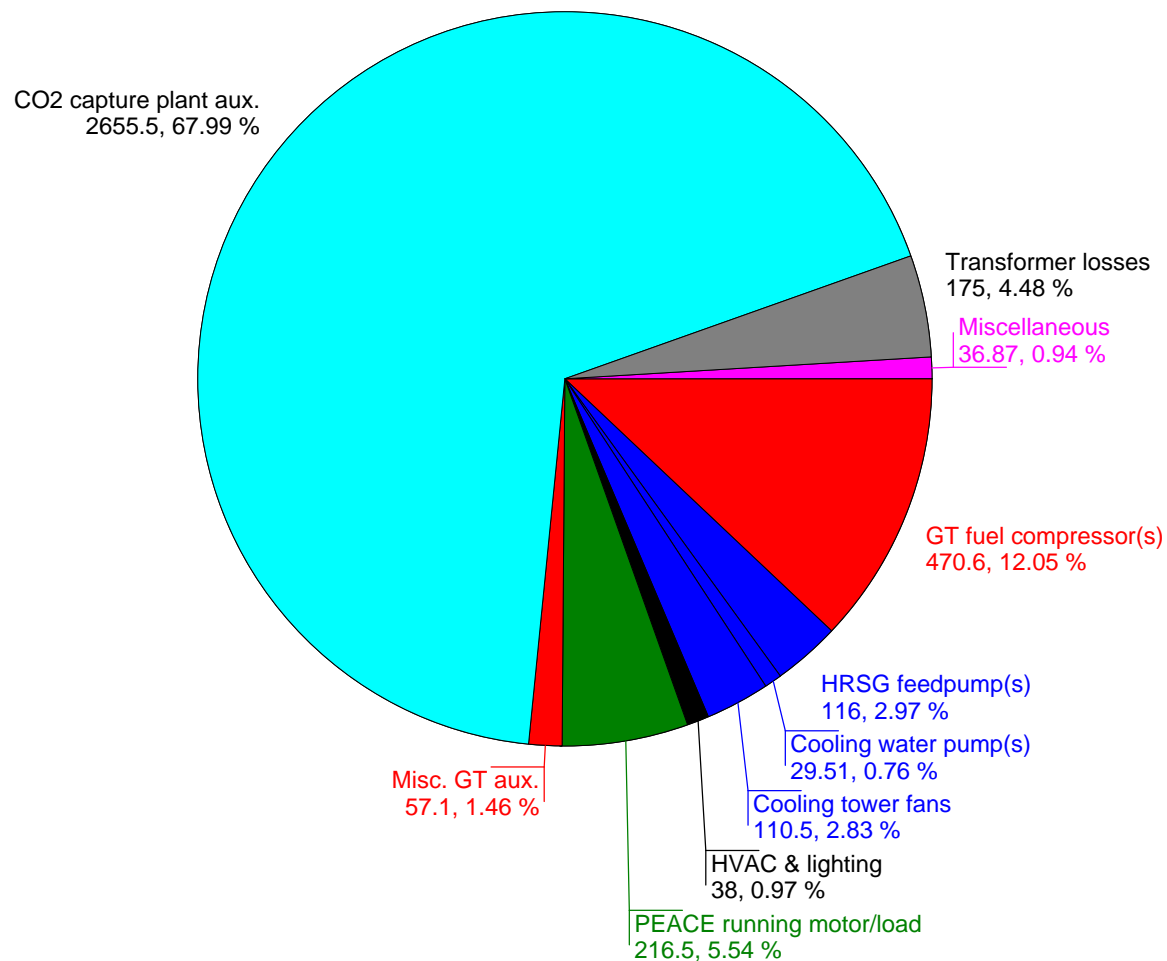
Power Plant Exergy Flow Schematic [BTU/s]



Reference: 14.696 psia, 77 F, water as vapor.

Auxiliaries & Losses [kW]

Total auxiliaries & transformer losses = 3906 kW



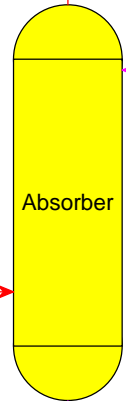
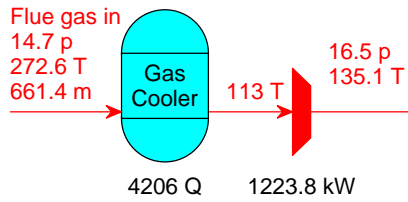
CO2 Capture Plant Flow Diagram

Flue gas out

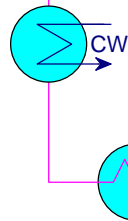
Vol%	Pressure	Temperature	Enthalpy
N2 78.52 %	14.7 p	14.7 T	625.7 m
O2 14.48 %		95 T	
CO2 0.5082 %			
H2O 5.548 %			
SO2 0 %			
Ar 0.9442 %			

Flue gas in

Vol%	Pressure	Temperature	Enthalpy
N2 74.94 %	14.7 p	272.6 T	661.4 m
O2 13.82 %			
CO2 3.233 %			
H2O 7.11 %			
SO2 0 %			
Ar 0.9011 %			



Solvent pumps: 109.5 kW
Rich solvent: 561.8 kpph



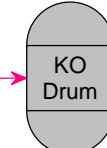
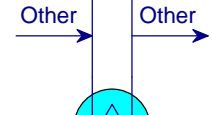
Makeup solvent
0.0112 m



Reboiler
11704 Q
Ps = 50 psia
Ts = 281 F

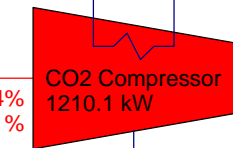
Lean solvent

CW out
99.5 T
2789.6 m



25 p
95 T
28.48 m
CO2: 96.74%
H2O: 3.261%

Condensate



CW in
69.5 T
2985 m

69.52 T
76.98 kW

2789.6 m

99.5 T
195.4 m

195.4 m

CO2
2200 p
105.5 T
28.09 m

Vol%
CO2: 100 %
H2O: 0 %

From gas pretreatment
and/or knockout drum
7.208 m

Drain
7.59 m

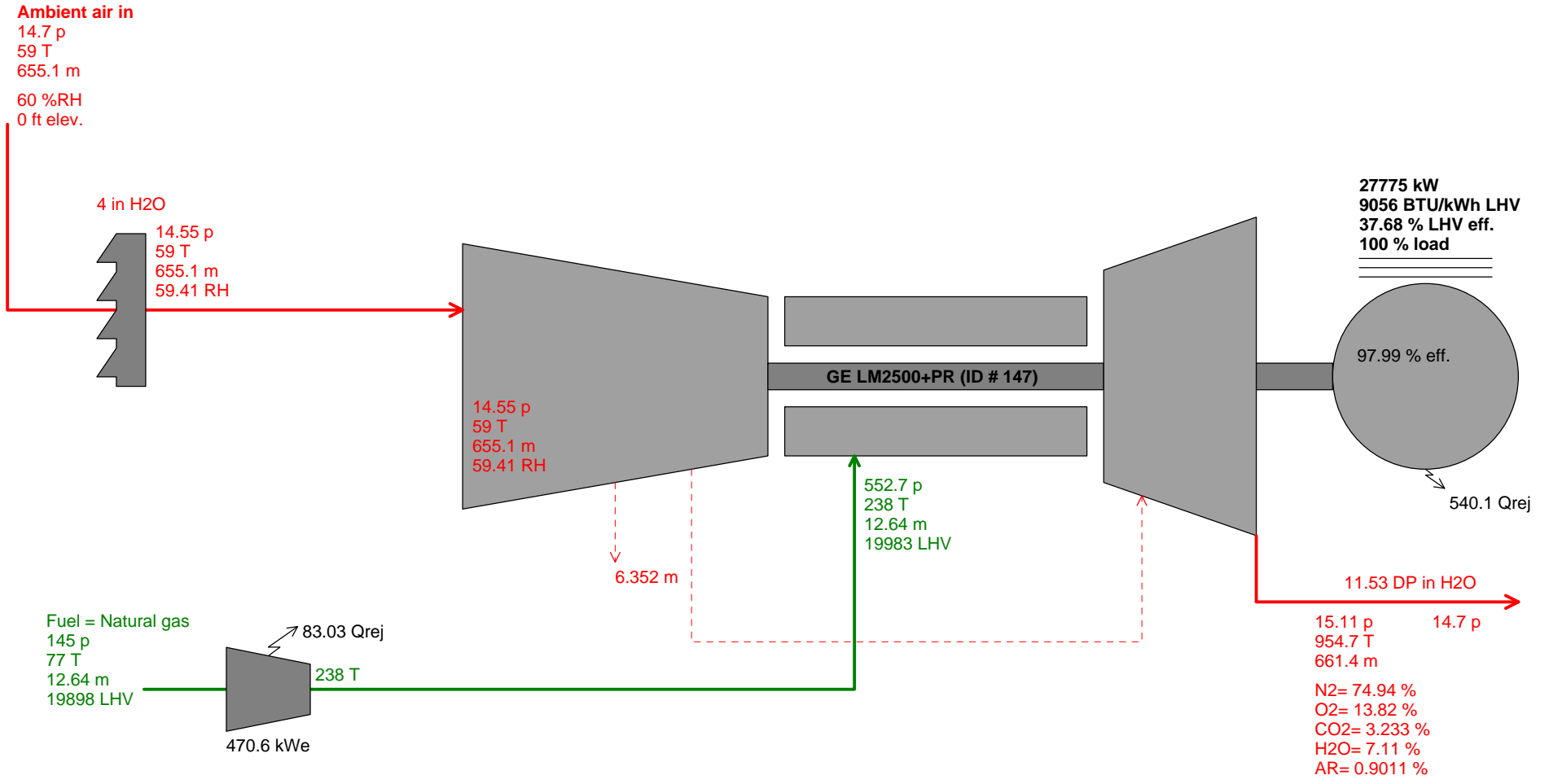
Main steam
50 p
328.9 T
1198.8 h
44.42 m

Condensate
50 p
281 T
250.3 h
44.42 m

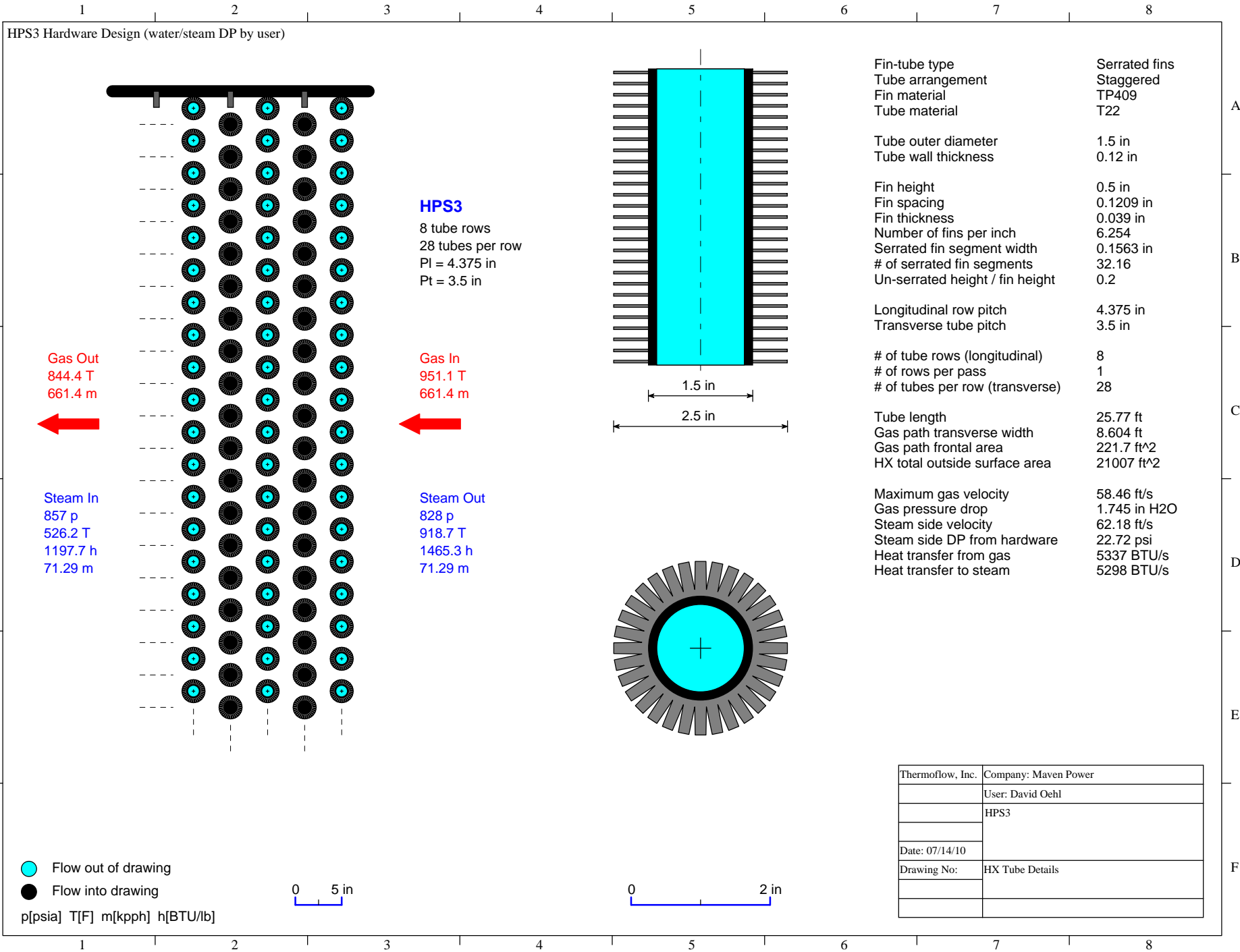
Process: Amine-based
CO2 capture: 28.09 kpph, 337.1 ton/day
CO2 capture efficiency: 85 %
Heat input: 11704 BTU/s, 42.14 MMBTU/hr, 1500 BTU/lb CO2
Total electrical power consumption: 2655.5 kW
Solvent consumption: 0.1348 ton/day

p[psia] T[F] h[BTU/lb] m[kpph] Q[BTU/s]

GT generator power = 27775 kW
 GT Heat Rate @ gen term = 9056 BTU/kWh
 GT efficiency @ gen term = 34.03% HHV = 37.68% LHV
 GT @ 100 % rating, data-defined engine model

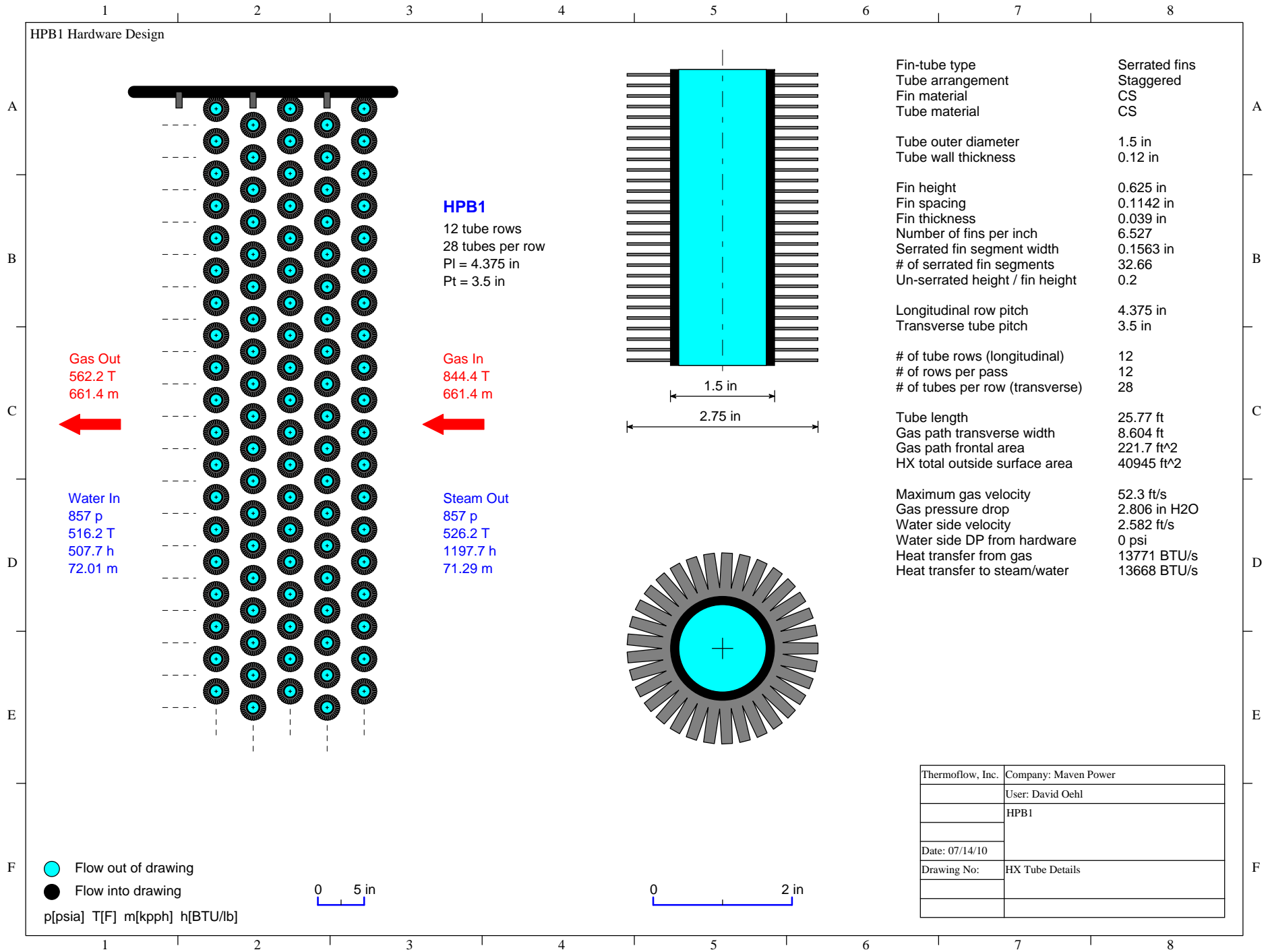


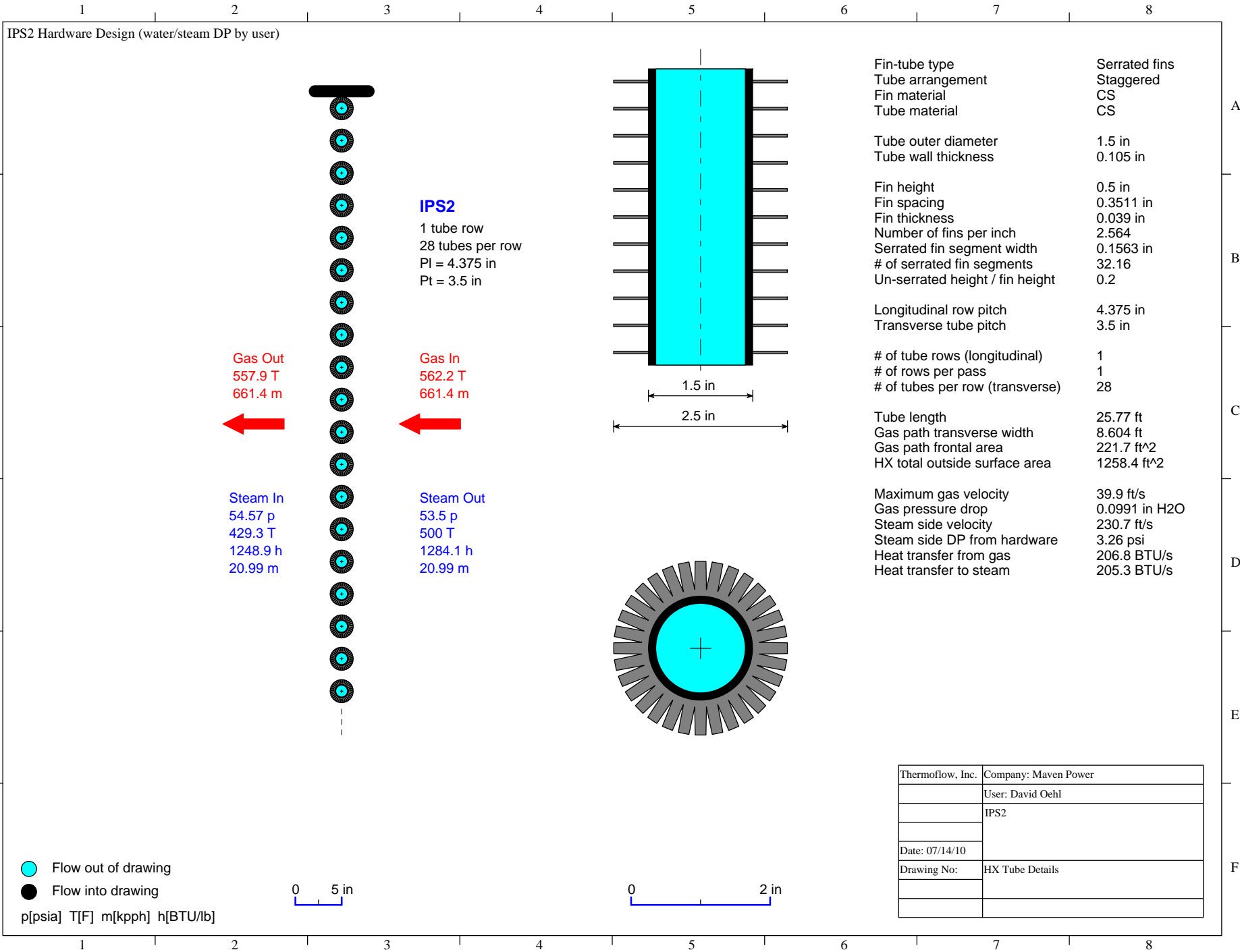
p[psia], T[F], M[kpph], Q[BTU/s], Steam Properties: Thermoflow - STQUIK

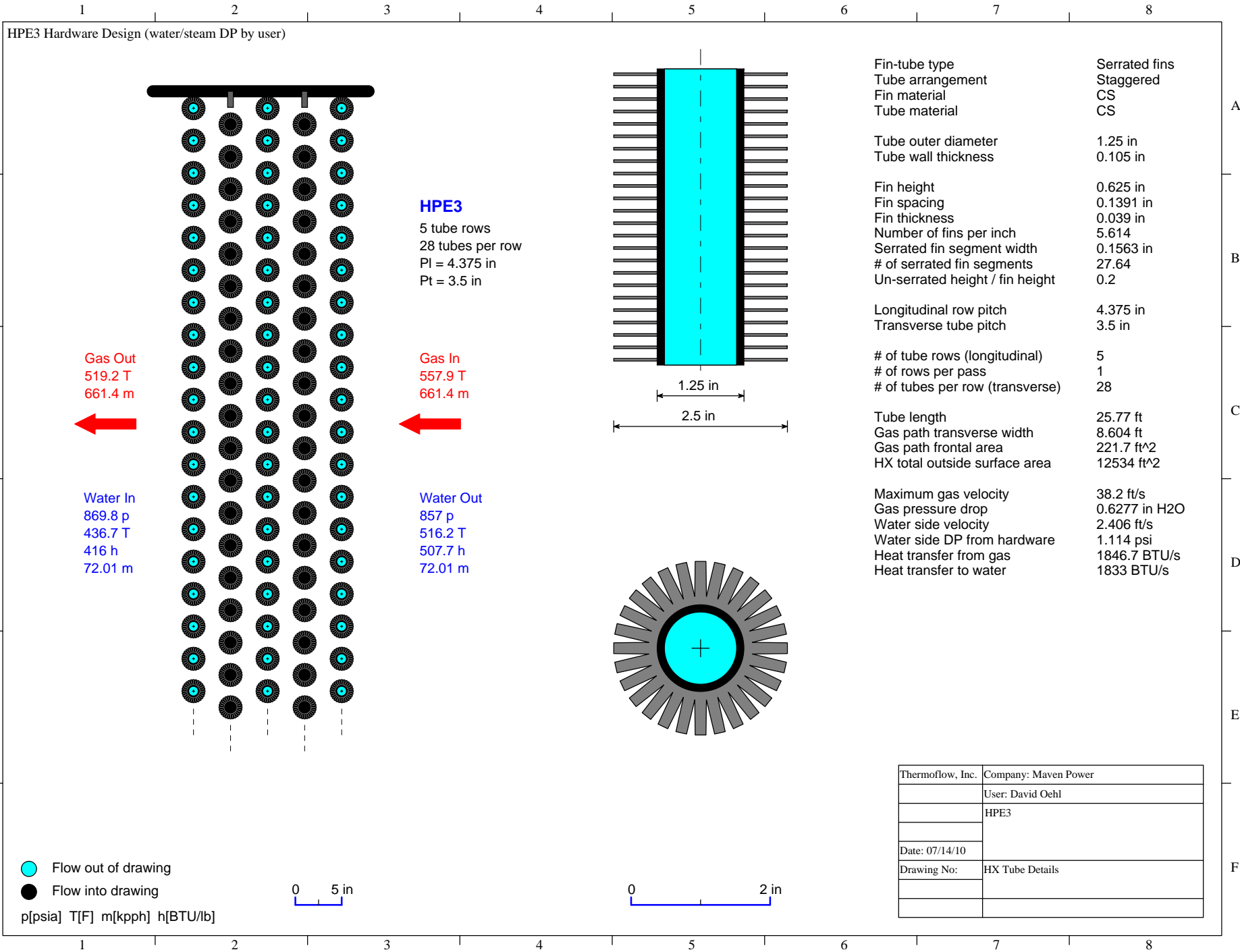


Fin-tube type	Serrated fins
Tube arrangement	Staggered
Fin material	TP409
Tube material	T22
Tube outer diameter	1.5 in
Tube wall thickness	0.12 in
Fin height	0.5 in
Fin spacing	0.1209 in
Fin thickness	0.039 in
Number of fins per inch	6.254
Serrated fin segment width	0.1563 in
# of serrated fin segments	32.16
Un-serrated height / fin height	0.2
Longitudinal row pitch	4.375 in
Transverse tube pitch	3.5 in
# of tube rows (longitudinal)	8
# of rows per pass	1
# of tubes per row (transverse)	28
Tube length	25.77 ft
Gas path transverse width	8.604 ft
Gas path frontal area	221.7 ft ²
HX total outside surface area	21007 ft ²
Maximum gas velocity	58.46 ft/s
Gas pressure drop	1.745 in H ₂ O
Steam side velocity	62.18 ft/s
Steam side DP from hardware	22.72 psi
Heat transfer from gas	5337 BTU/s
Heat transfer to steam	5298 BTU/s

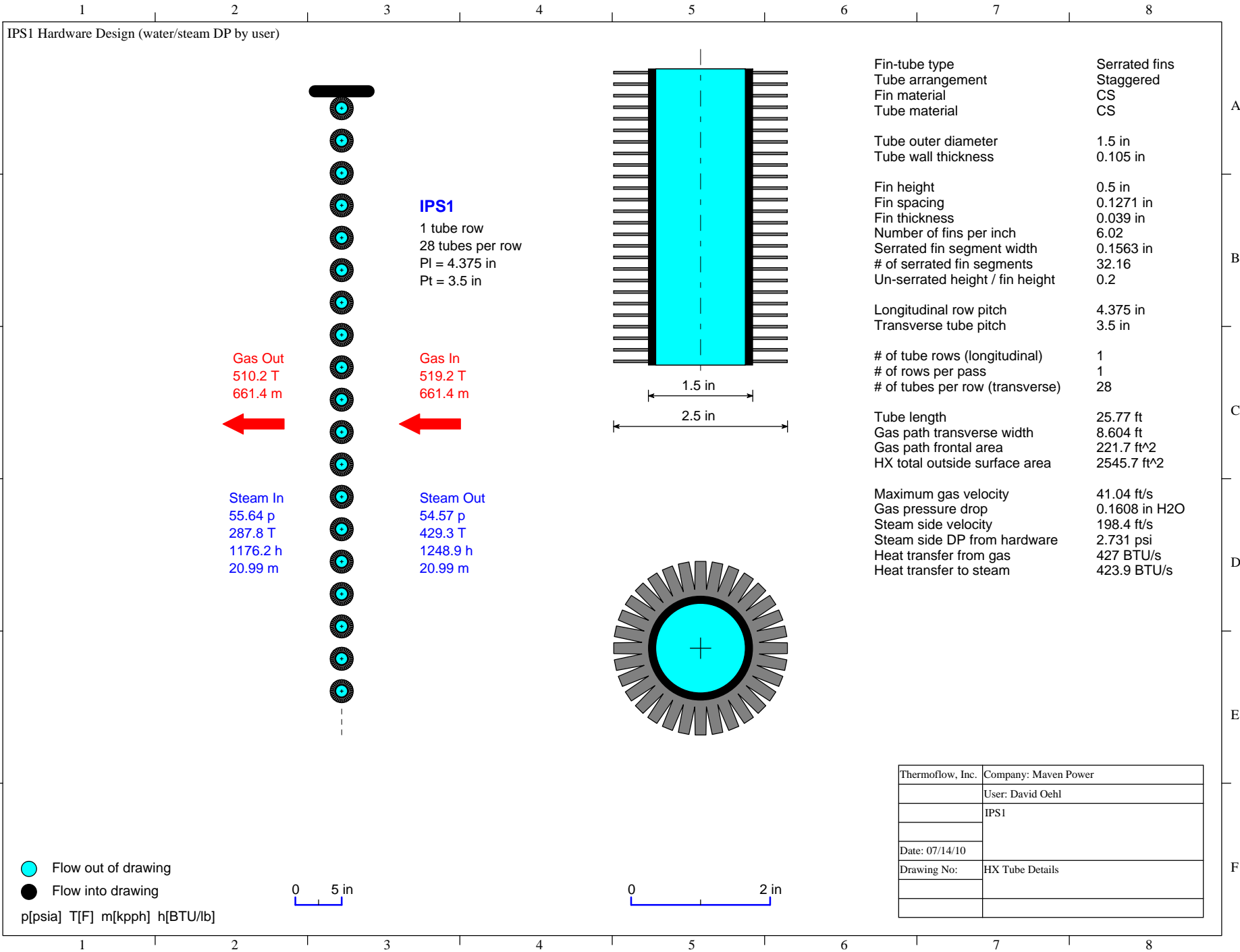
ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	HPS3
Date: 07/14/10	
Drawing No:	HX Tube Details

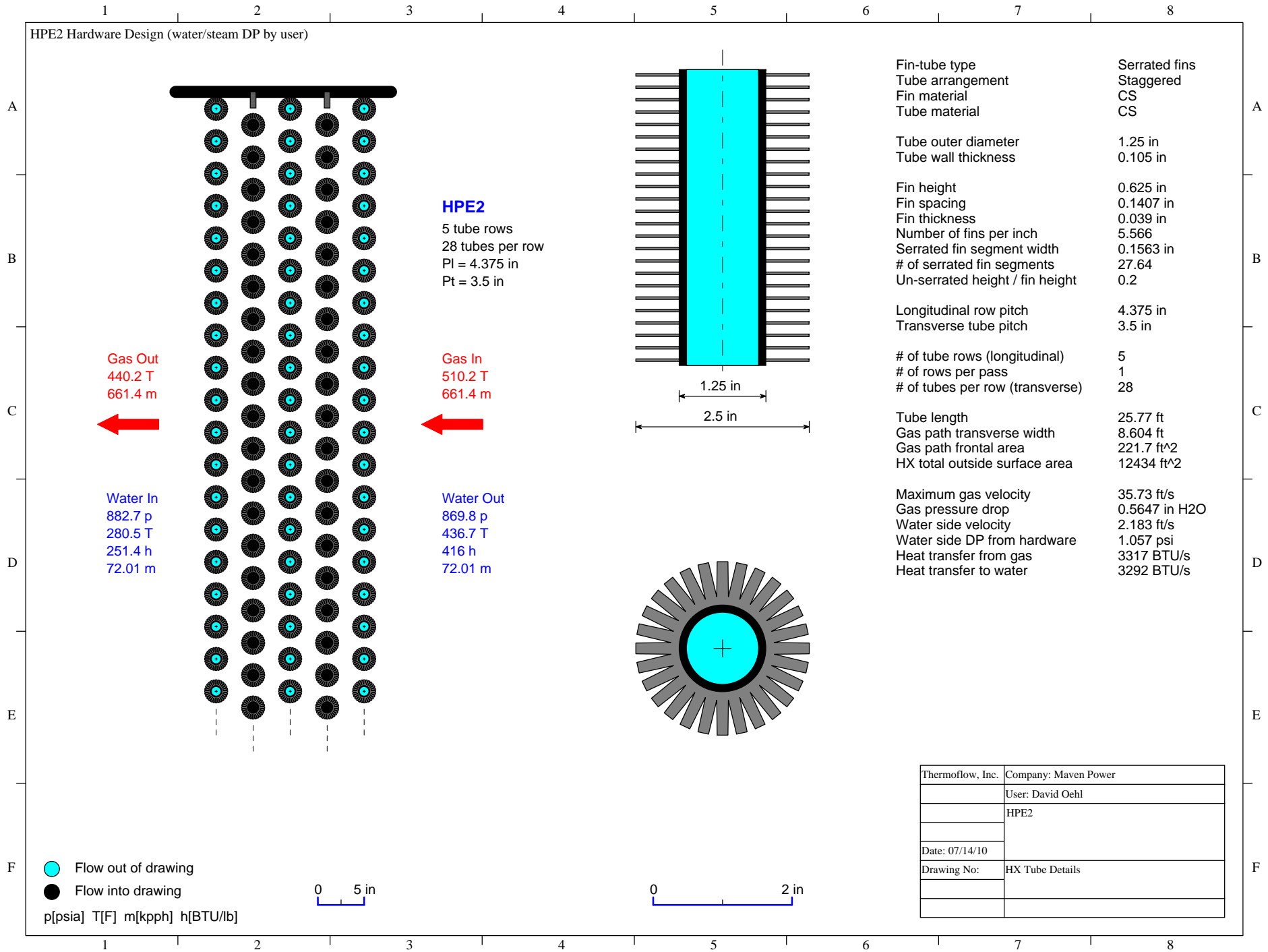




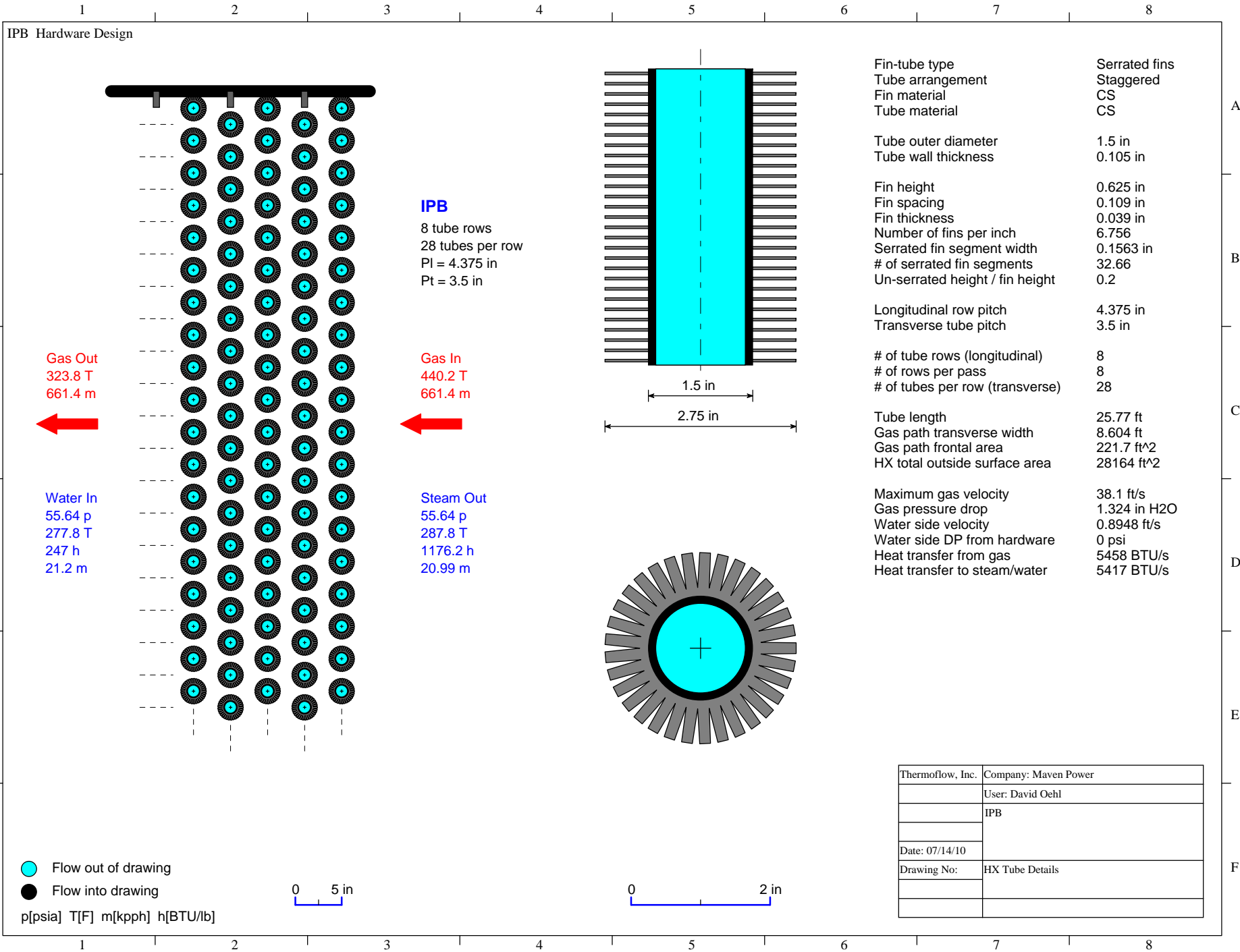


ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	HPE3
Date: 07/14/10	
Drawing No:	HX Tube Details

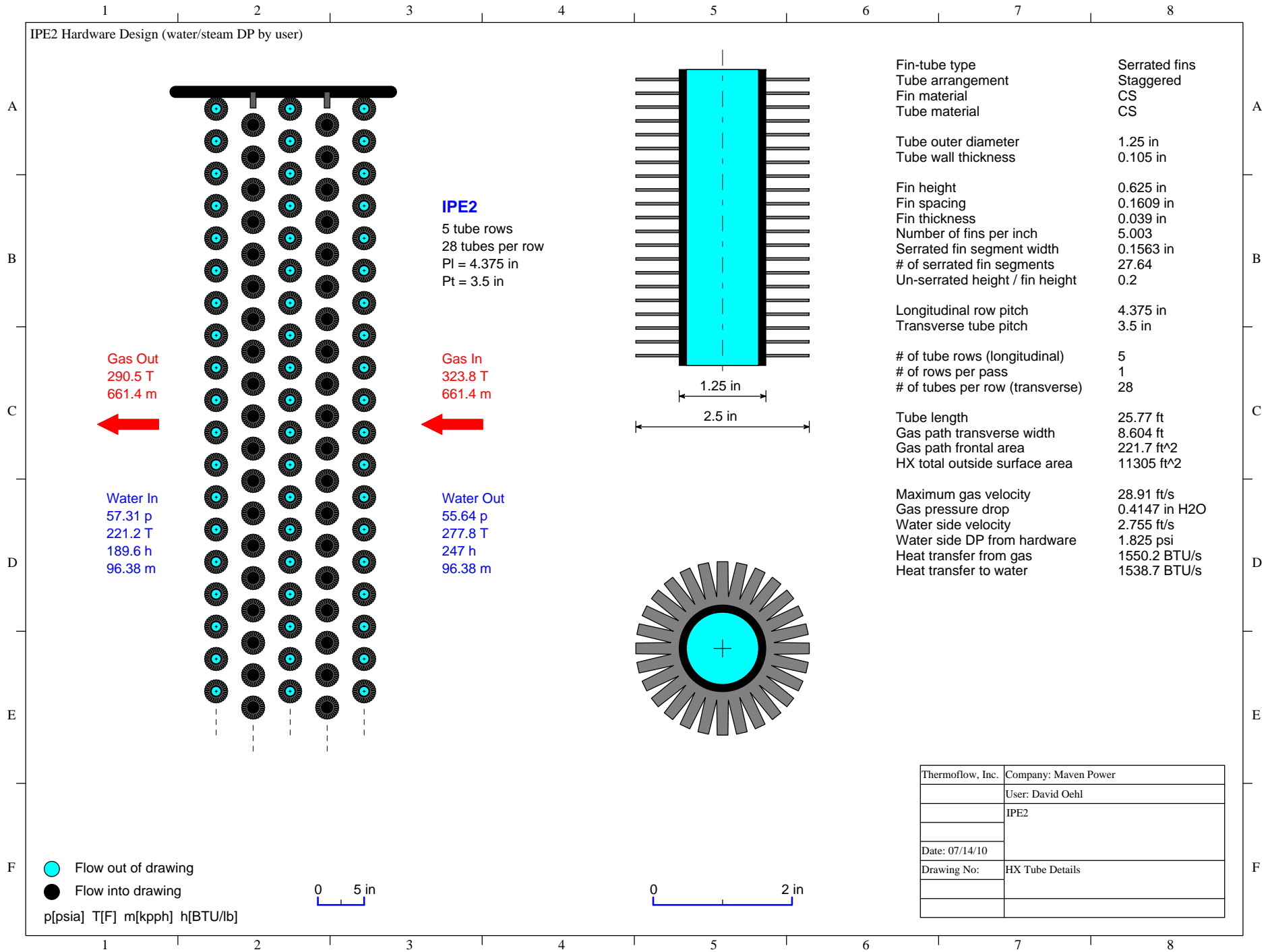




ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	HPE2
Date: 07/14/10	
Drawing No:	HX Tube Details



ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	IPB
Date: 07/14/10	
Drawing No:	HX Tube Details



ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	IPE2
Date: 07/14/10	
Drawing No:	HX Tube Details

● Flow out of drawing
● Flow into drawing
 p[psia] T[F] m[kpph] h[BTU/lb]

LPB Hardware Design

A

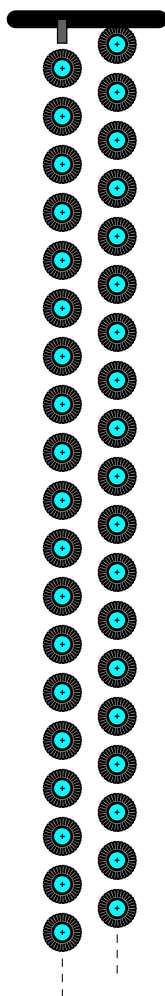
B

C

D

E

F



LPB
 2 tube rows
 28 tubes per row
 PI = 4.375 in
 Pt = 3.5 in

Gas Out
 278.8 T
 661.4 m

Gas In
 290.5 T
 661.4 m

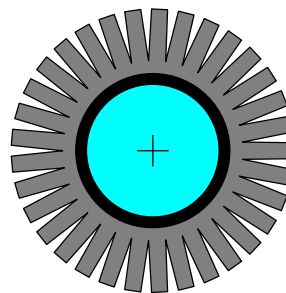
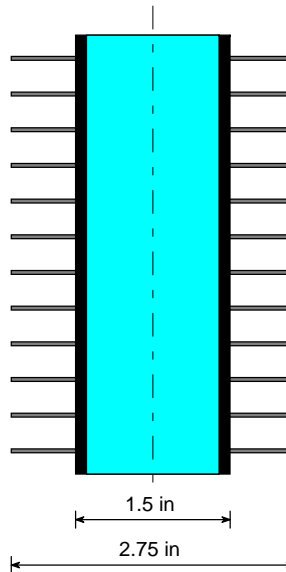
Water In
 17.52 p
 221 T
 189.3 h
 2.032 m

Steam Out
 17.52 p
 221 T
 1153.8 h
 2.012 m

● Flow out of drawing

● Flow into drawing

p[psia] T[F] m[kpph] h[BTU/lb]



Fin-tube type	Serrated fins
Tube arrangement	Staggered
Fin material	CS
Tube material	CS
Tube outer diameter	1.5 in
Tube wall thickness	0.105 in
Fin height	0.625 in
Fin spacing	0.3083 in
Fin thickness	0.039 in
Number of fins per inch	2.88
Serrated fin segment width	0.1563 in
# of serrated fin segments	32.66
Un-serrated height / fin height	0.2
Longitudinal row pitch	4.375 in
Transverse tube pitch	3.5 in
# of tube rows (longitudinal)	2
# of rows per pass	2
# of tubes per row (transverse)	28
Tube length	25.77 ft
Gas path transverse width	8.604 ft
Gas path frontal area	221.7 ft ²
HX total outside surface area	3333 ft ²
Maximum gas velocity	30.27 ft/s
Gas pressure drop	0.1657 in H ₂ O
Water side velocity	0.3328 ft/s
Water side DP from hardware	0 psi
Heat transfer from gas	543.1 BTU/s
Heat transfer to steam/water	539.1 BTU/s

ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	LPB
Date: 07/14/10	
Drawing No:	HX Tube Details

A

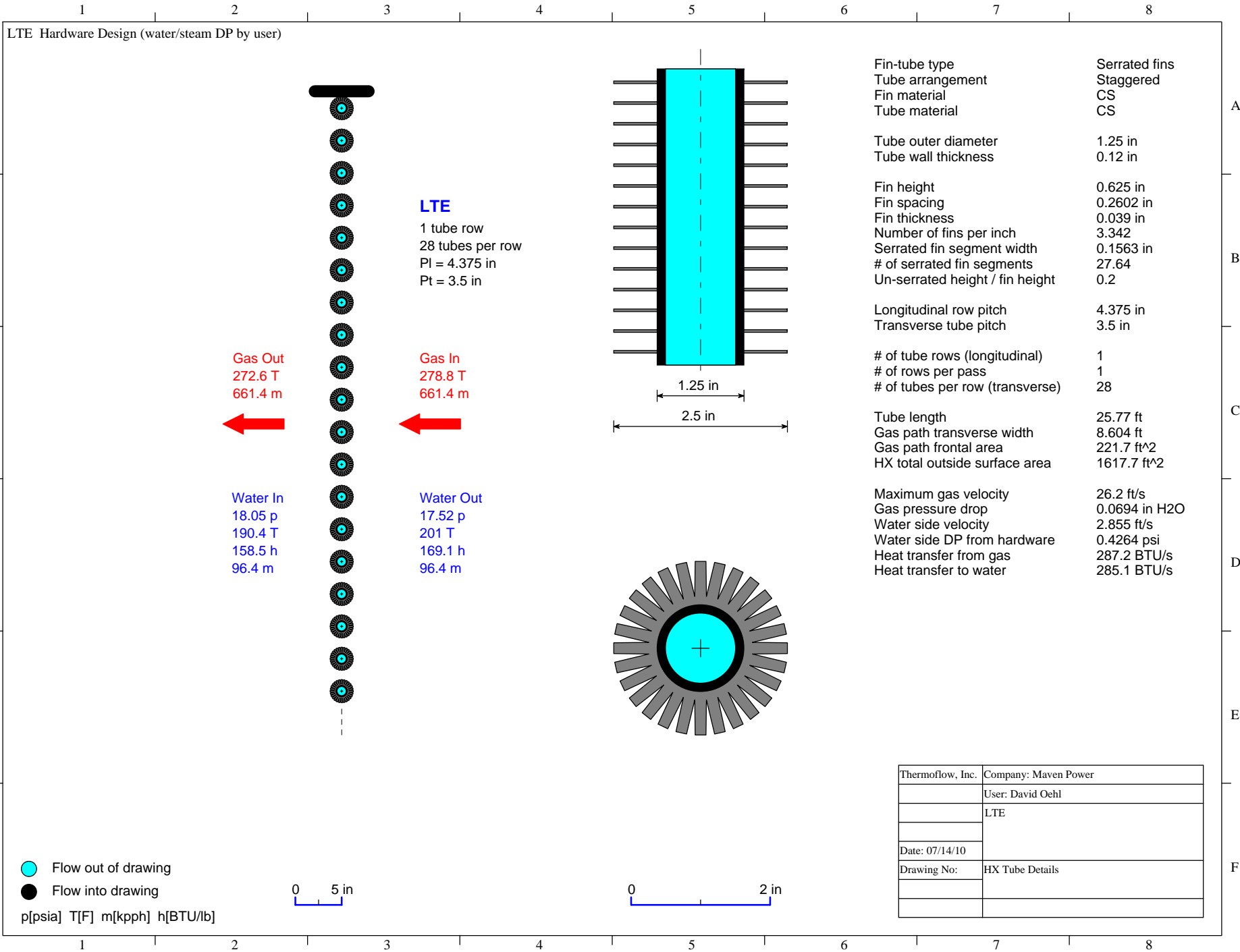
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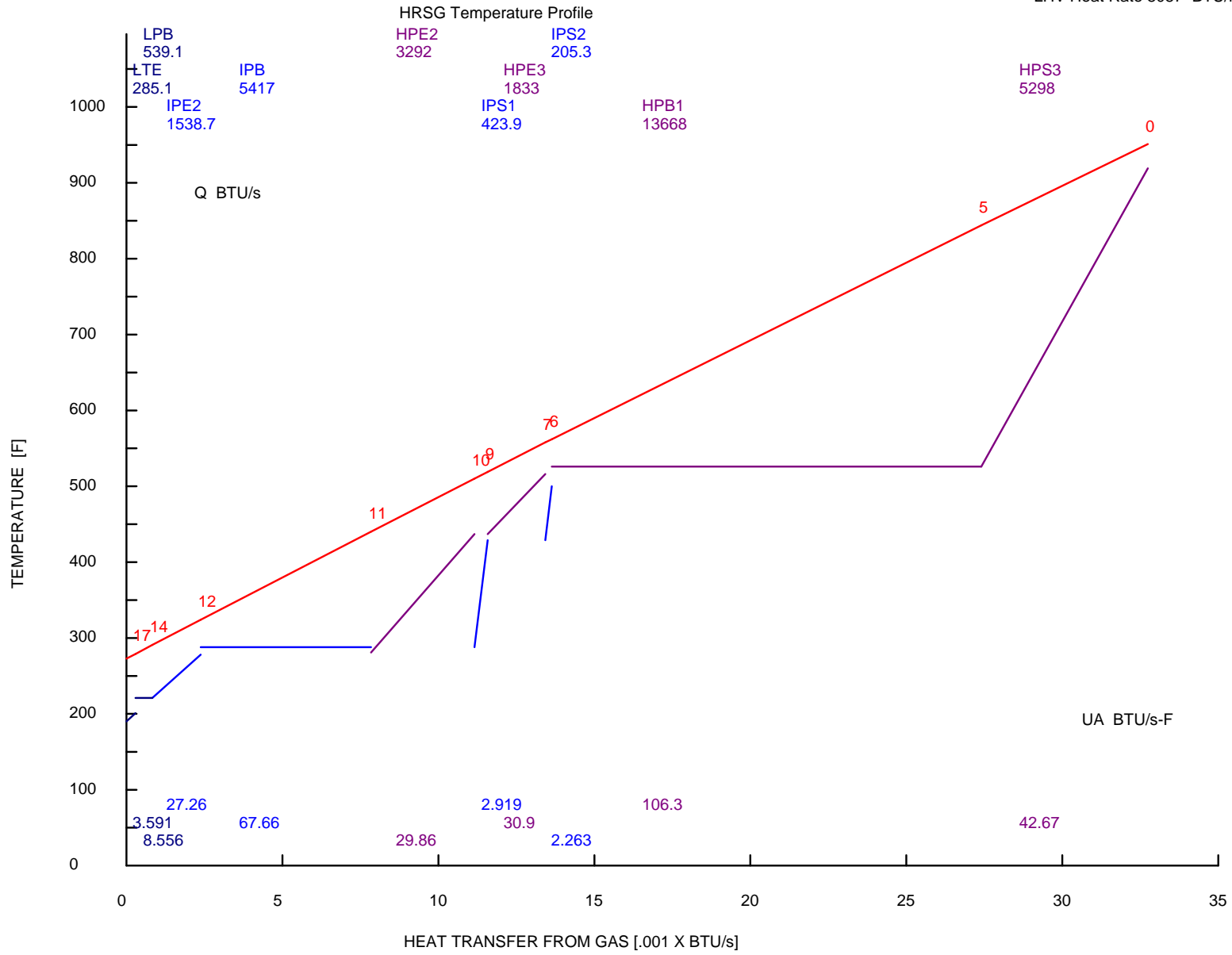
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D

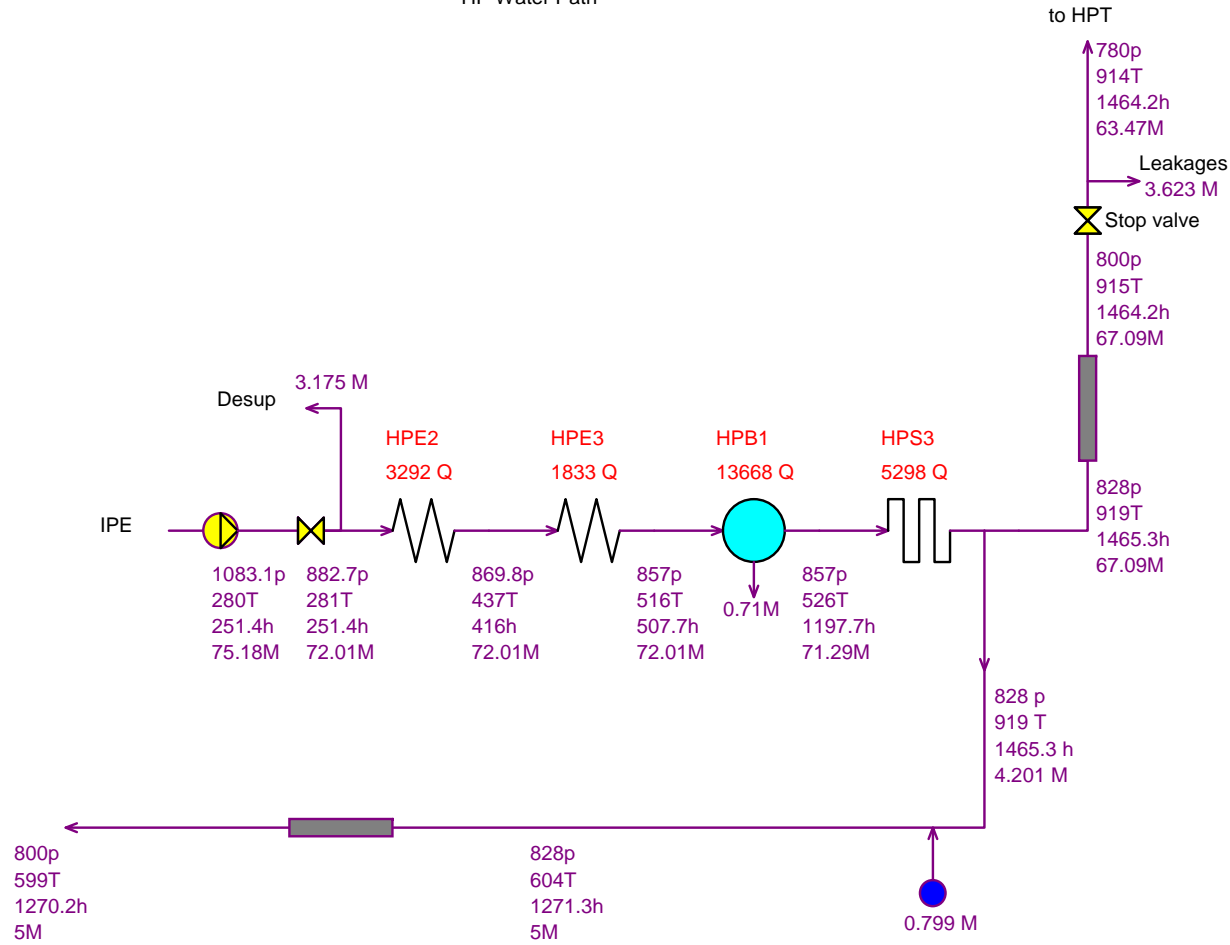
E

F



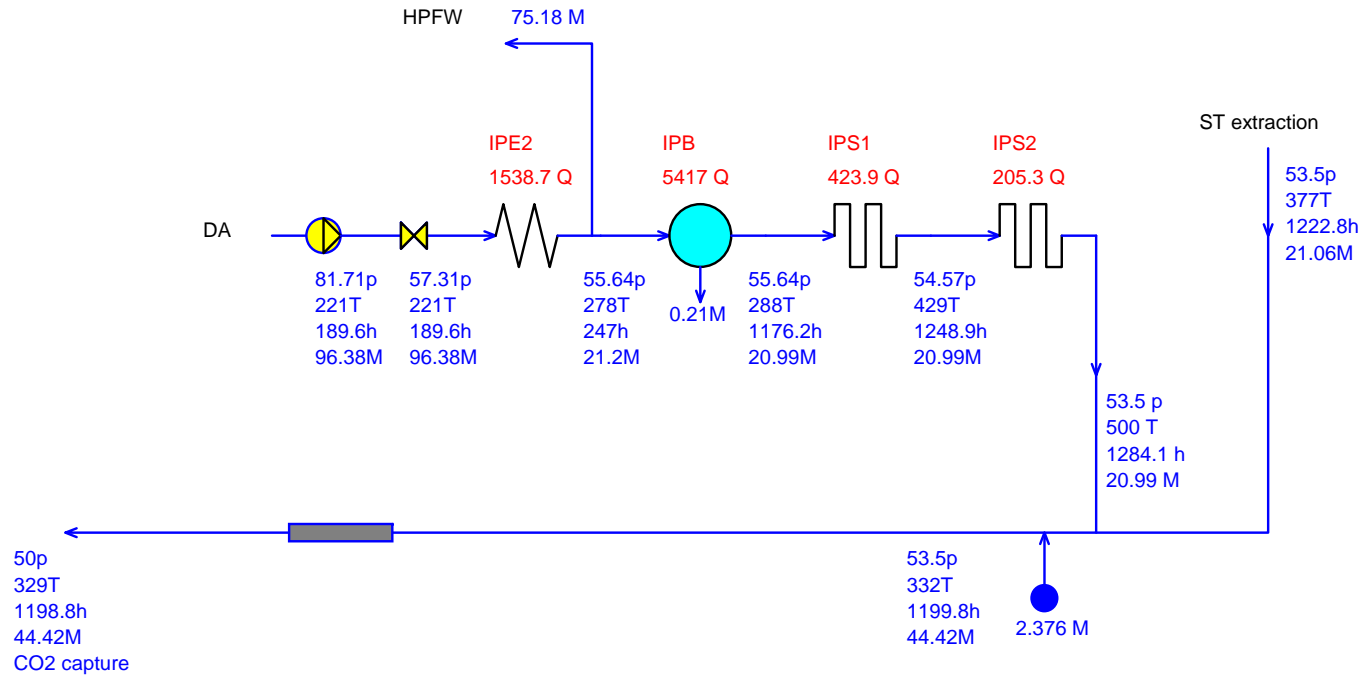


HP Water Path



p[psia], T[F], h[BTU/lb], M[kpph], Q[BTU/s], Steam Properties: Thermoflow - STQUIK

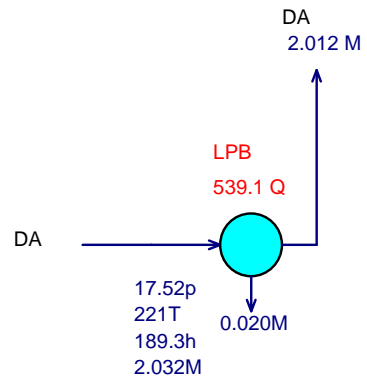
IP Water Path



p[psia], T[F], h[BTU/lb], M[kpph], Q[BTU/s], Steam Properties: Thermoflow - STQUIK

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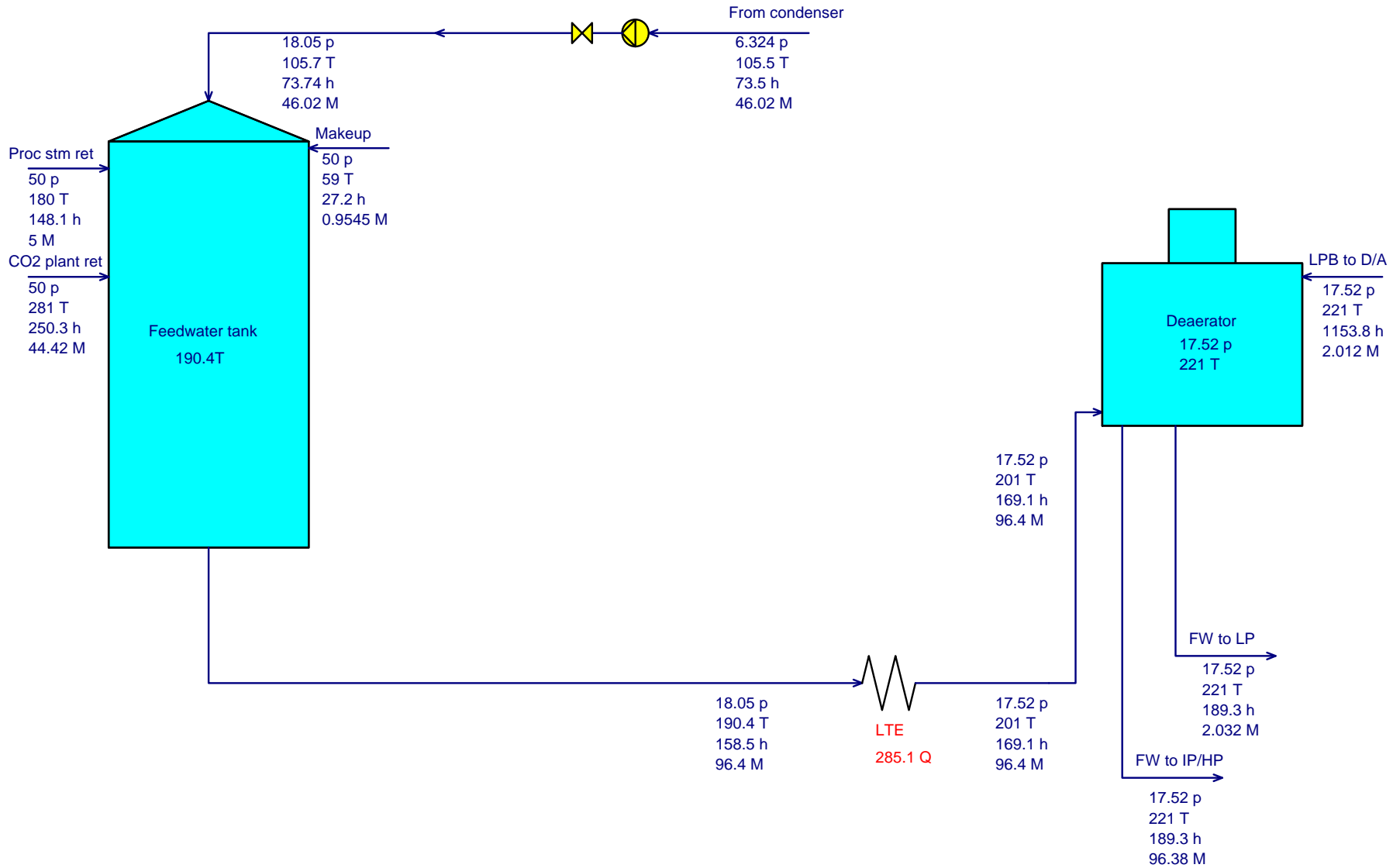
LP Water Path



p[psia], T[F], h[BTU/lb], M[kpph], Q[BTU/s], Steam Properties: Thermoflow - STQUIK

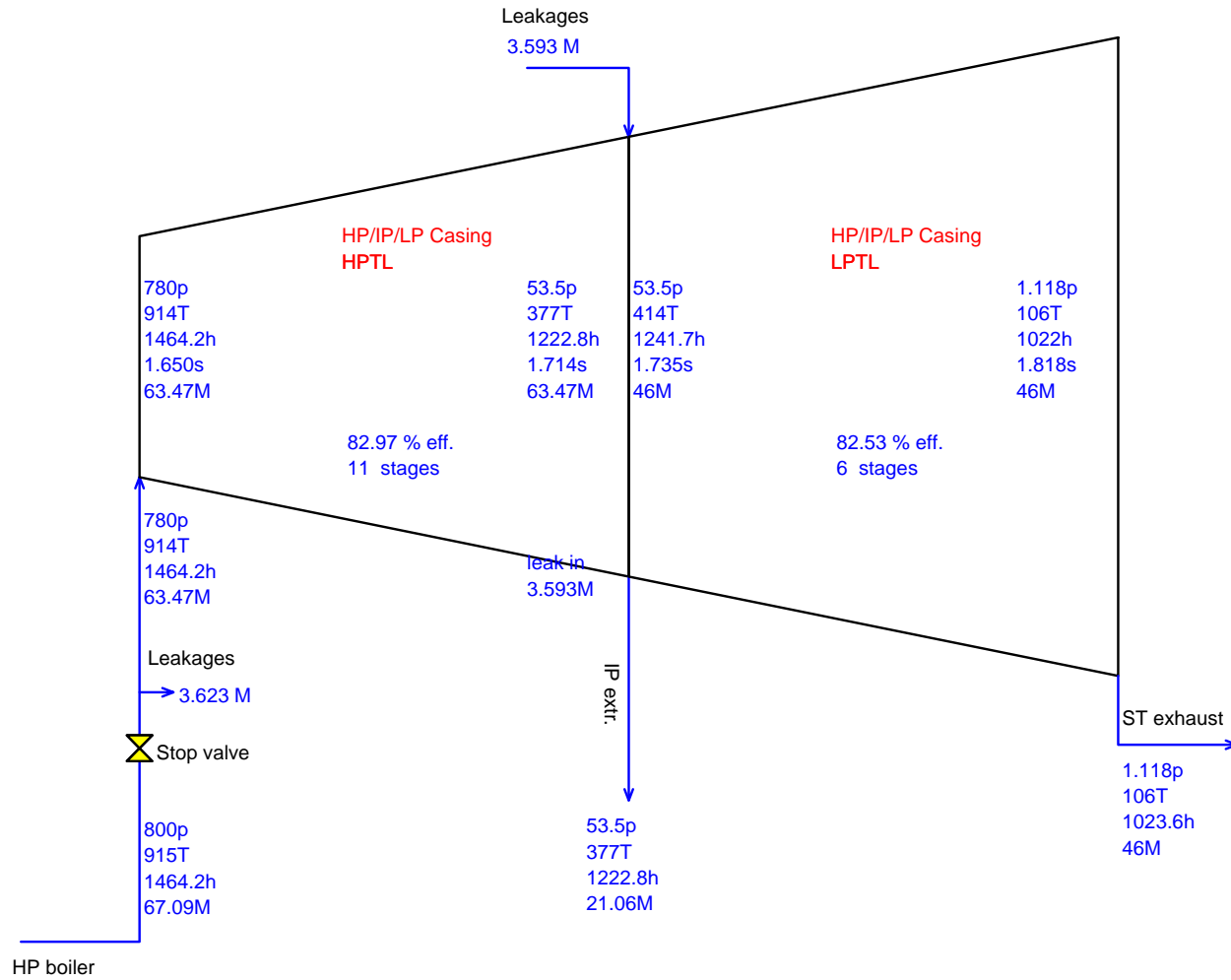
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Feedwater Path



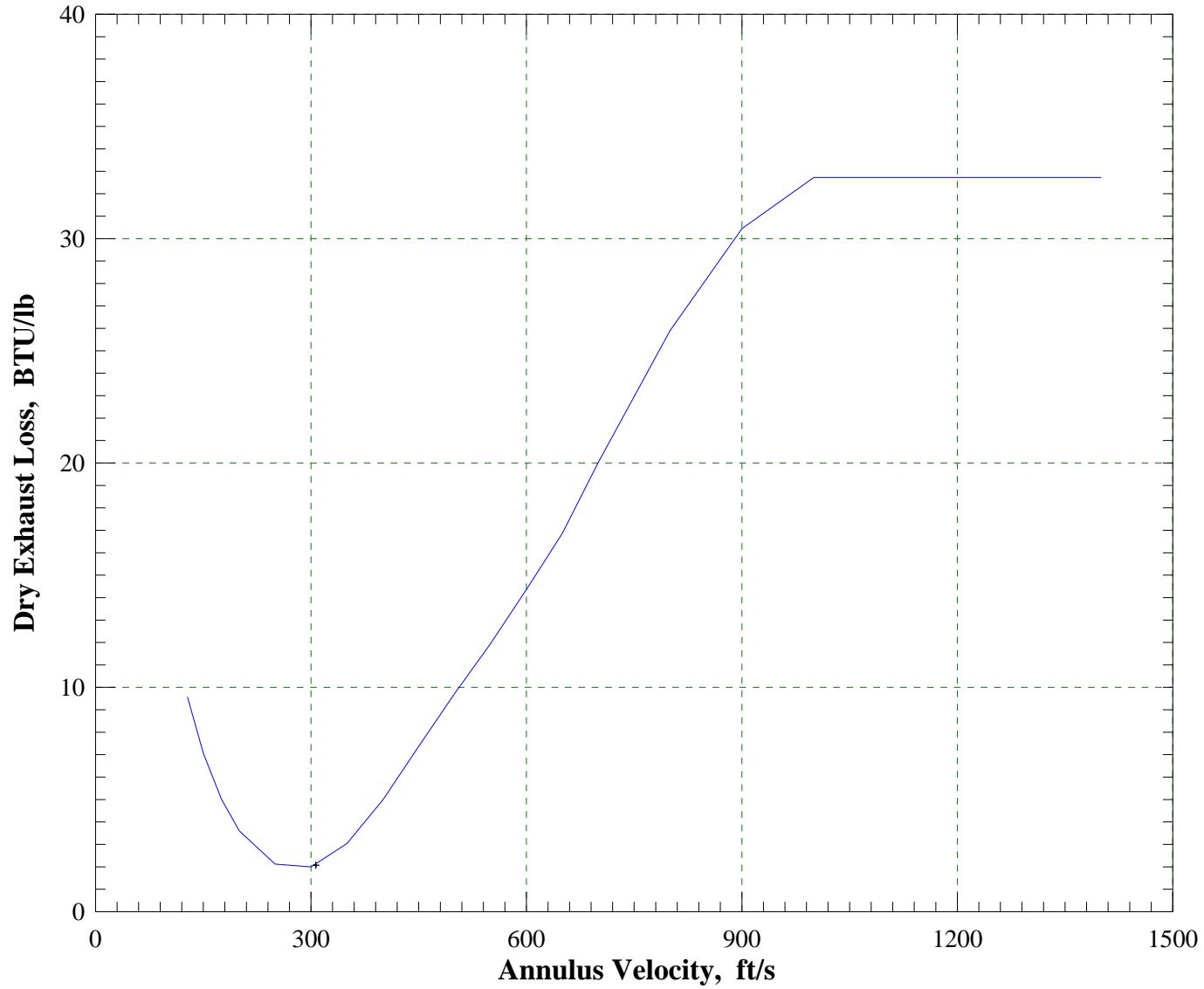
p[psia], T[F], h[BTU/lb], M[kpph], Q[BTU/s], Steam Properties: Thermoflow - STQUIK

Steam Turbine Group Data

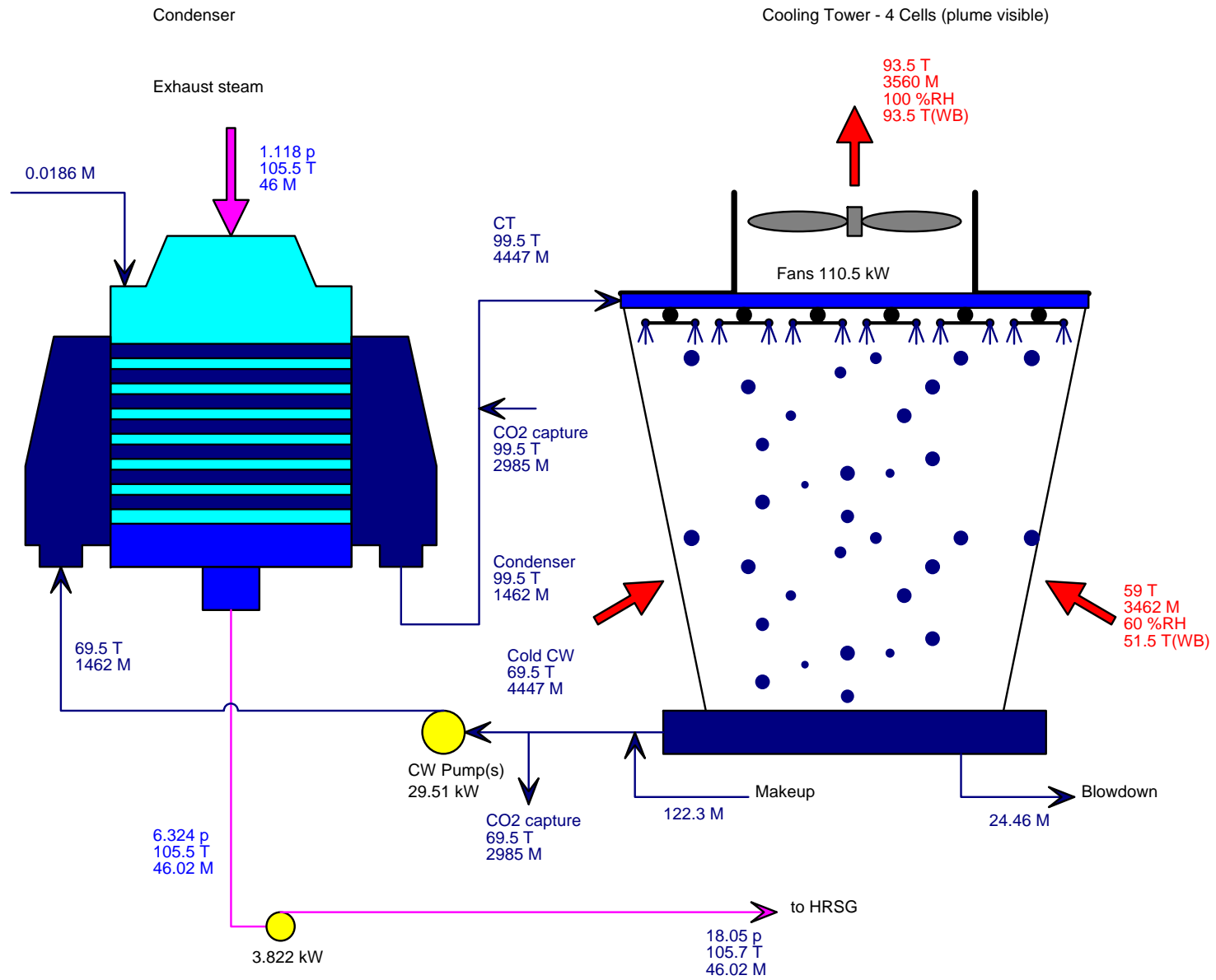


p[psia], T[F], h[BTU/lb], s[BTU/lb-R], M[kpph], Steam Properties: Thermoflow - STQUIK

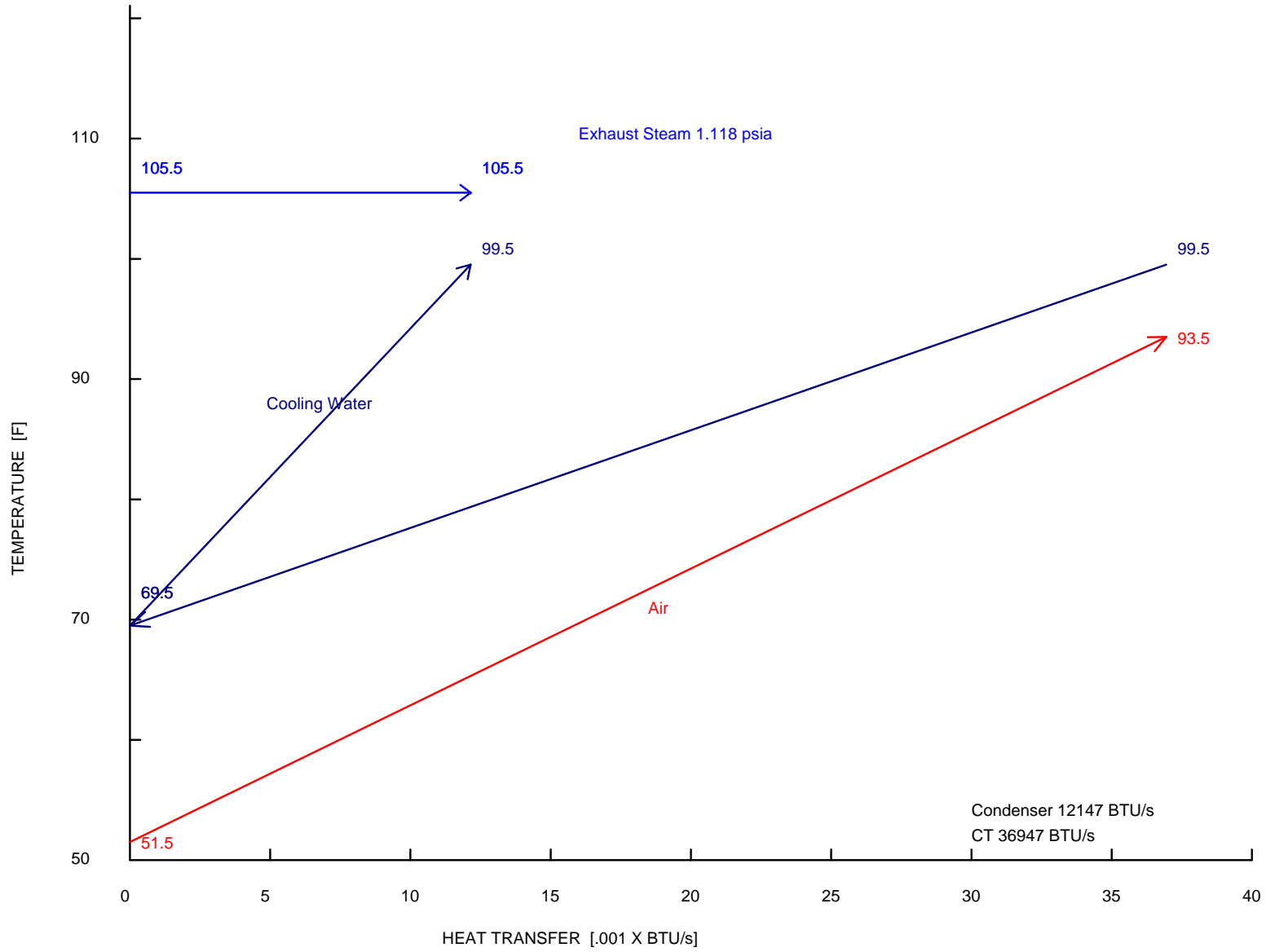
Steam Turbine Exhaust Loss

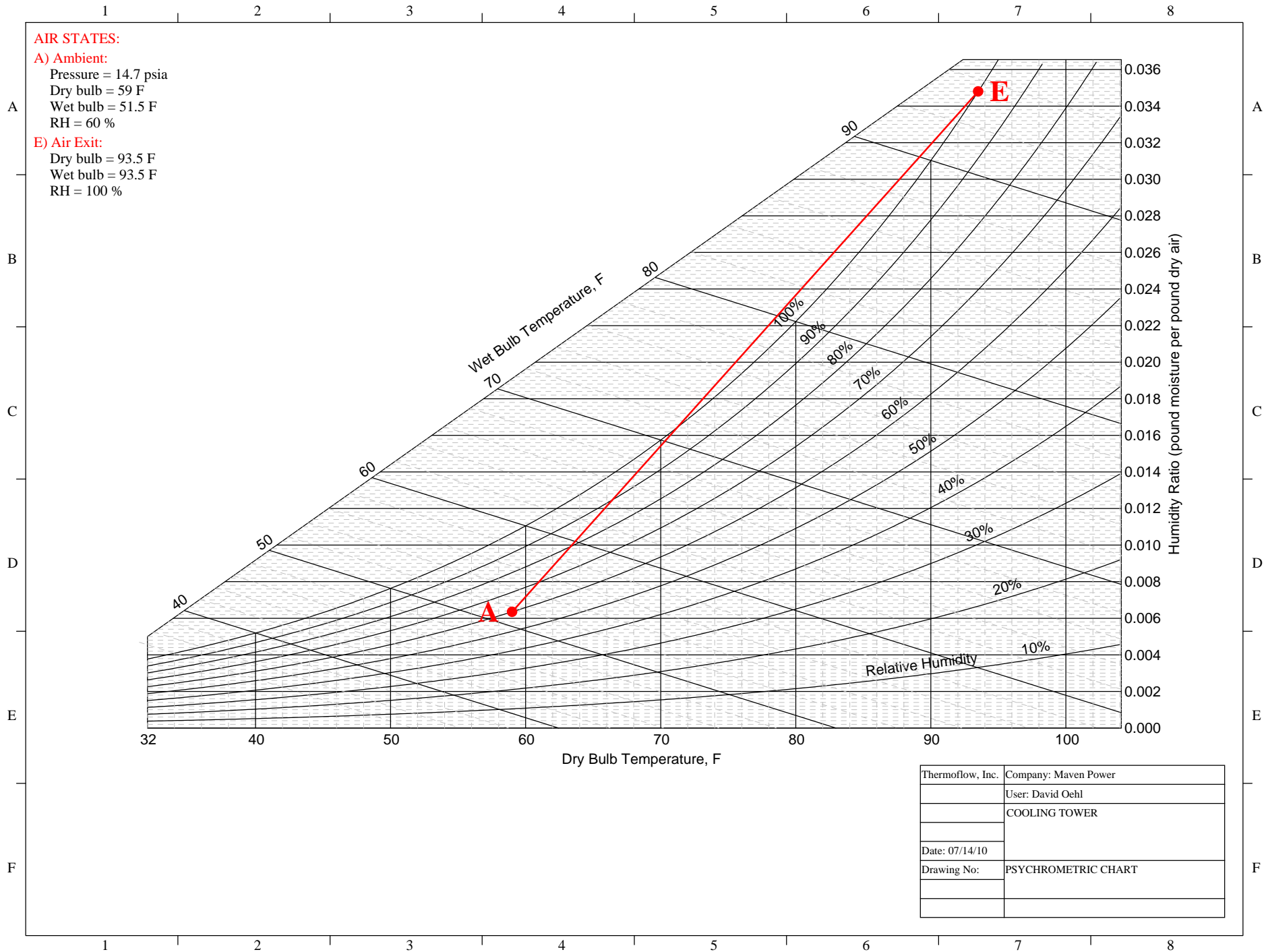


Cooling System



Water Cooled Condenser and Cooling Tower T-Q Diagram





Plant Energy In [BTU/s]

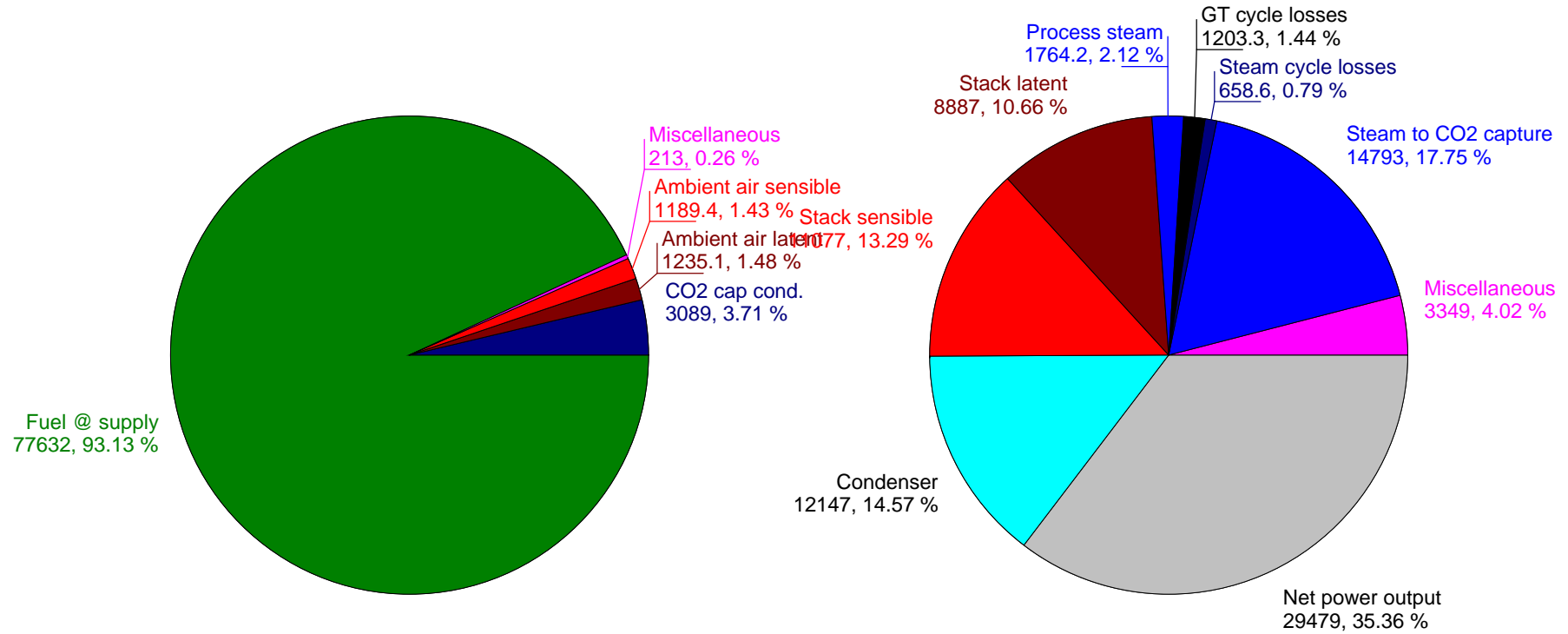
Plant energy in = 83358 BTU/s

Plant fuel chemical LHV input = 69868 BTU/s, HHV = 77351 BTU/s

Plant net LHV elec. eff. = 42.19 % (100% * 29479 / 69868), Net HHV elec. eff. = 38.11 %

Plant Energy Out [BTU/s]

Plant energy out = 83358 BTU/s



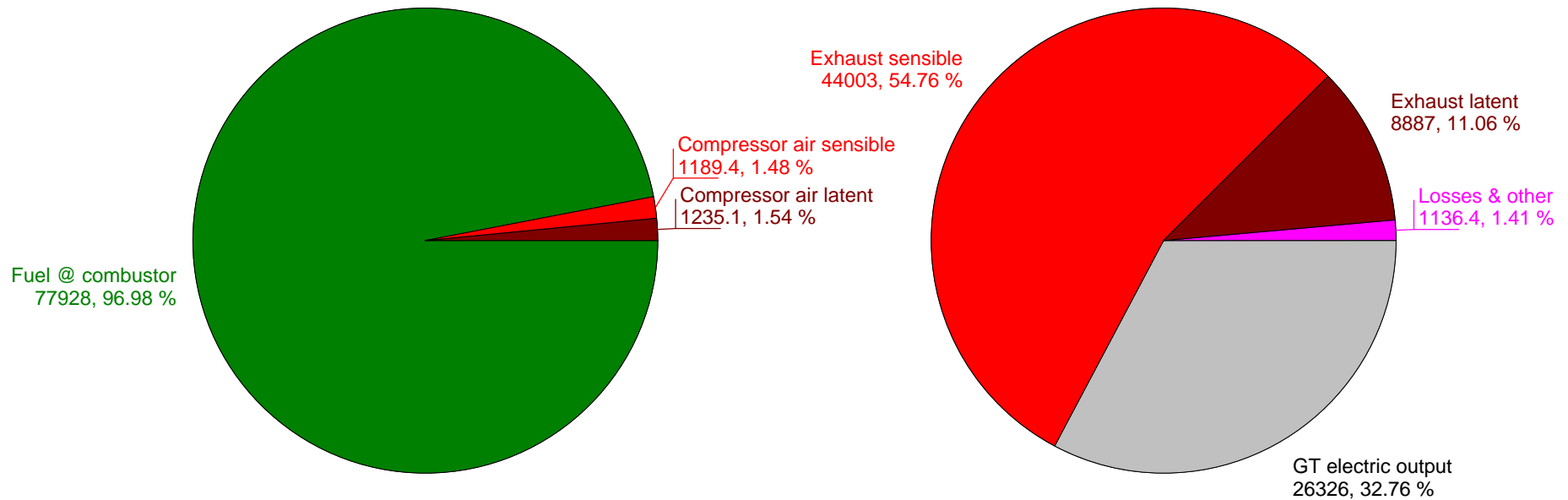
Zero enthalpy: dry gases & liquid water @ 32 F (273.15 K)

GT Cycle Energy In [BTU/s]

GT cycle energy in = 80352 BTU/s
GT fuel chemical LHV input = 69868 BTU/s, HHV = 77351 BTU/s

GT Cycle Energy Out [BTU/s]

GT cycle energy out = 80352 BTU/s



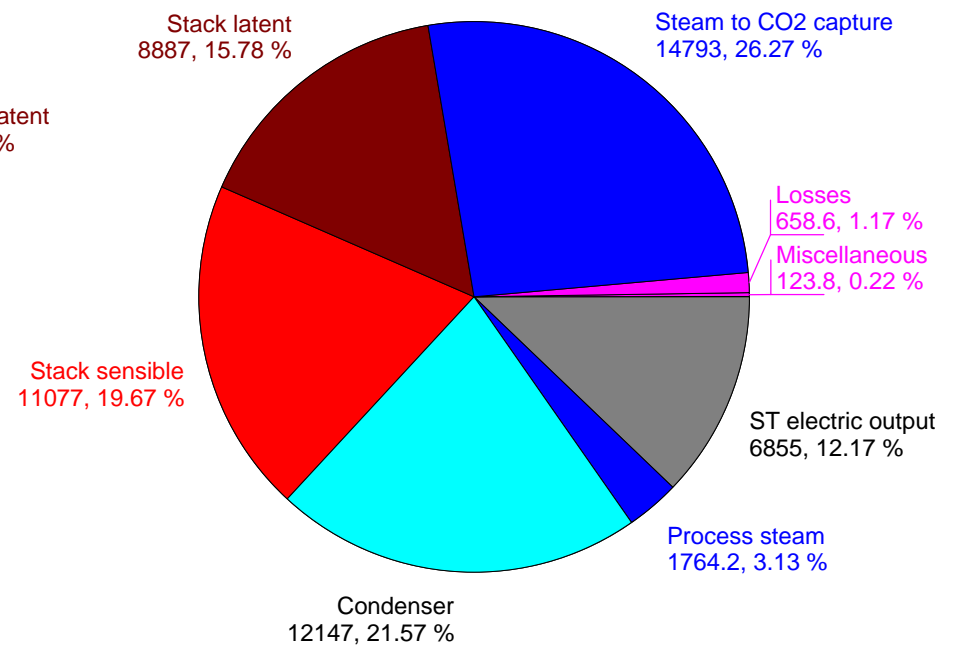
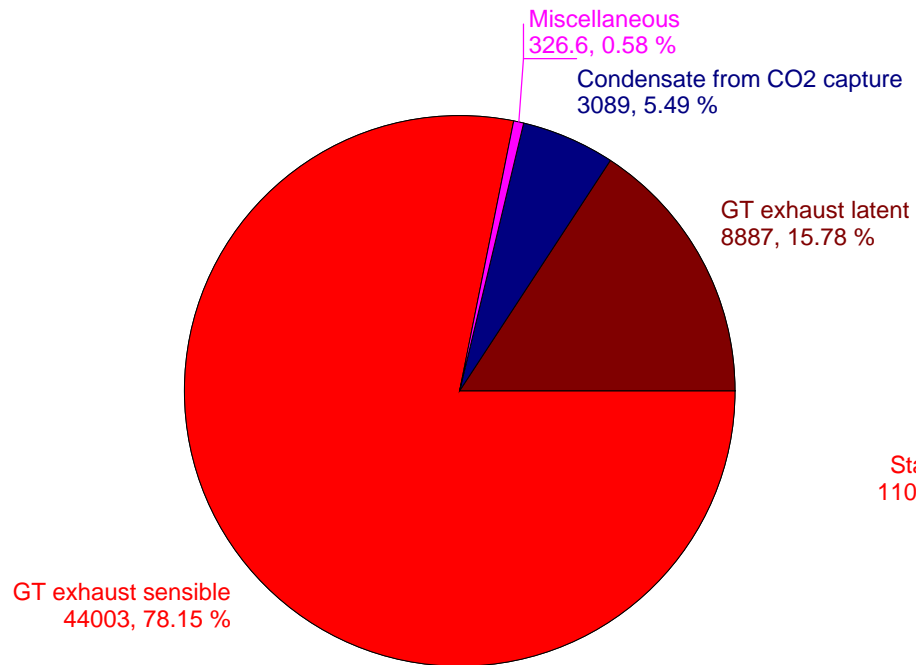
Zero enthalpy: dry gases & liquid water @ 32 F (273.15 K)

Steam Cycle Energy In [BTU/s]

Steam cycle energy in = 56305 BTU/s

Steam Cycle Energy Out [BTU/s]

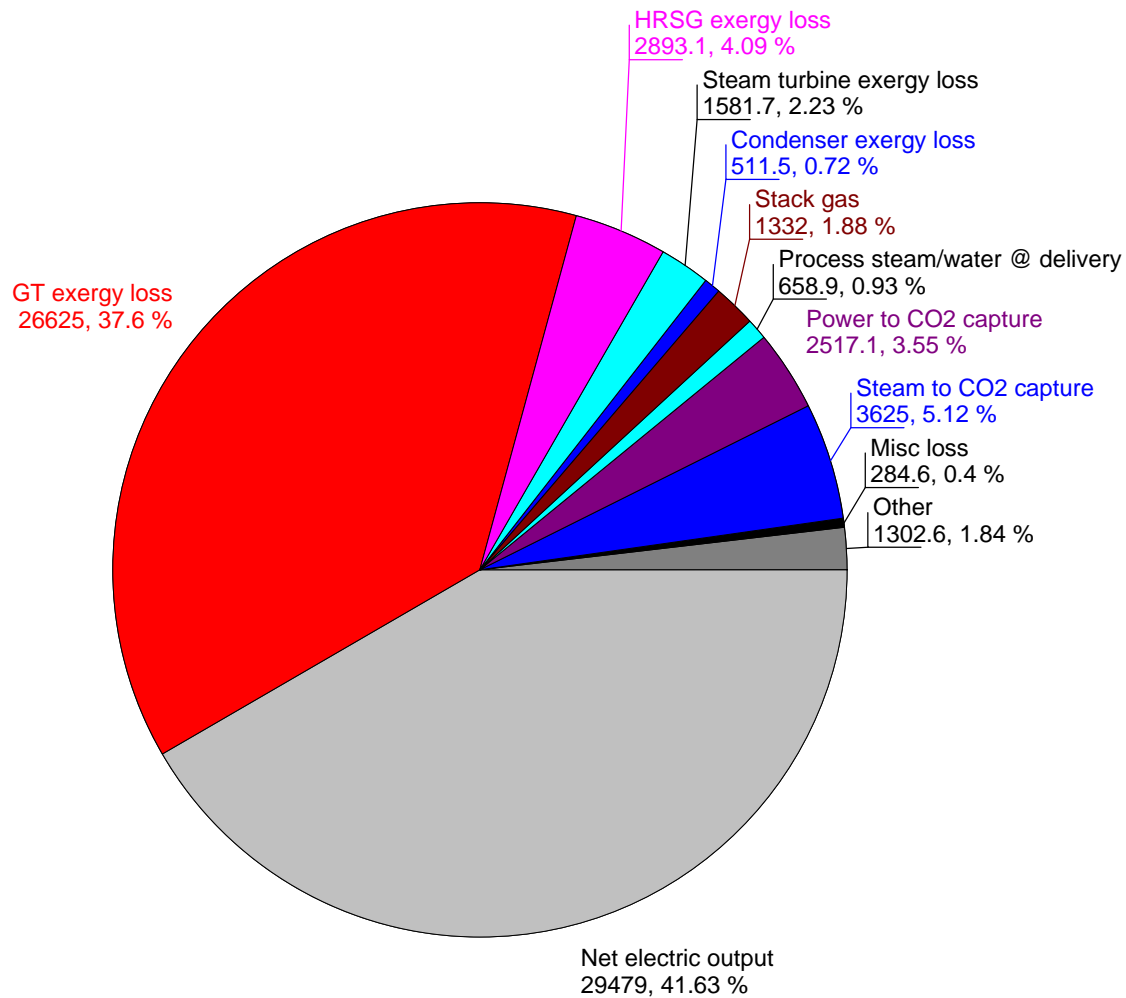
Steam cycle energy out = 56305 BTU/s



Zero enthalpy: dry gases & liquid water @ 32 F (273.15 K)

Plant Exergy Analysis [BTU/s]

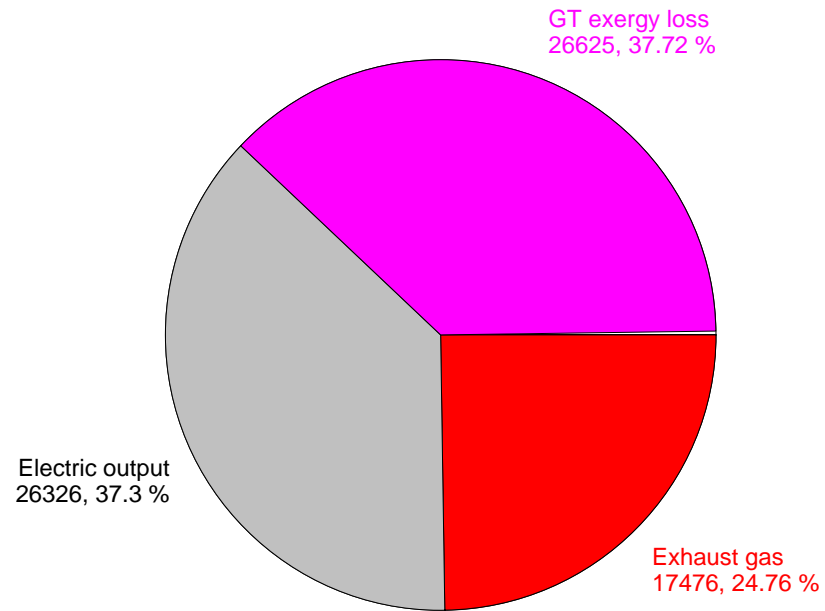
Plant exergy input = 70811 BTU/s
Fuel exergy input = 70331 BTU/s
Plant fuel chemical LHV input = 69868 BTU/s, HHV = 77351 BTU/s



Reference: 14.696 psia, 77 F, water as vapor.

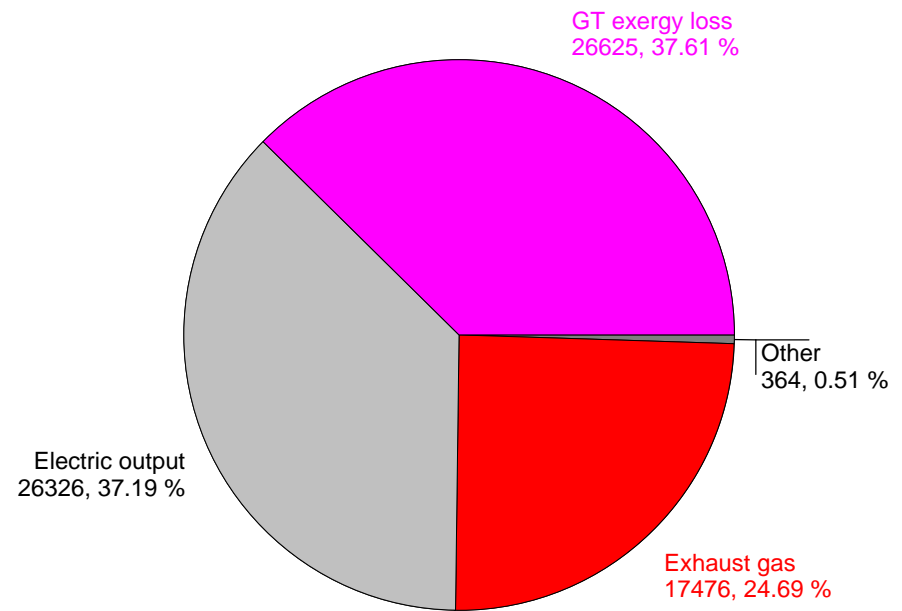
GT Exergy Analysis [BTU/s]

GT exergy in = 70589 BTU/s



GT & Peripheral Exergy Analysis [BTU/s]

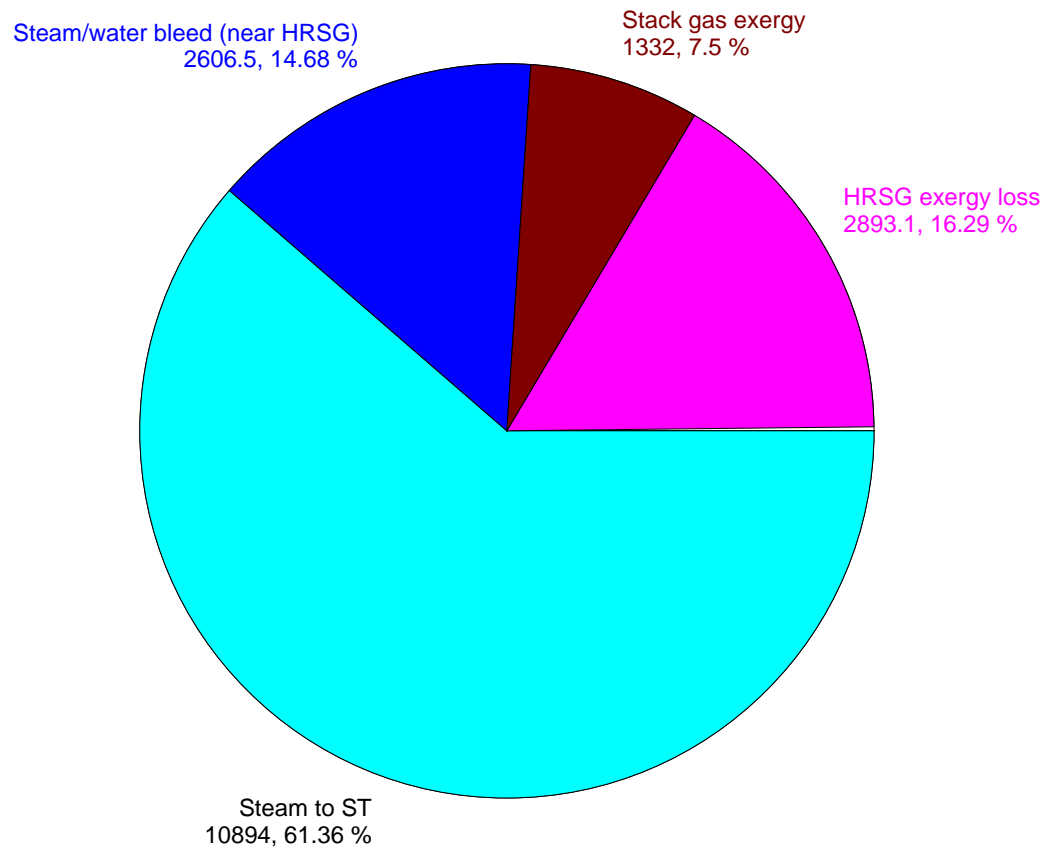
GT & peripheral exergy in = 70791 BTU/s



Reference: 14.696 psia, 77 F, water as vapor.

HRSG Exergy Analysis [BTU/s]

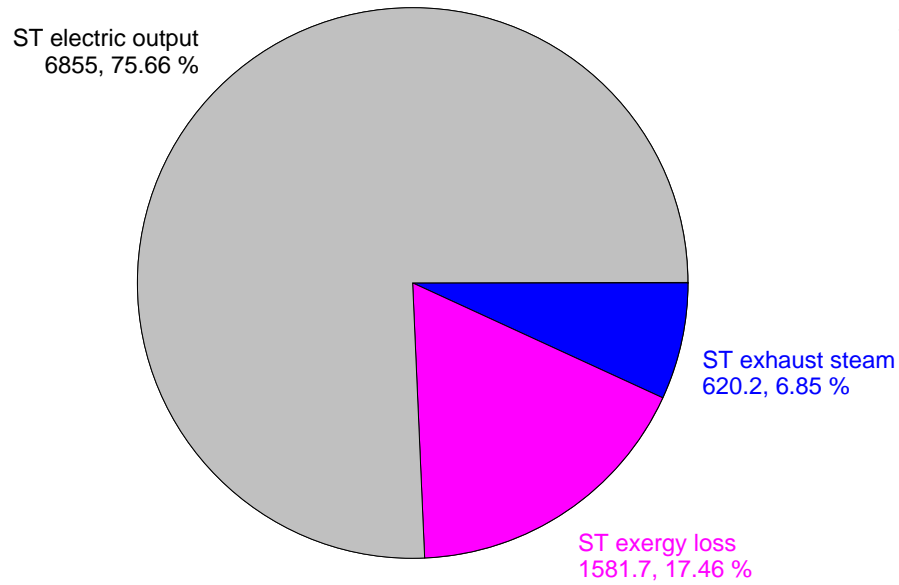
HRSG exergy in = 17755 BTU/s



Reference: 14.696 psia, 77 F, water as vapor.

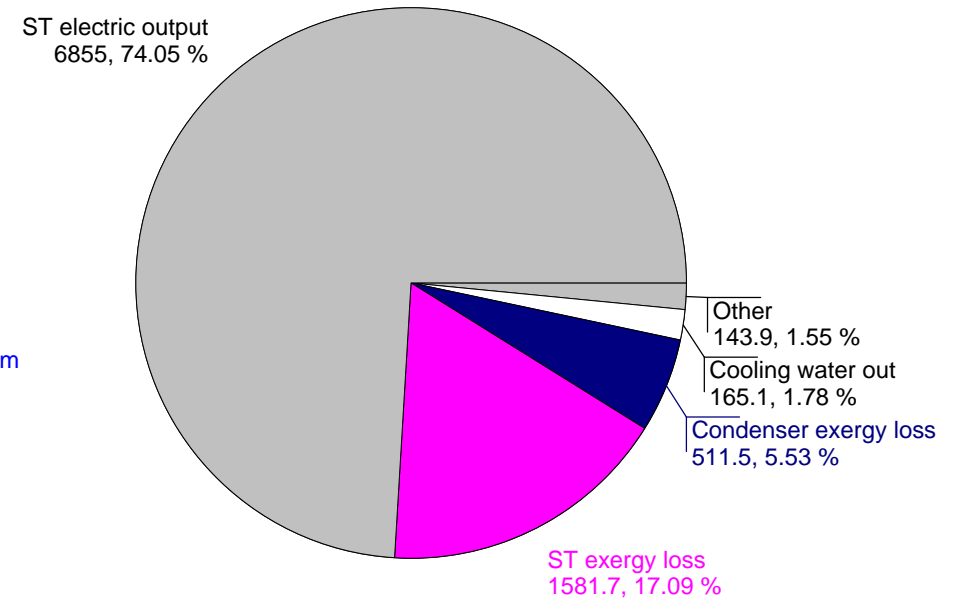
ST Exergy Analysis [BTU/s]

ST exergy in = 9060 BTU/s

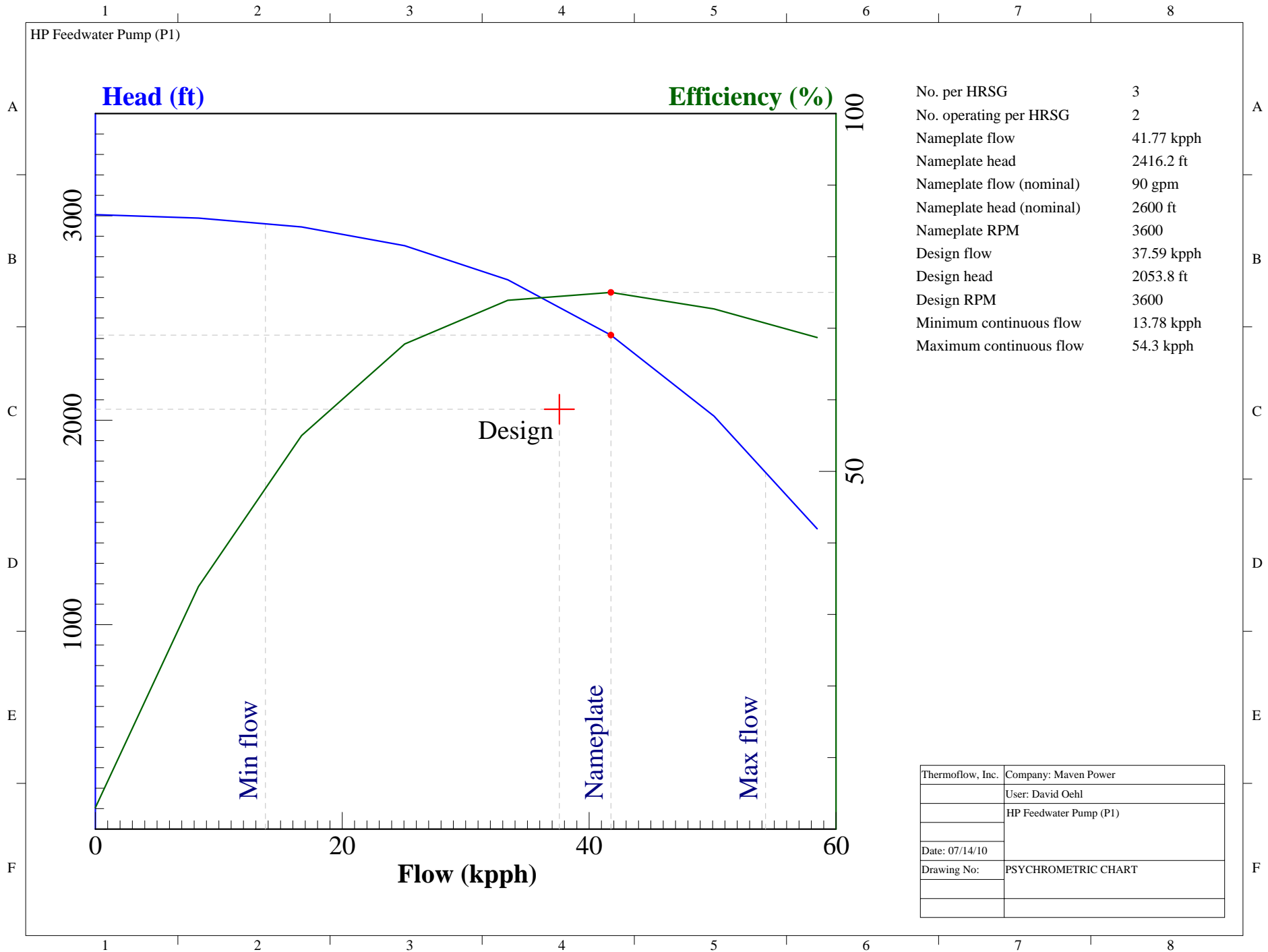


ST & Condenser Exergy Analysis [BTU/s]

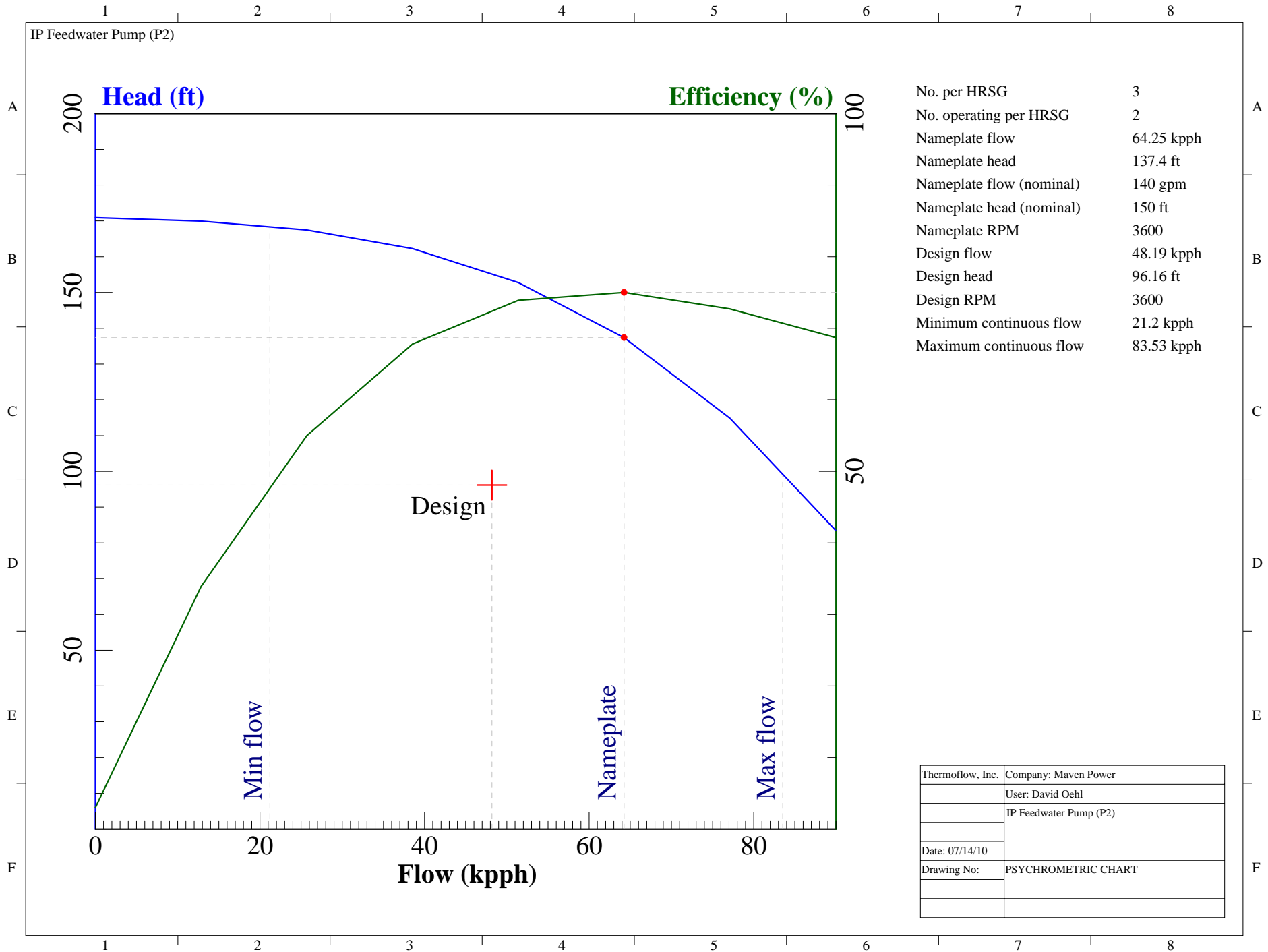
ST & condenser exergy in = 9257 BTU/s



Reference: 14.696 psia, 77 F, water as vapor.

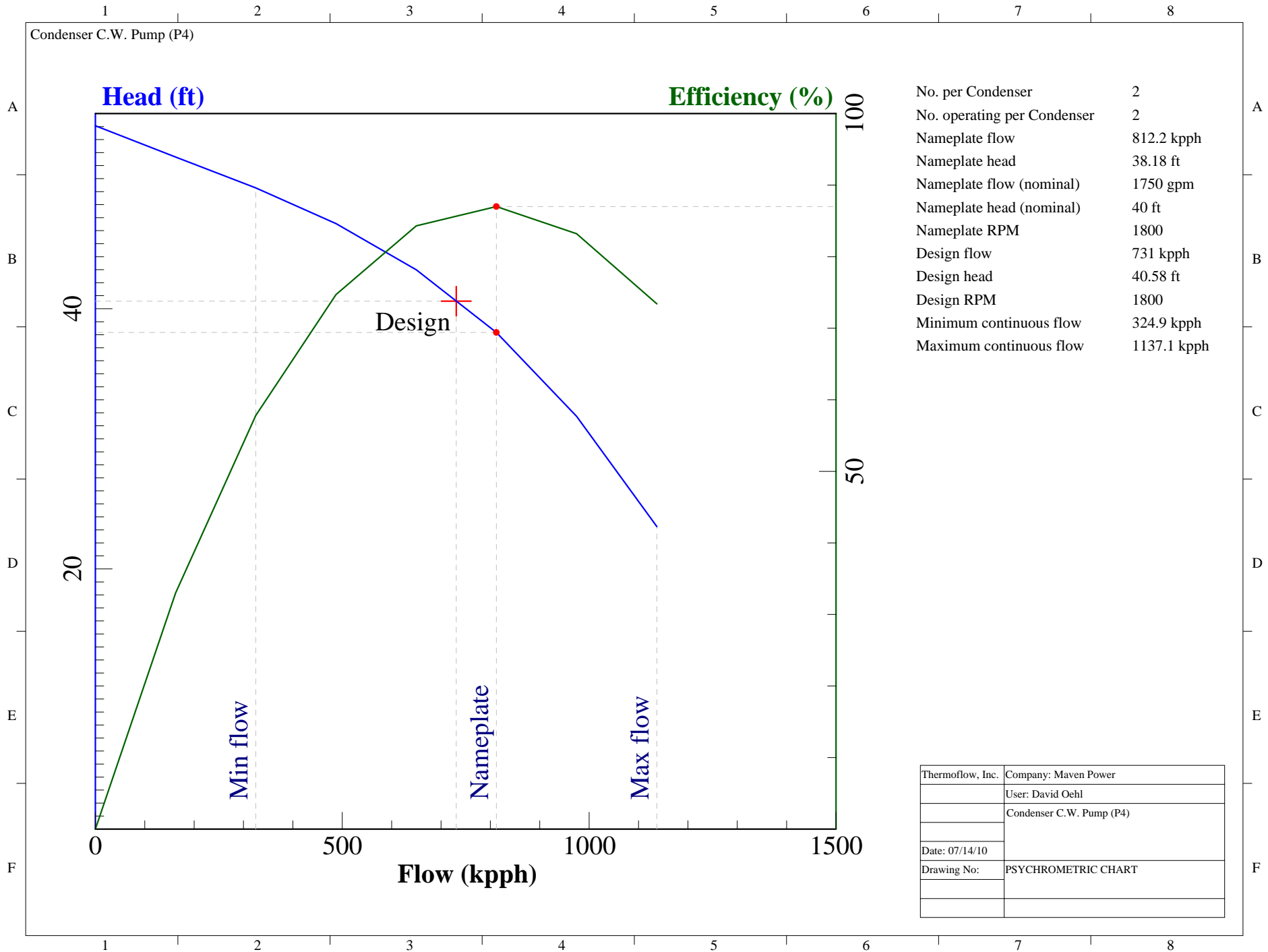


Thermoflow, Inc.	Company: Maven Power
	User: David Oehl
	HP Feedwater Pump (P1)
Date: 07/14/10	
Drawing No:	PSYCHROMETRIC CHART

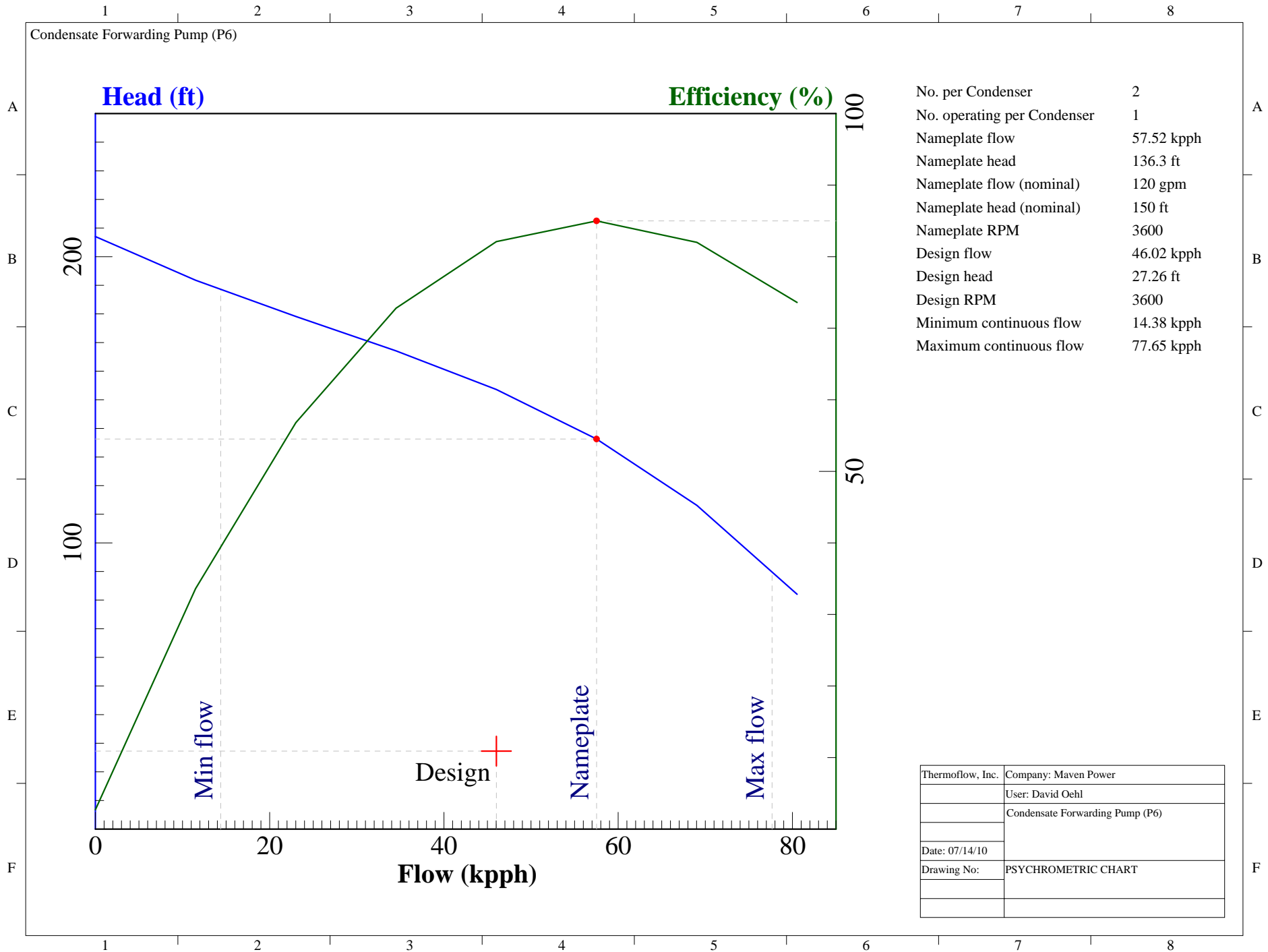


No. per HRSG	3
No. operating per HRSG	2
Nameplate flow	64.25 kpph
Nameplate head	137.4 ft
Nameplate flow (nominal)	140 gpm
Nameplate head (nominal)	150 ft
Nameplate RPM	3600
Design flow	48.19 kpph
Design head	96.16 ft
Design RPM	3600
Minimum continuous flow	21.2 kpph
Maximum continuous flow	83.53 kpph

ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	IP Feedwater Pump (P2)
Date: 07/14/10	
Drawing No:	PSYCHROMETRIC CHART

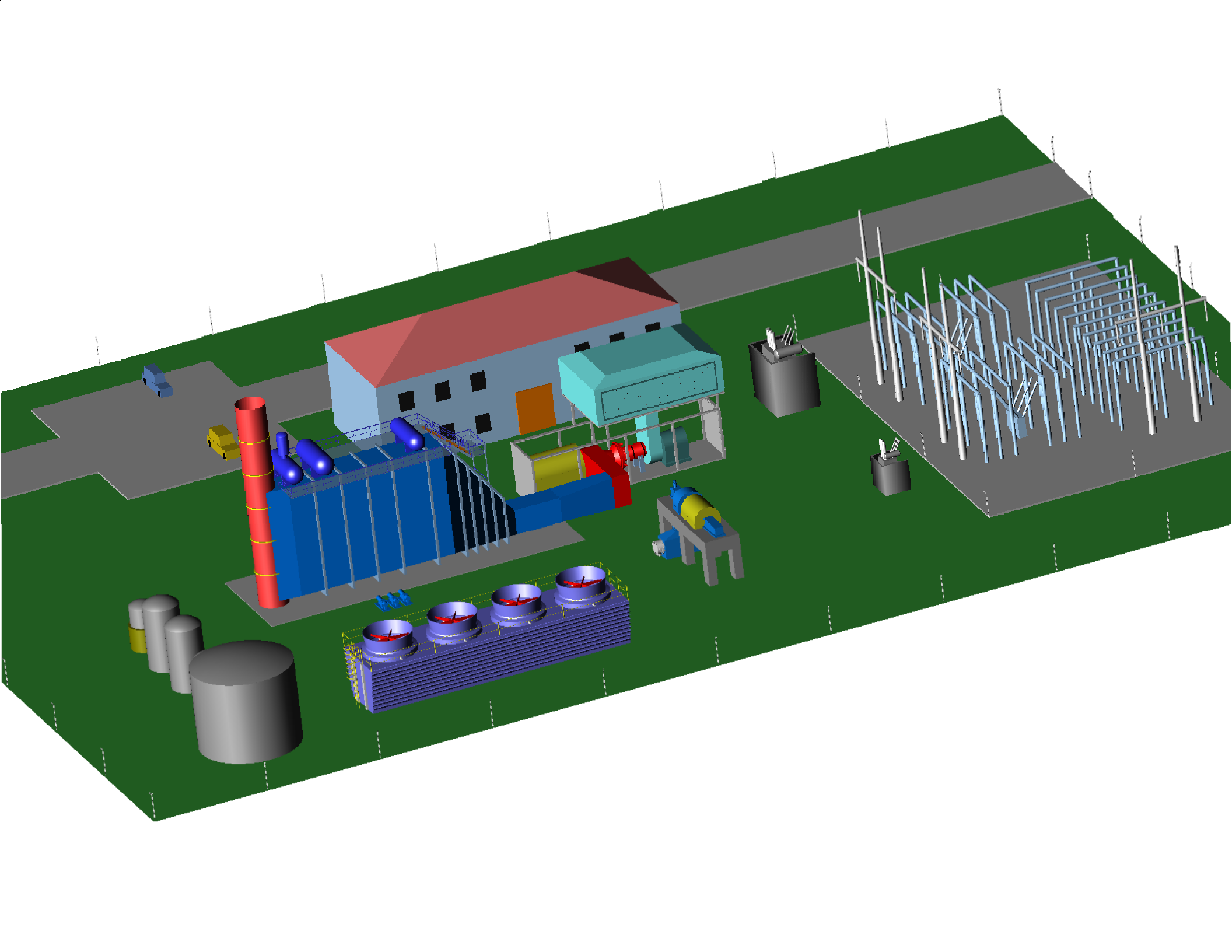


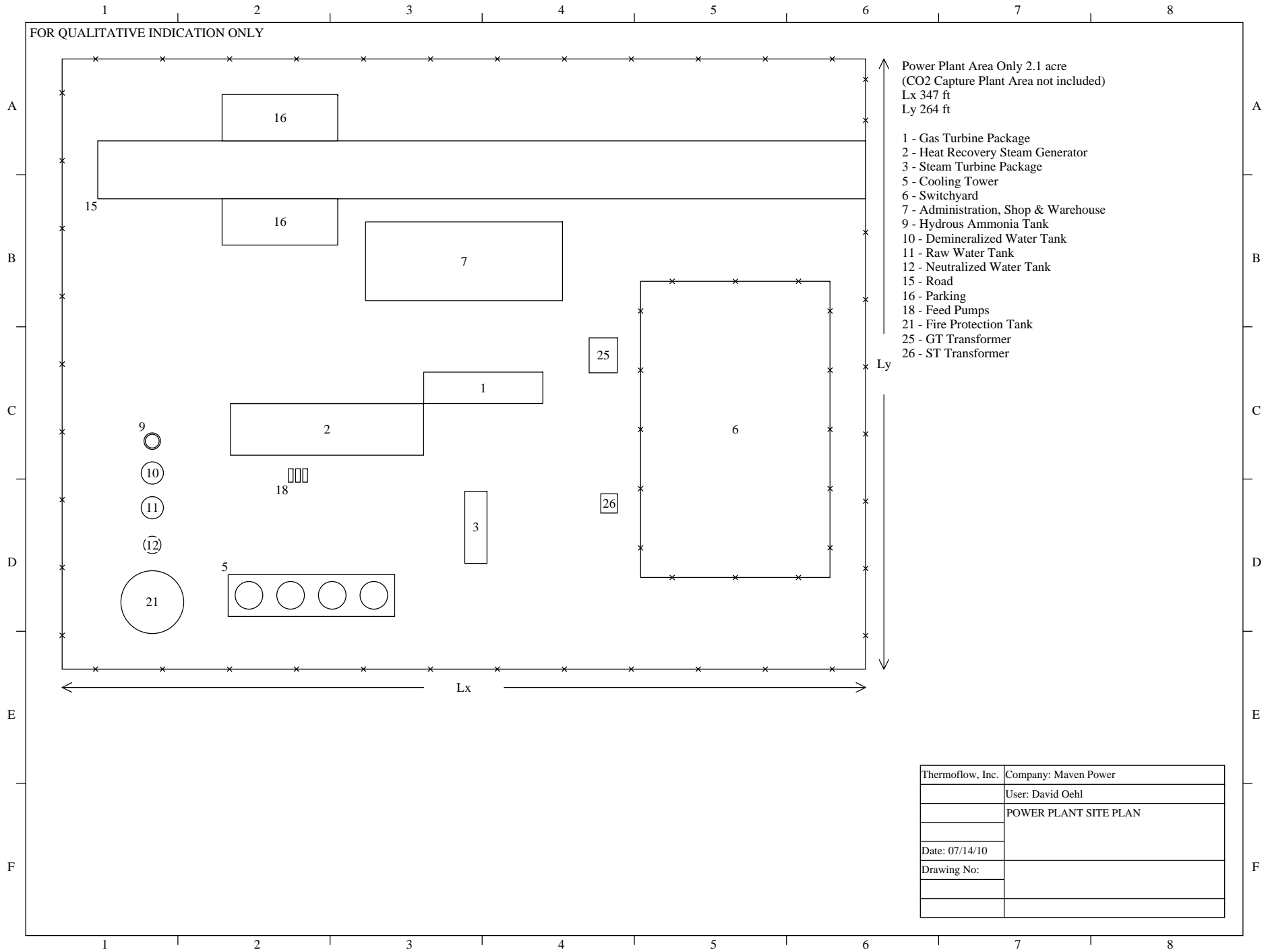
ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	Condenser C.W. Pump (P4)
Date: 07/14/10	
Drawing No:	PSYCHROMETRIC CHART



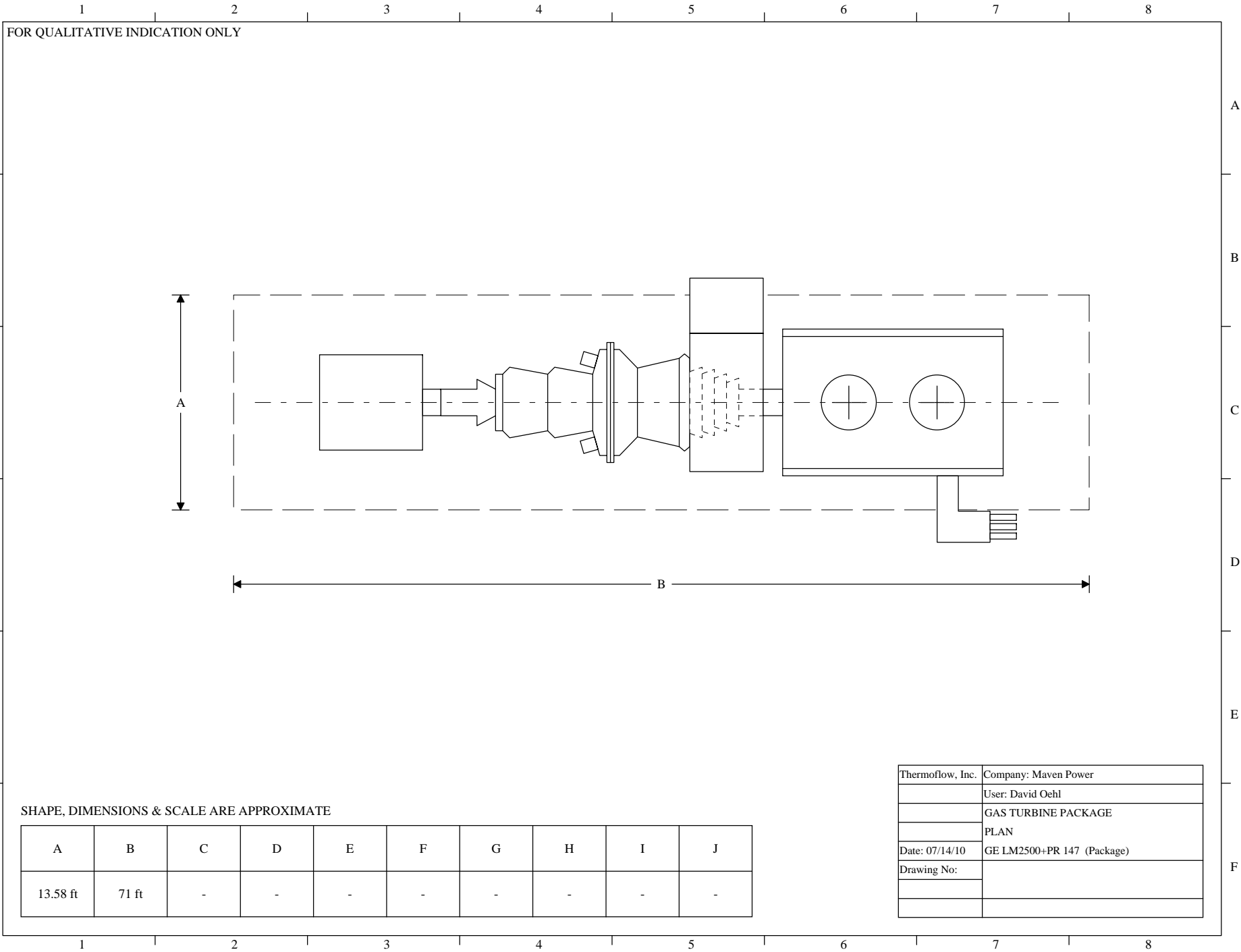
No. per Condenser	2
No. operating per Condenser	1
Nameplate flow	57.52 kpph
Nameplate head	136.3 ft
Nameplate flow (nominal)	120 gpm
Nameplate head (nominal)	150 ft
Nameplate RPM	3600
Design flow	46.02 kpph
Design head	27.26 ft
Design RPM	3600
Minimum continuous flow	14.38 kpph
Maximum continuous flow	77.65 kpph

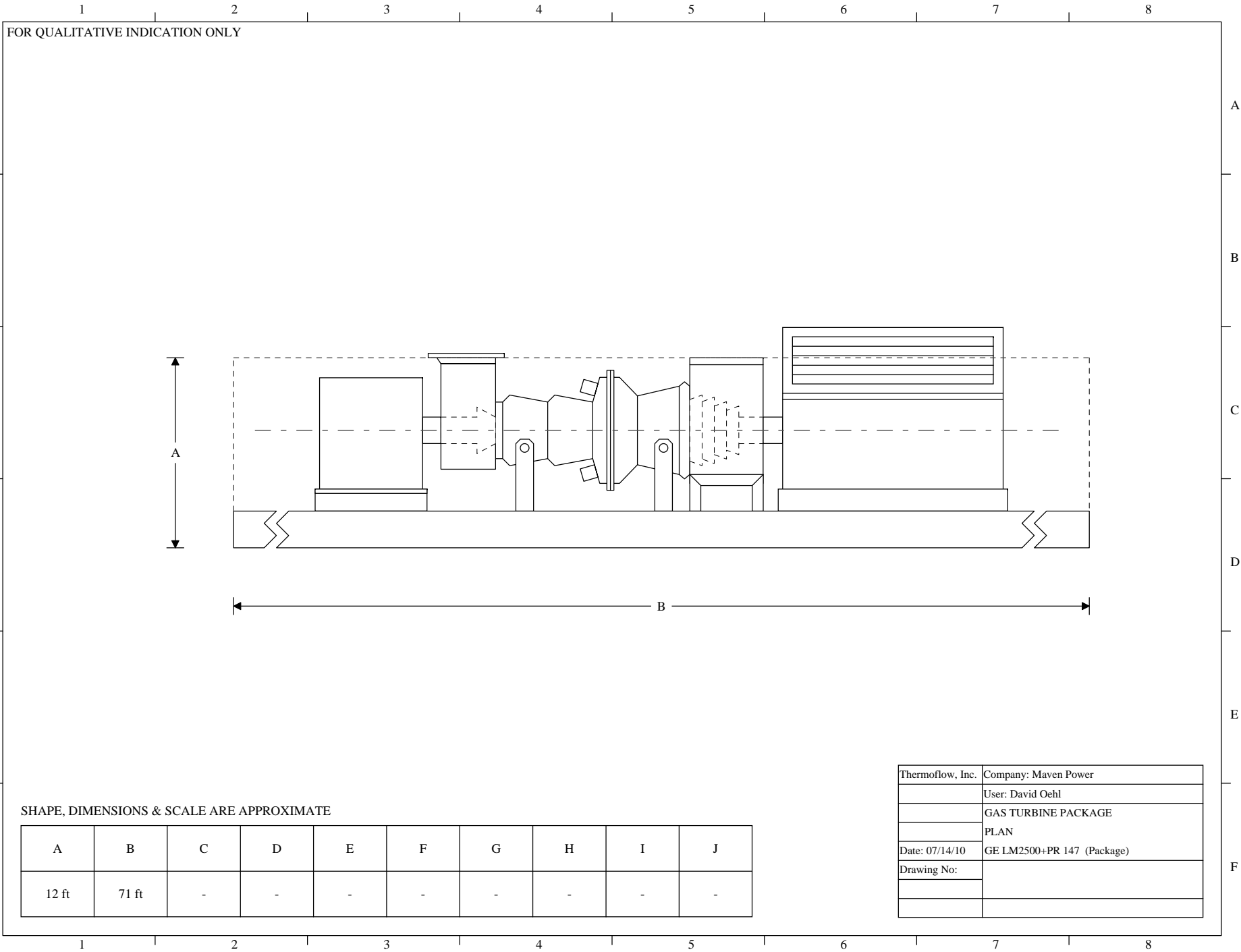
ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	Condensate Forwarding Pump (P6)
Date: 07/14/10	
Drawing No:	PSYCHROMETRIC CHART

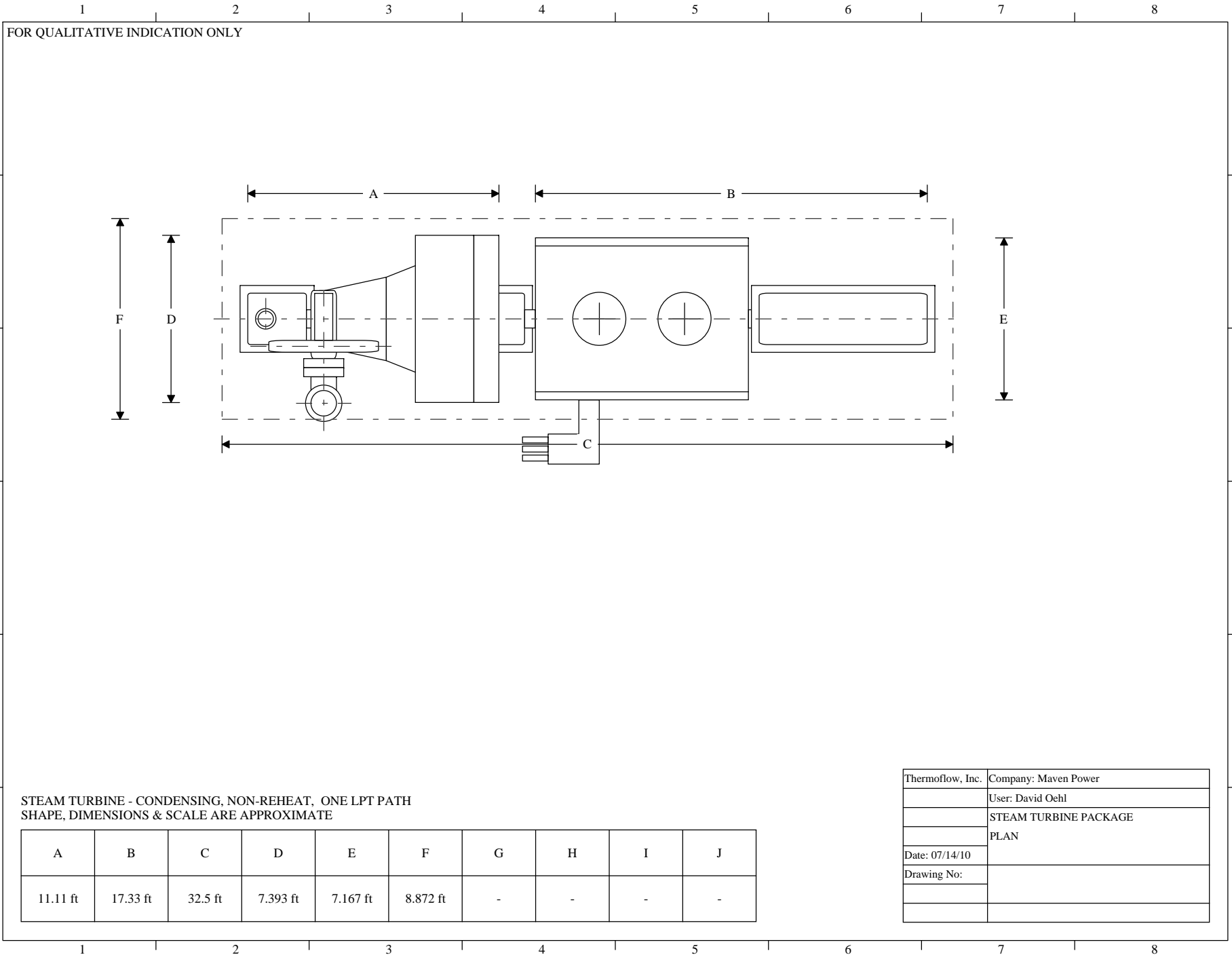




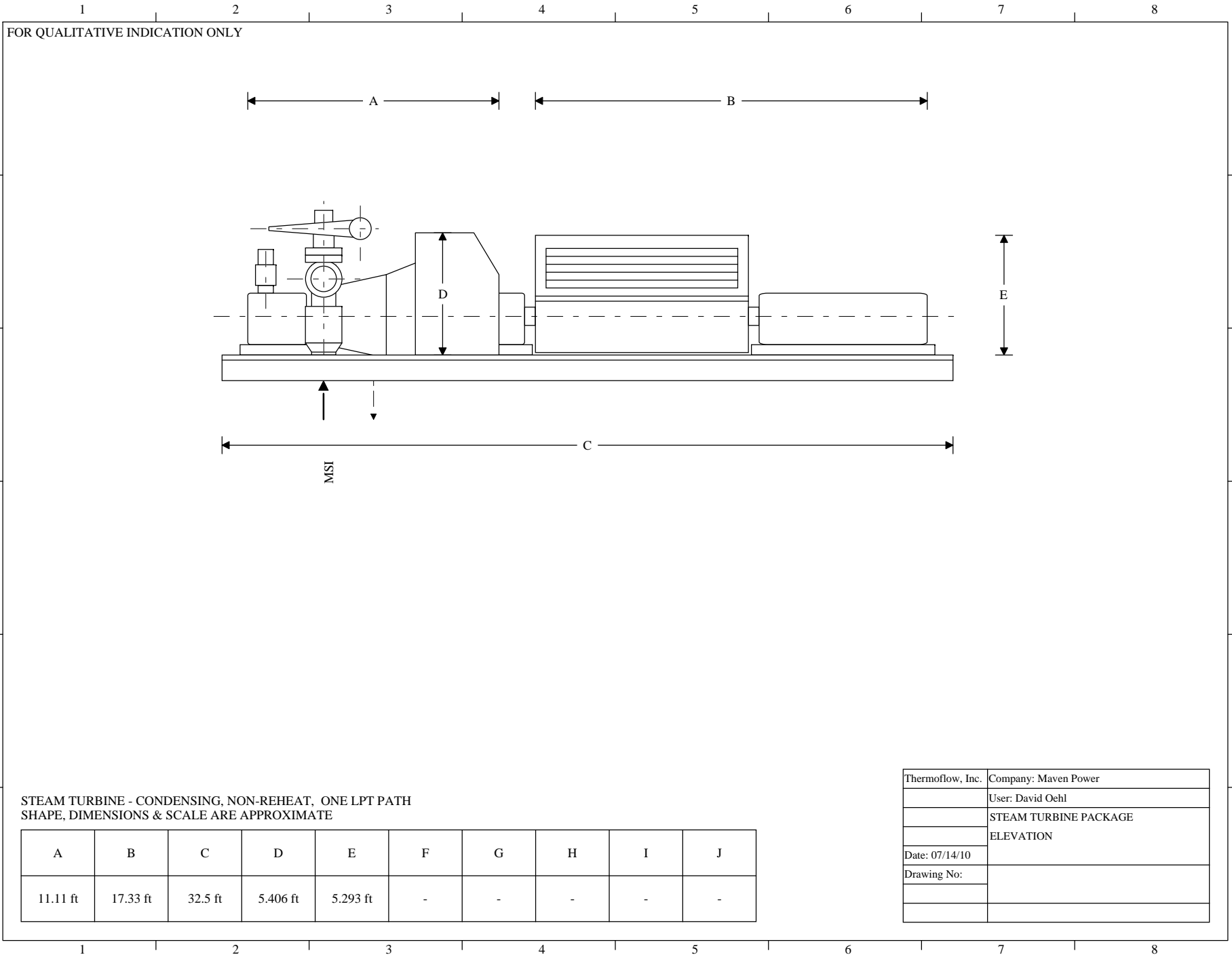
ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	POWER PLANT SITE PLAN
Date: 07/14/10	
Drawing No:	







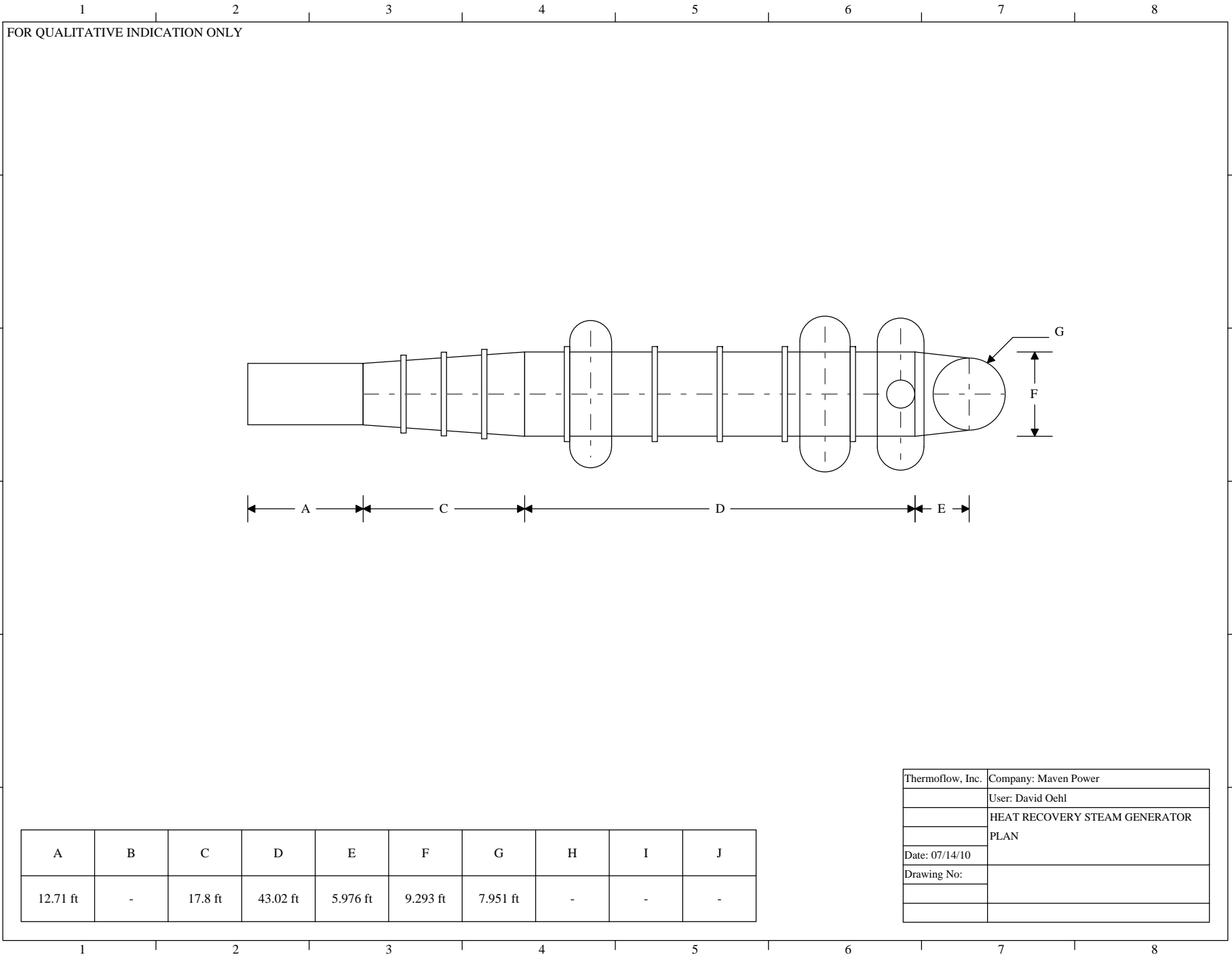
ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	STEAM TURBINE PACKAGE
	PLAN
Date: 07/14/10	
Drawing No:	



STEAM TURBINE - CONDENSING, NON-REHEAT, ONE LPT PATH
 SHAPE, DIMENSIONS & SCALE ARE APPROXIMATE

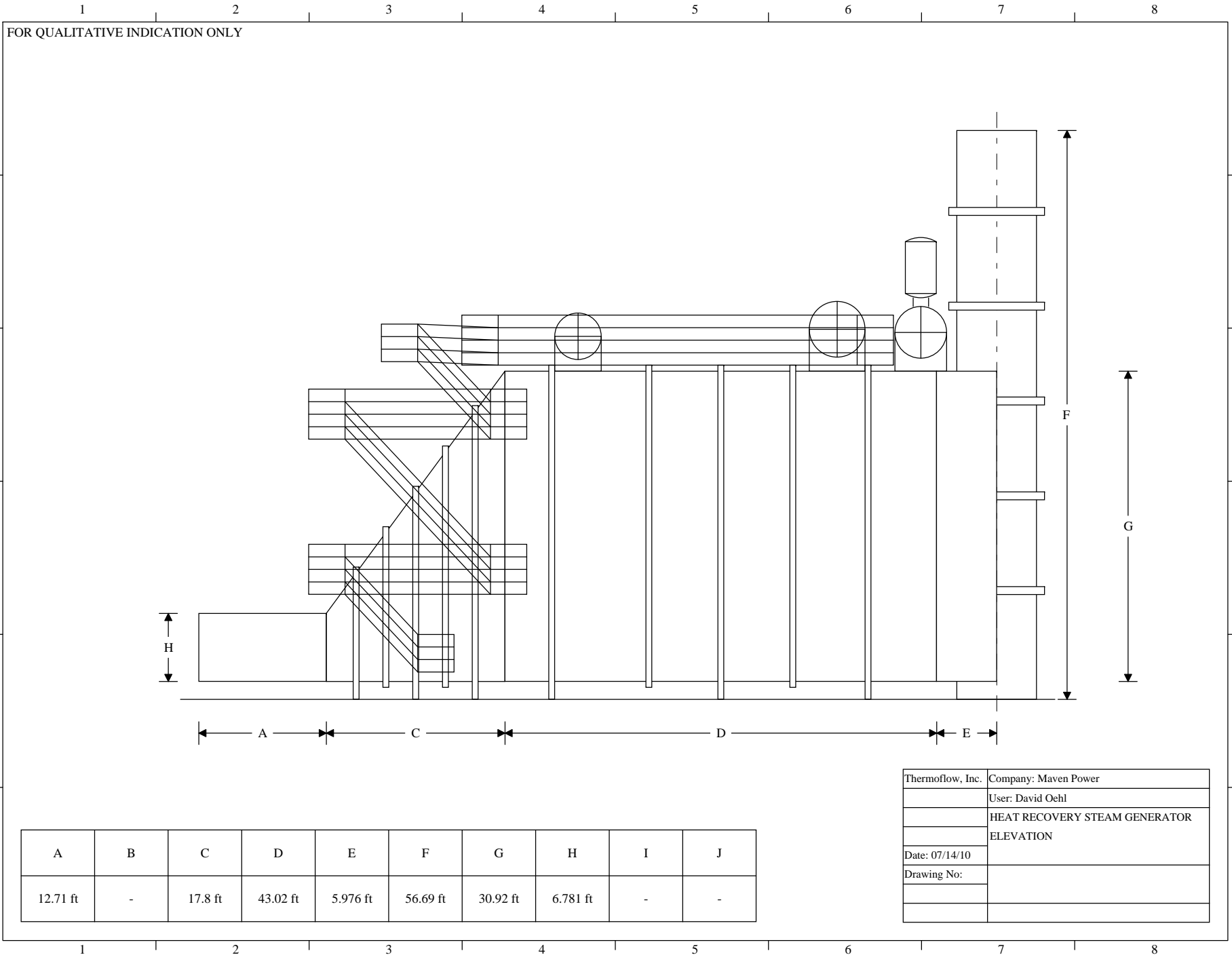
A	B	C	D	E	F	G	H	I	J
11.11 ft	17.33 ft	32.5 ft	5.406 ft	5.293 ft	-	-	-	-	-

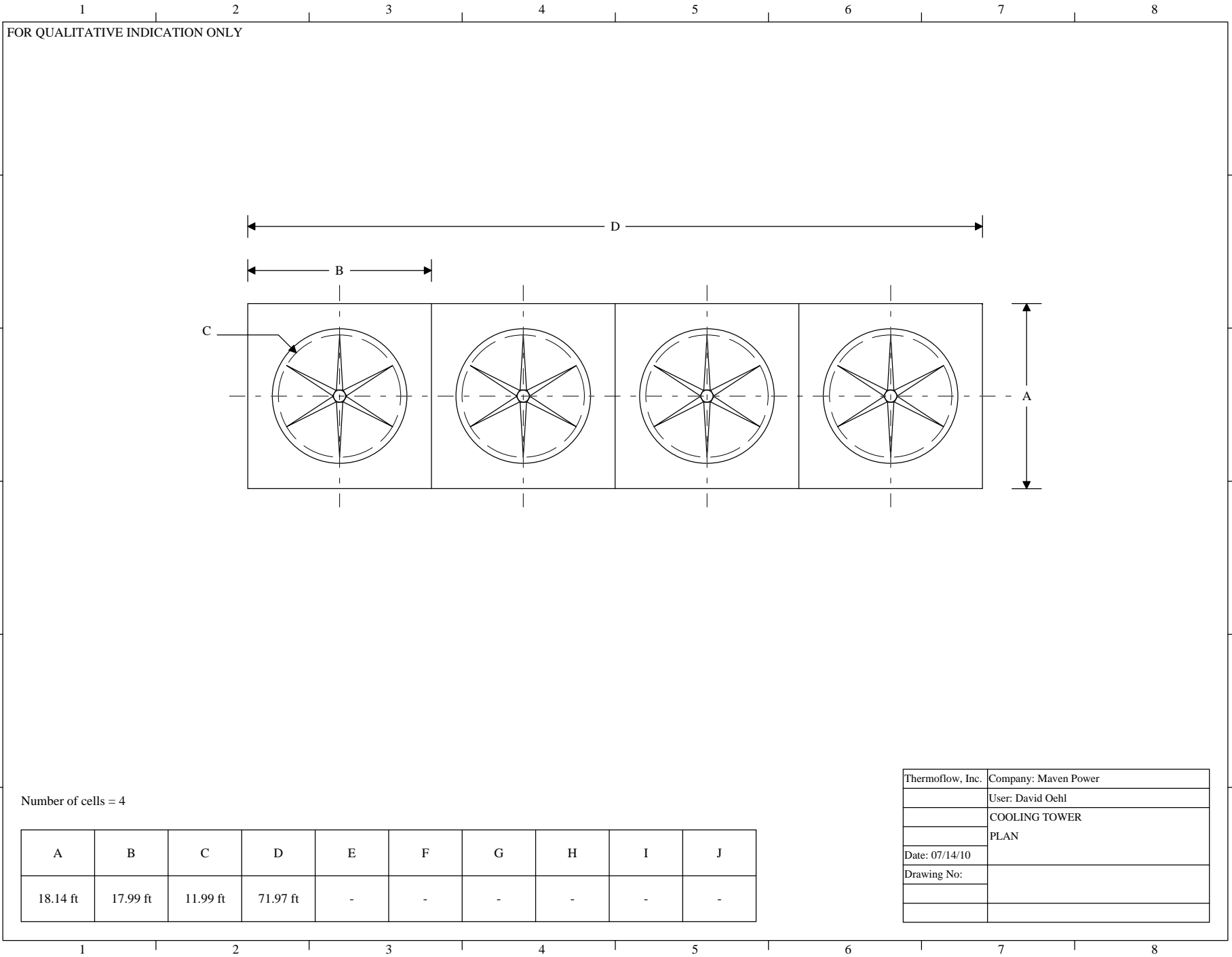
ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	STEAM TURBINE PACKAGE
	ELEVATION
Date: 07/14/10	
Drawing No:	

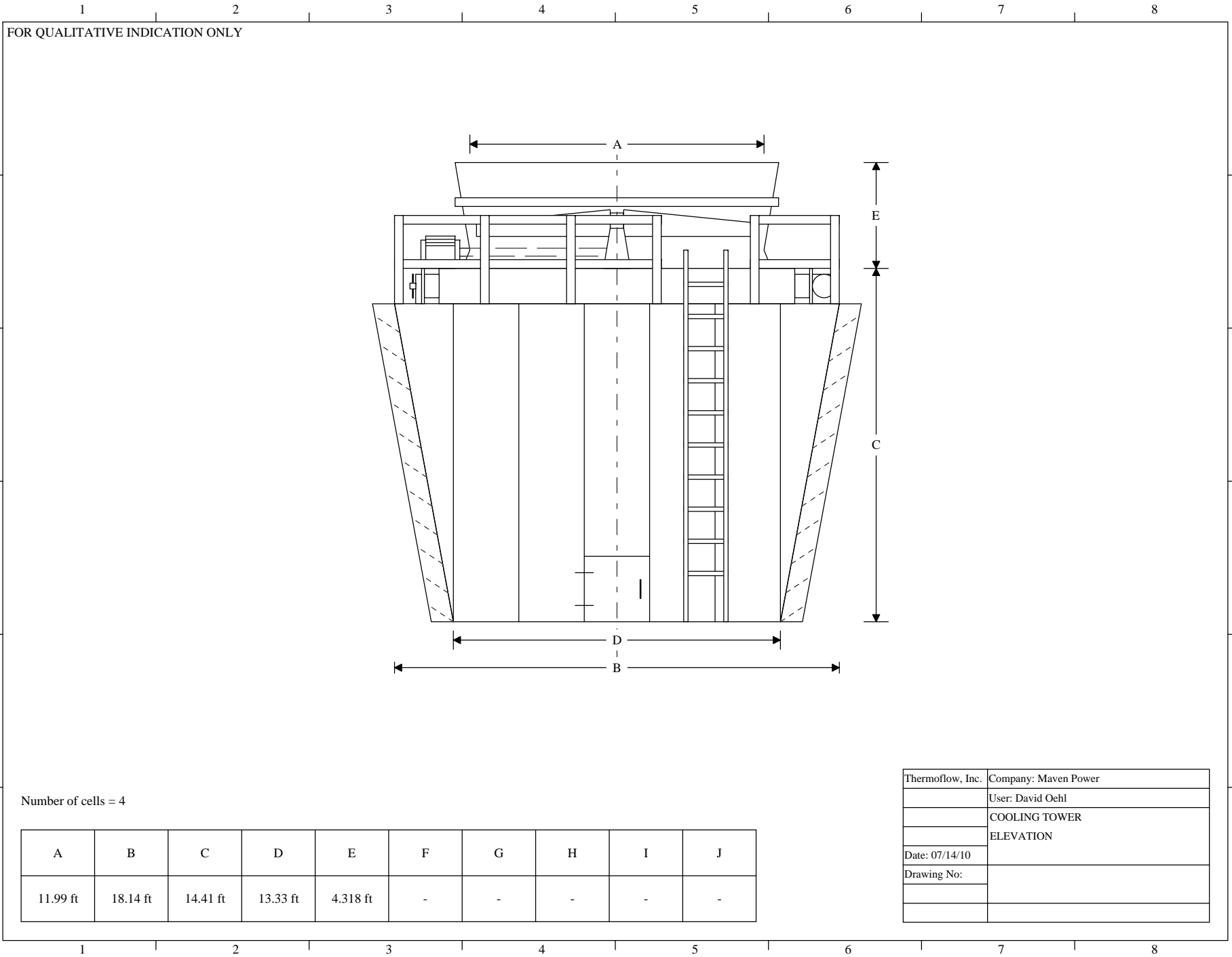


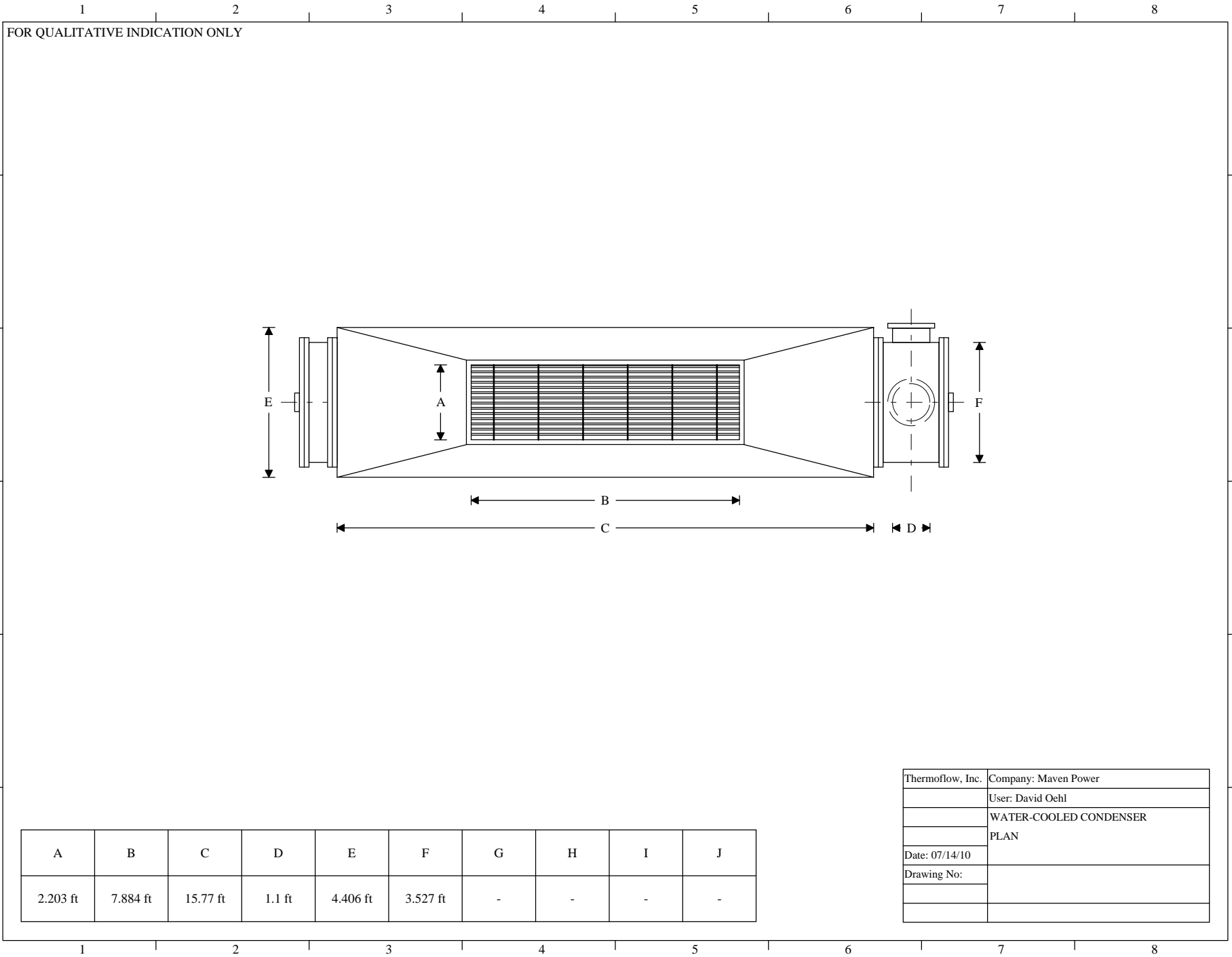
A	B	C	D	E	F	G	H	I	J
12.71 ft	-	17.8 ft	43.02 ft	5.976 ft	9.293 ft	7.951 ft	-	-	-

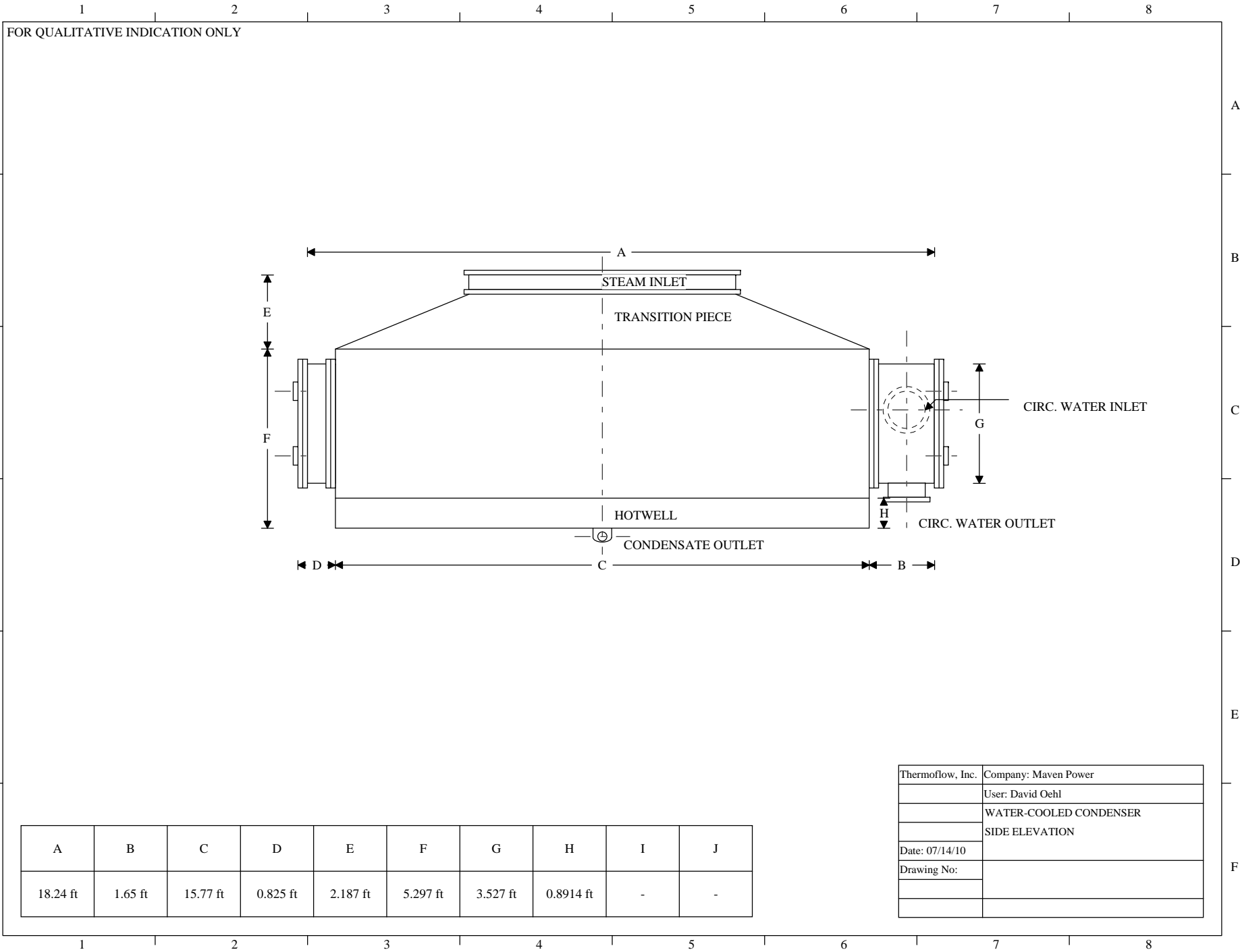
Thermsflow, Inc.	Company: Maven Power
	User: David Oehl
	HEAT RECOVERY STEAM GENERATOR
	PLAN
Date: 07/14/10	
Drawing No:	



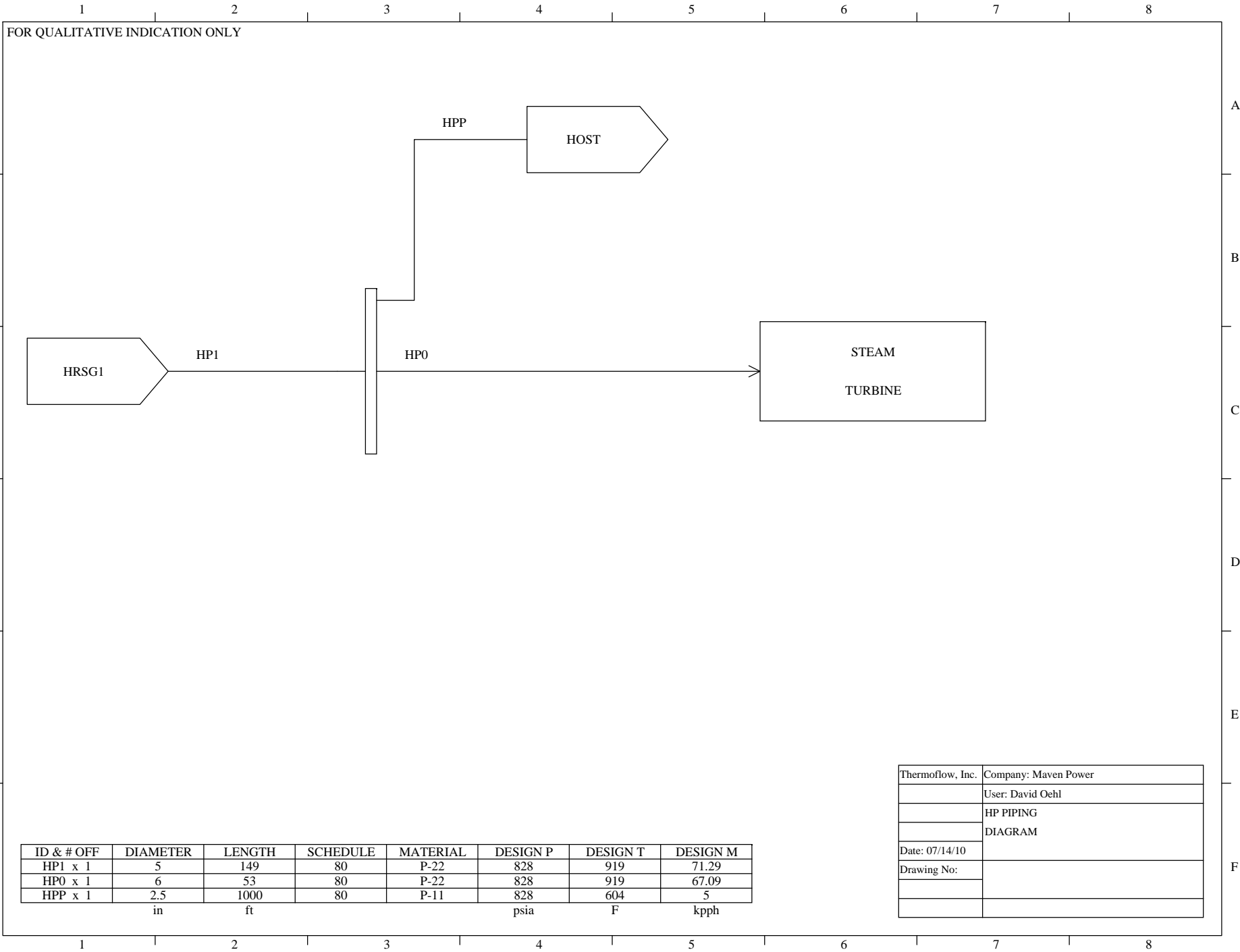






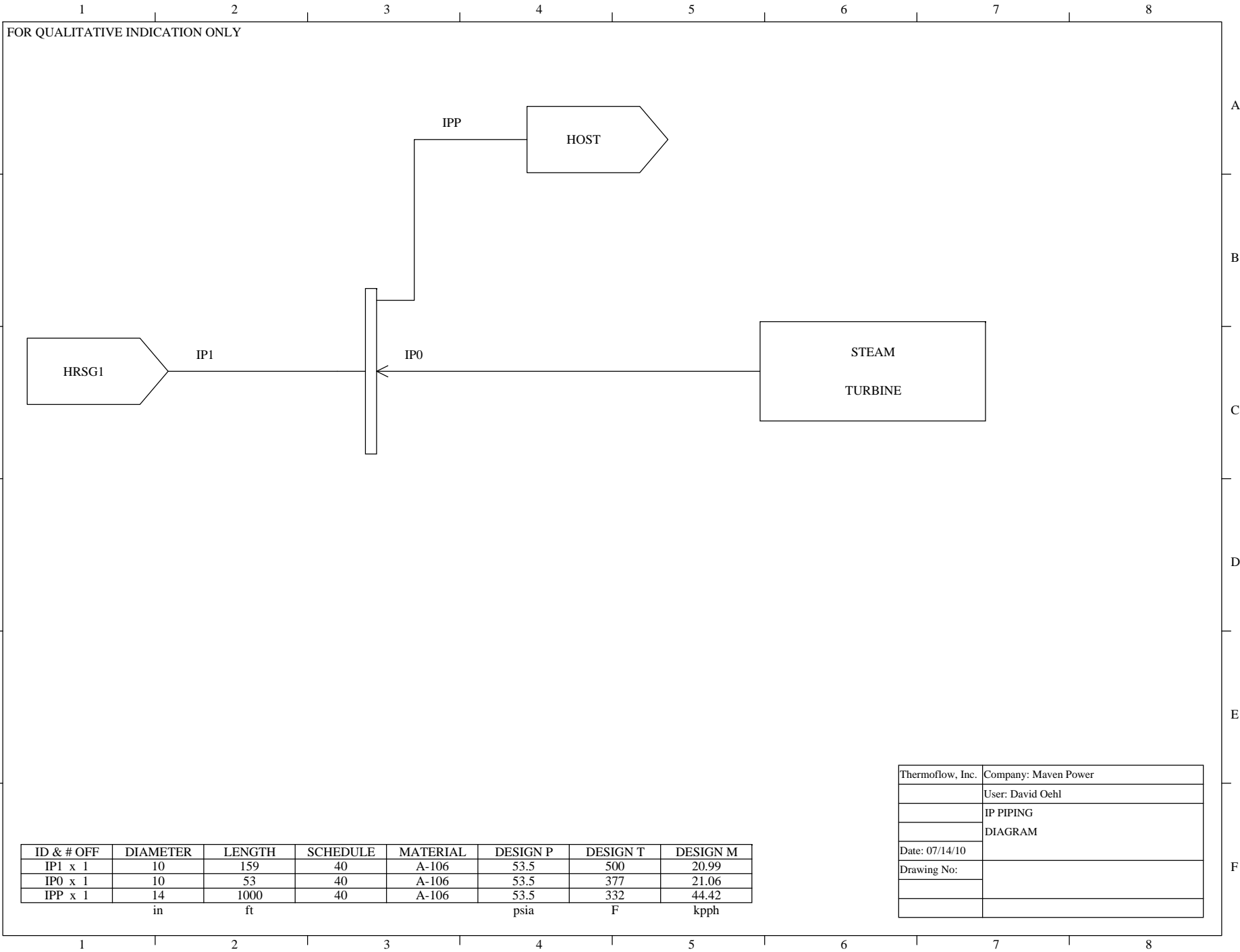


Therminflow, Inc.	Company: Maven Power
	User: David Oehl
	WATER-COOLED CONDENSER
	SIDE ELEVATION
Date: 07/14/10	
Drawing No:	



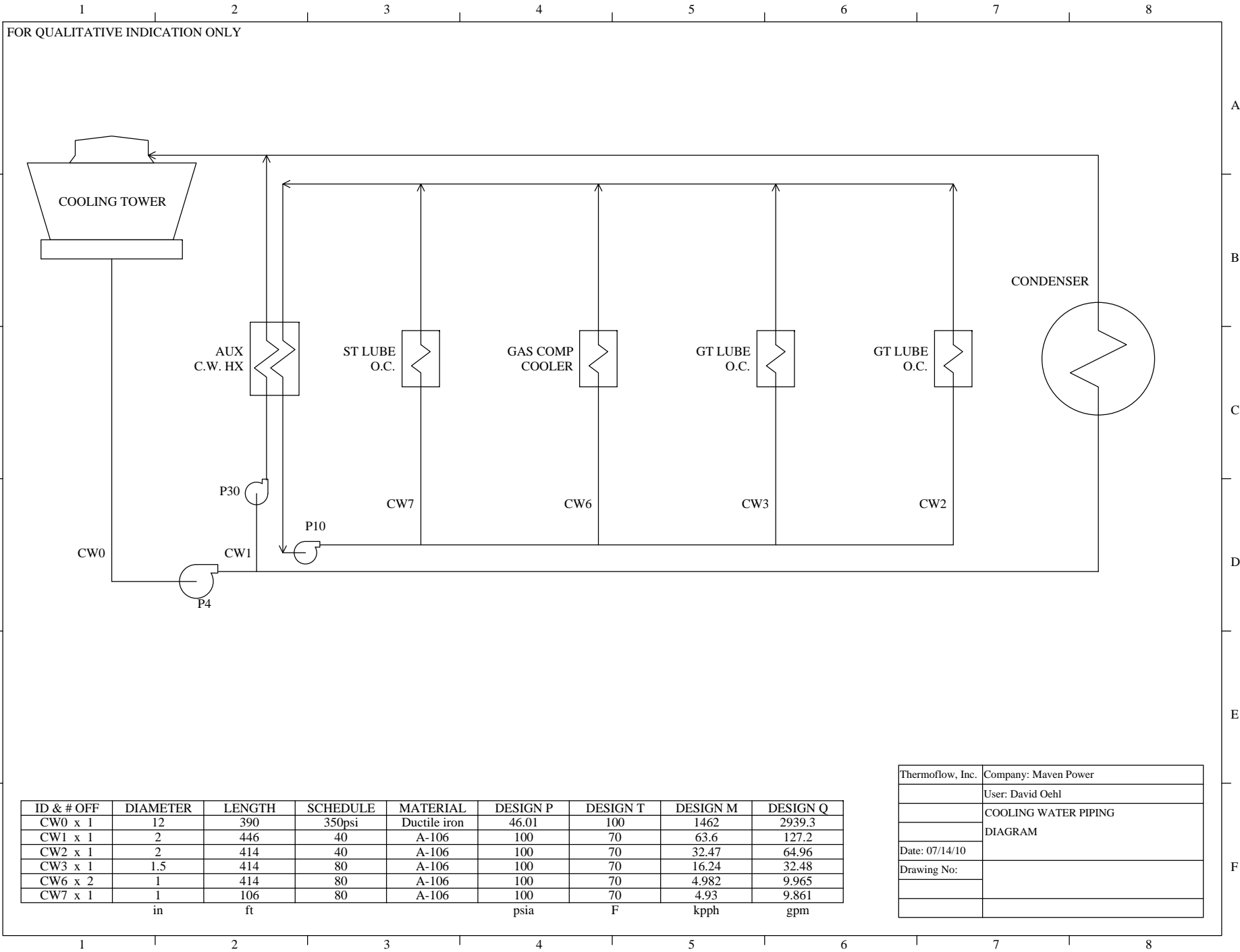
ID & # OFF	DIAMETER	LENGTH	SCHEDULE	MATERIAL	DESIGN P	DESIGN T	DESIGN M
HP1 x 1	5	149	80	P-22	828	919	71.29
HPO x 1	6	53	80	P-22	828	919	67.09
HPP x 1	2.5	1000	80	P-11	828	604	5
	in	ft			psia	F	kpph

ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	HP PIPING
	DIAGRAM
Date: 07/14/10	
Drawing No:	



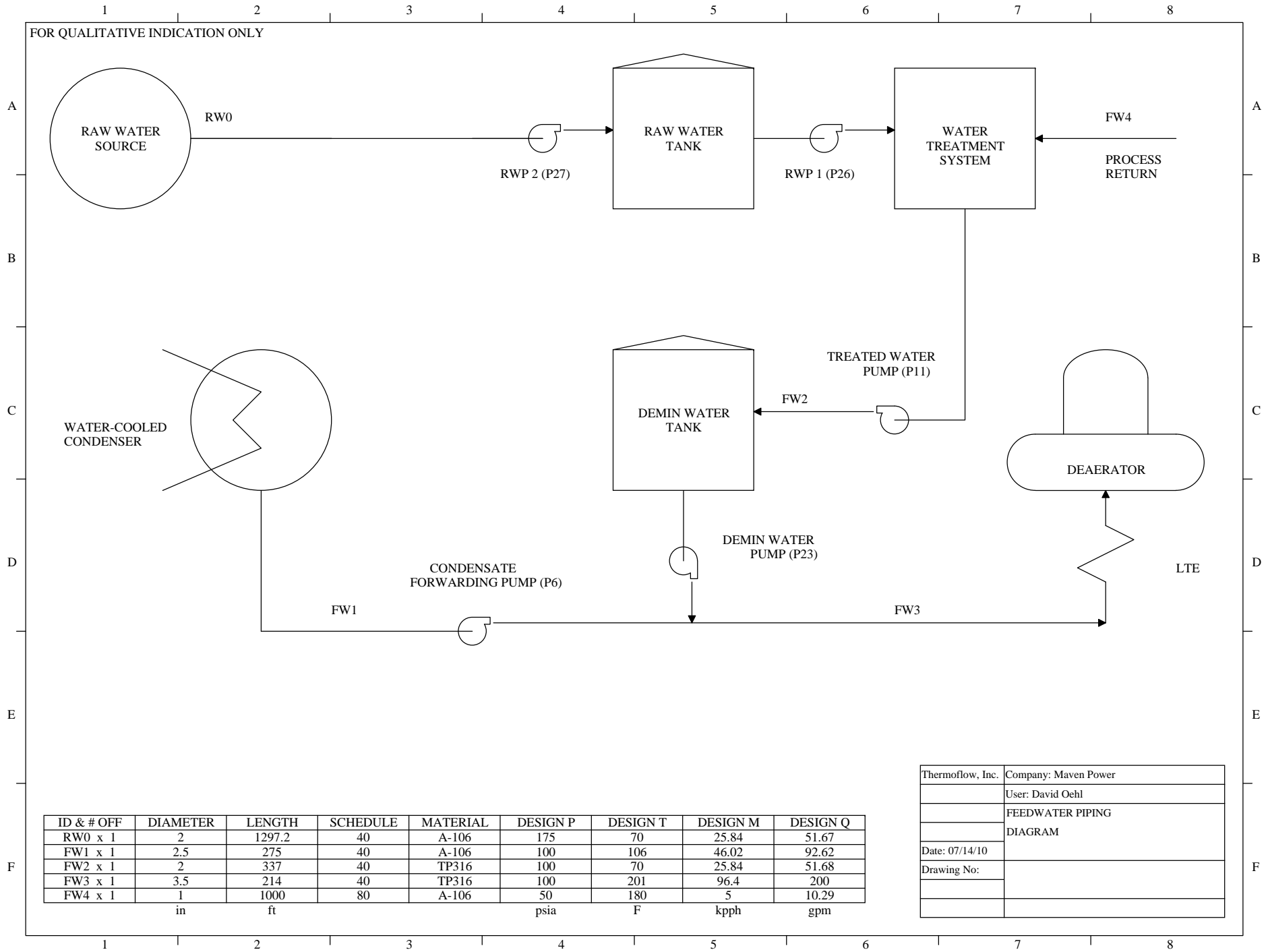
ID & # OFF	DIAMETER	LENGTH	SCHEDULE	MATERIAL	DESIGN P	DESIGN T	DESIGN M
IP1 x 1	10	159	40	A-106	53.5	500	20.99
IPO x 1	10	53	40	A-106	53.5	377	21.06
IPP x 1	14	1000	40	A-106	53.5	332	44.42
	in	ft			psia	F	kpph

Thermoflow, Inc.	Company: Maven Power
	User: David Oehl
	IP PIPING
	DIAGRAM
Date: 07/14/10	
Drawing No:	



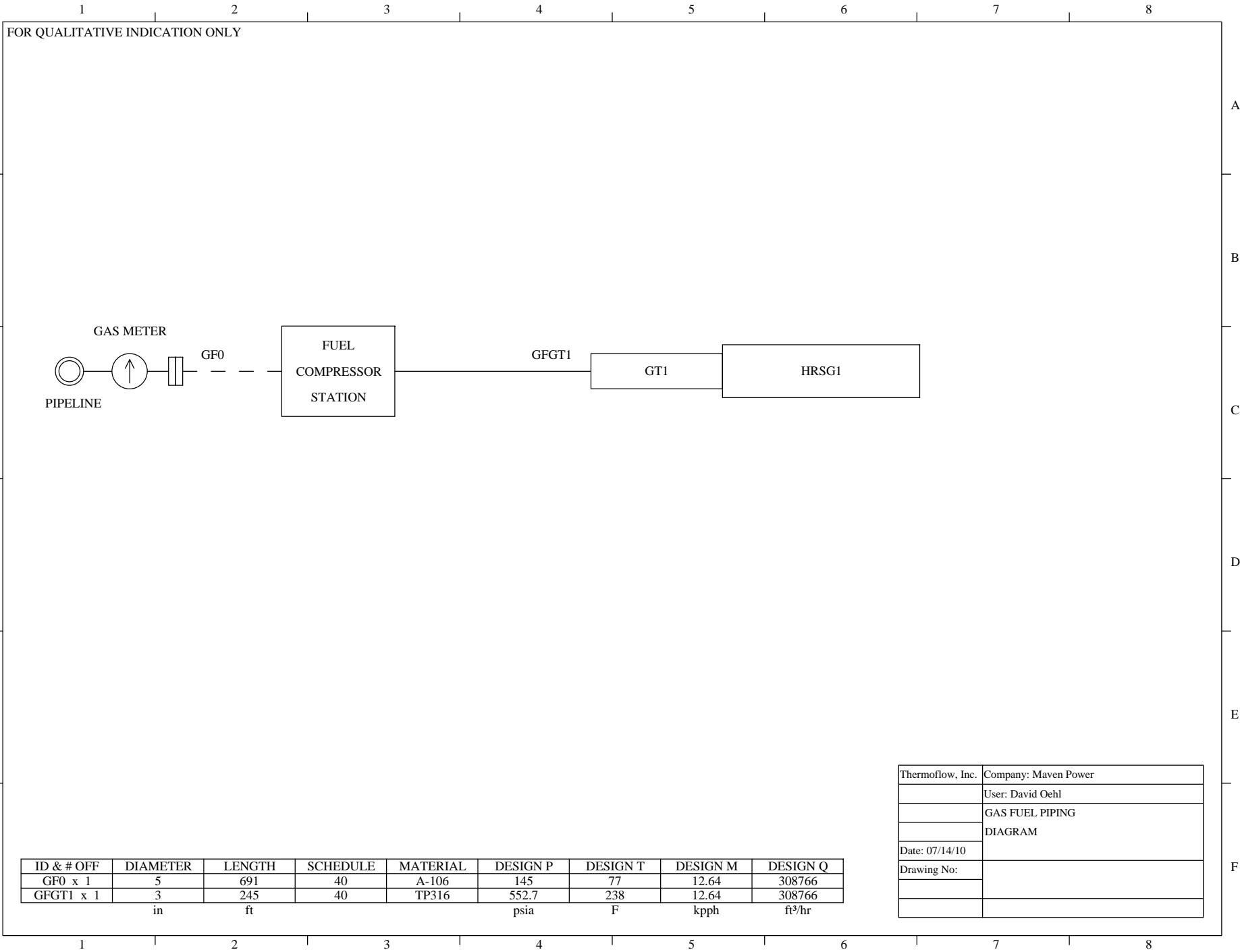
ID & # OFF	DIAMETER	LENGTH	SCHEDULE	MATERIAL	DESIGN P	DESIGN T	DESIGN M	DESIGN Q
CW0 x 1	12	390	350psi	Ductile iron	46.01	100	1462	2939.3
CW1 x 1	2	446	40	A-106	100	70	63.6	127.2
CW2 x 1	2	414	40	A-106	100	70	32.47	64.96
CW3 x 1	1.5	414	80	A-106	100	70	16.24	32.48
CW6 x 2	1	414	80	A-106	100	70	4.982	9.965
CW7 x 1	1	106	80	A-106	100	70	4.93	9.861
	in	ft			psia	F	kpph	gpm

ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	COOLING WATER PIPING
	DIAGRAM
Date: 07/14/10	
Drawing No:	



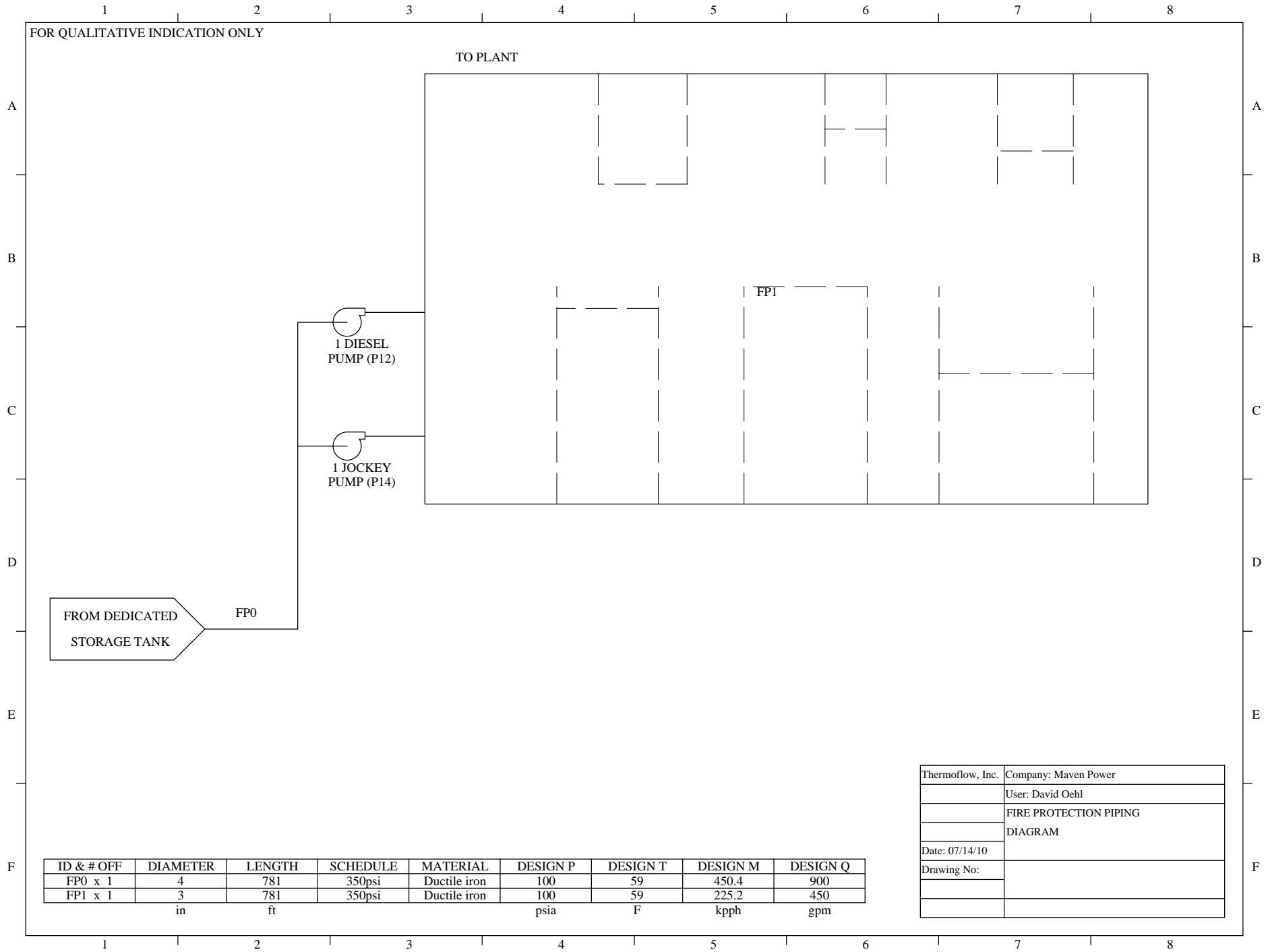
ID & # OFF	DIAMETER	LENGTH	SCHEDULE	MATERIAL	DESIGN P	DESIGN T	DESIGN M	DESIGN Q
RW0 x 1	2	1297.2	40	A-106	175	70	25.84	51.67
FW1 x 1	2.5	275	40	A-106	100	106	46.02	92.62
FW2 x 1	2	337	40	TP316	100	70	25.84	51.68
FW3 x 1	3.5	214	40	TP316	100	201	96.4	200
FW4 x 1	1	1000	80	A-106	50	180	5	10.29
	in	ft			psia	F	kpph	gpm

ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	FEEDWATER PIPING
	DIAGRAM
Date: 07/14/10	
Drawing No:	



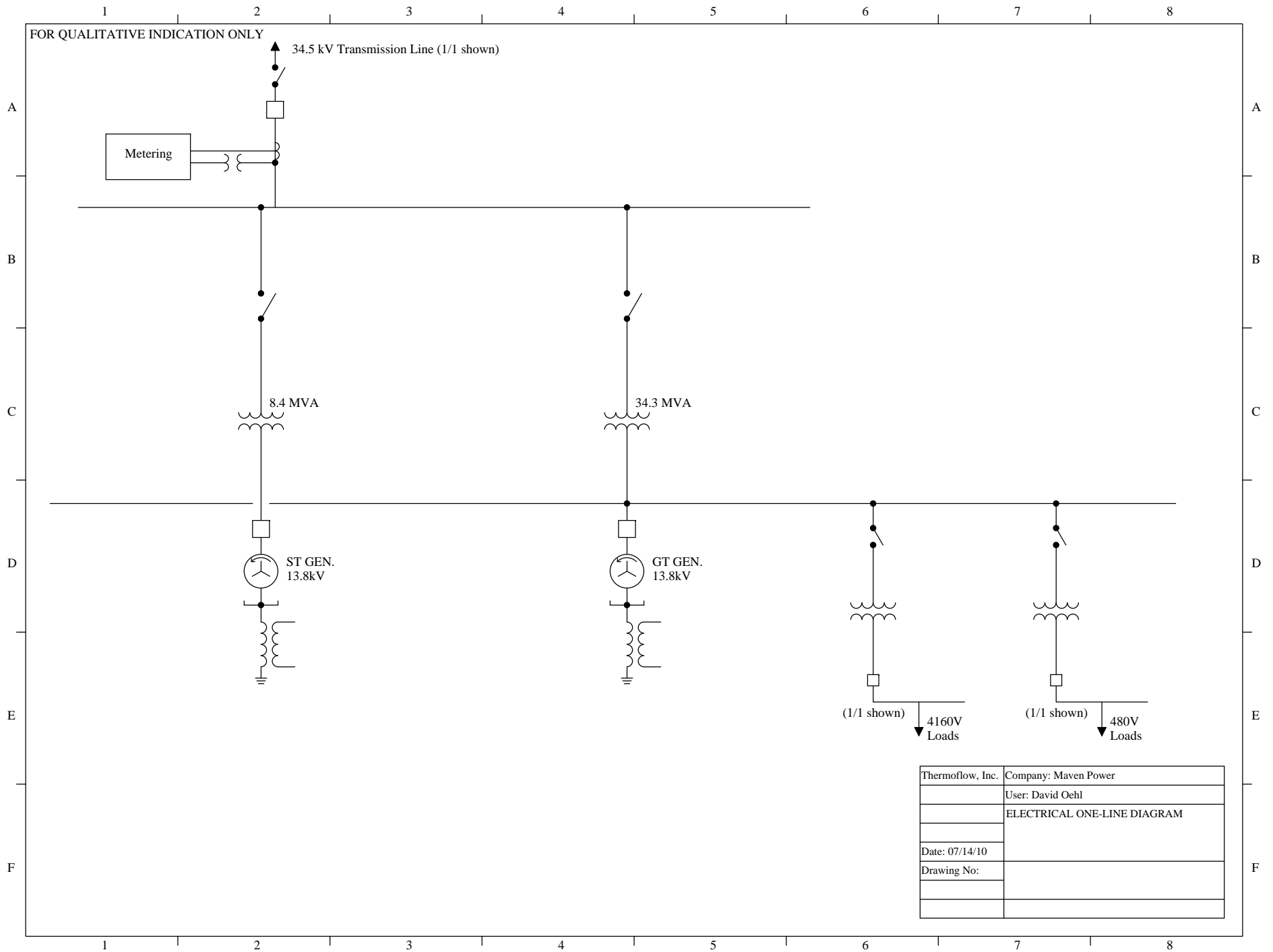
ID & # OFF	DIAMETER	LENGTH	SCHEDULE	MATERIAL	DESIGN P	DESIGN T	DESIGN M	DESIGN Q
GF0 x 1	5	691	40	A-106	145	77	12.64	308766
GFGT1 x 1	3	245	40	TP316	552.7	238	12.64	308766
	in	ft			psia	F	kpph	ft ³ /hr

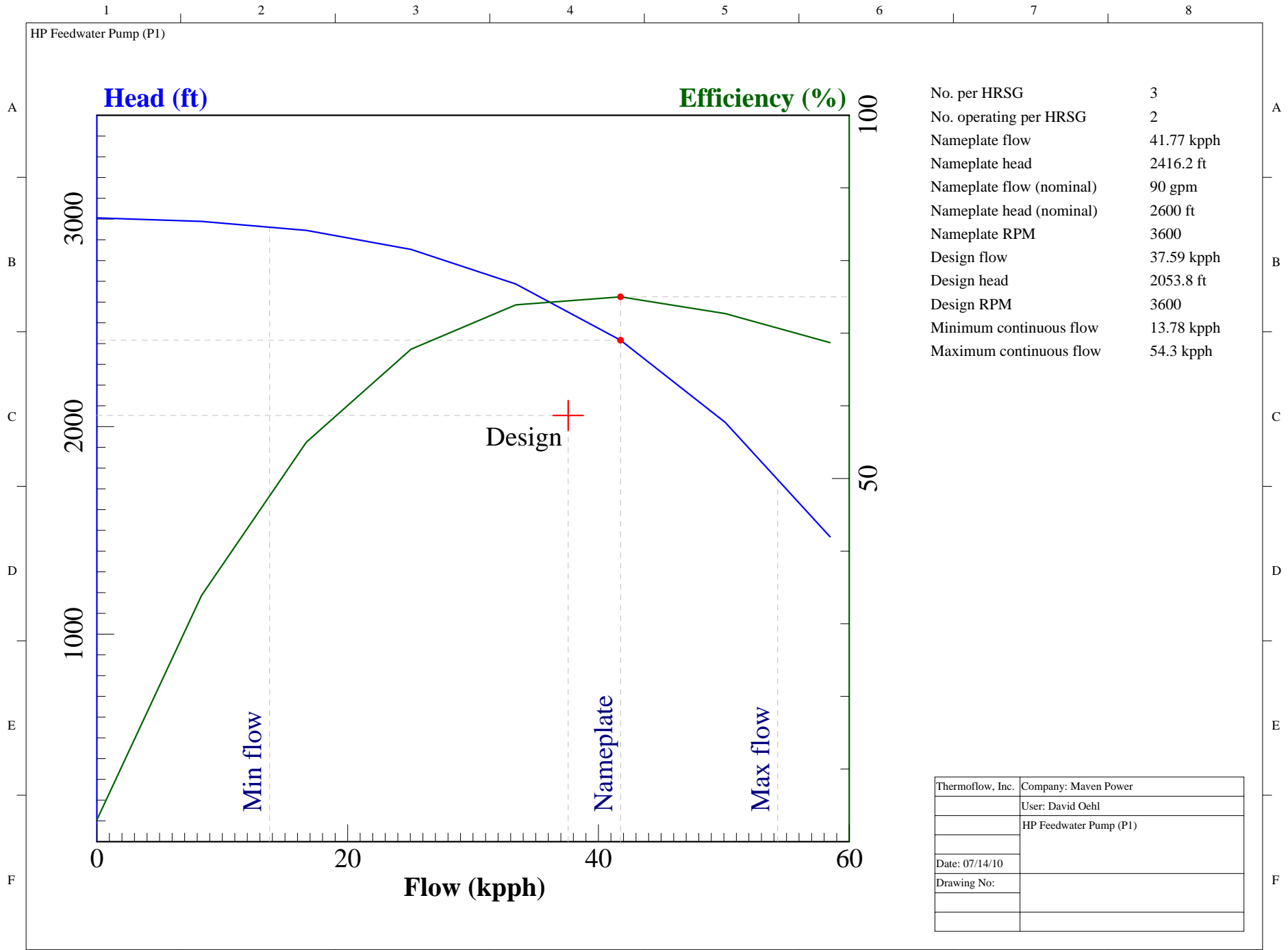
ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	GAS FUEL PIPING
	DIAGRAM
Date: 07/14/10	
Drawing No:	



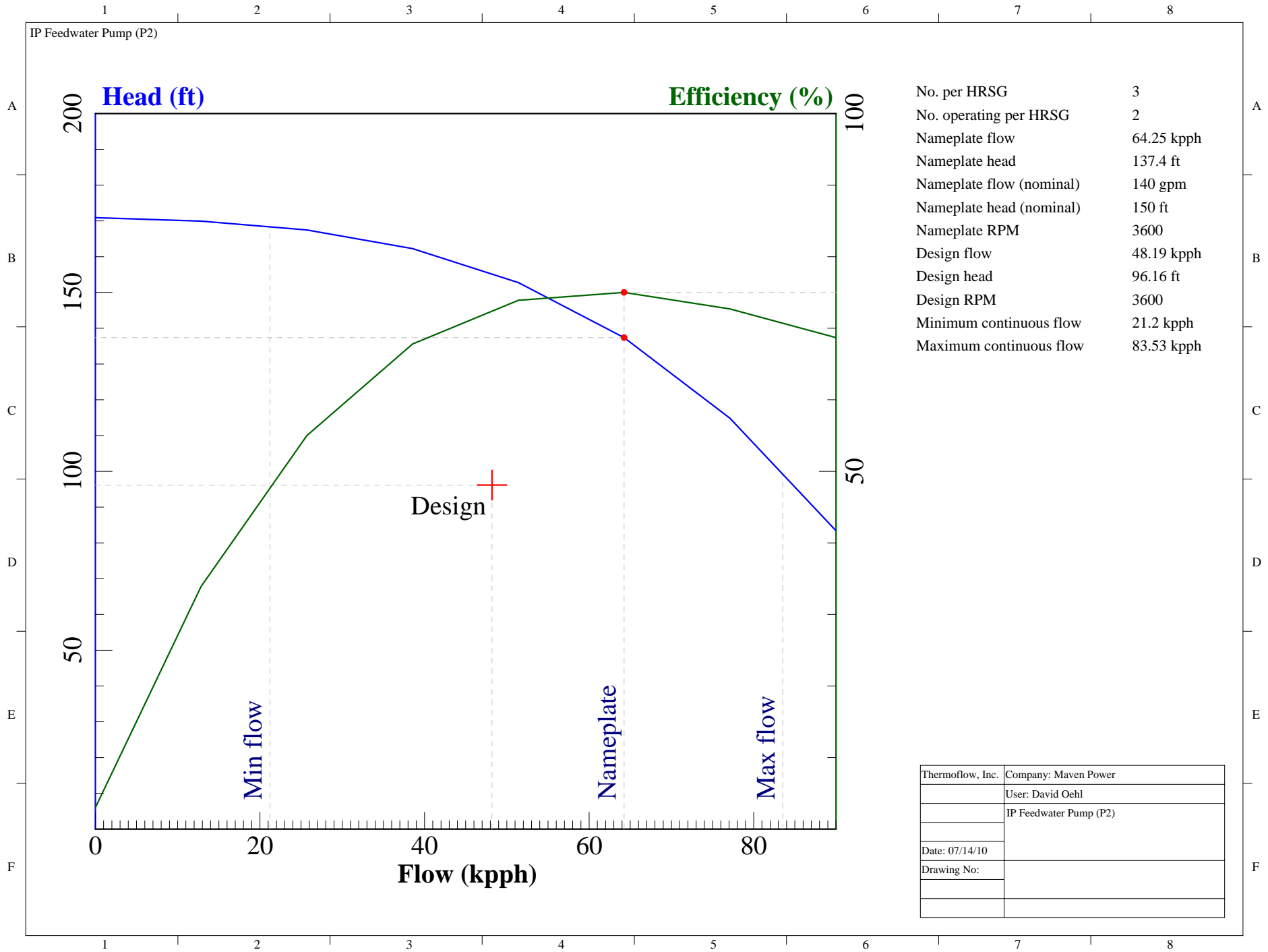
ID & # OFF	DIAMETER	LENGTH	SCHEDULE	MATERIAL	DESIGN P	DESIGN T	DESIGN M	DESIGN Q
FP0 x 1	4	781	350psi	Ductile iron	100	59	450.4	900
FP1 x 1	3	781	350psi	Ductile iron	100	59	225.2	450
	in	ft			psia	F	kpph	gpm

Thermsflow, Inc.	Company: Maven Power
	User: David Oehl
	FIRE PROTECTION PIPING
	DIAGRAM
Date: 07/14/10	
Drawing No:	



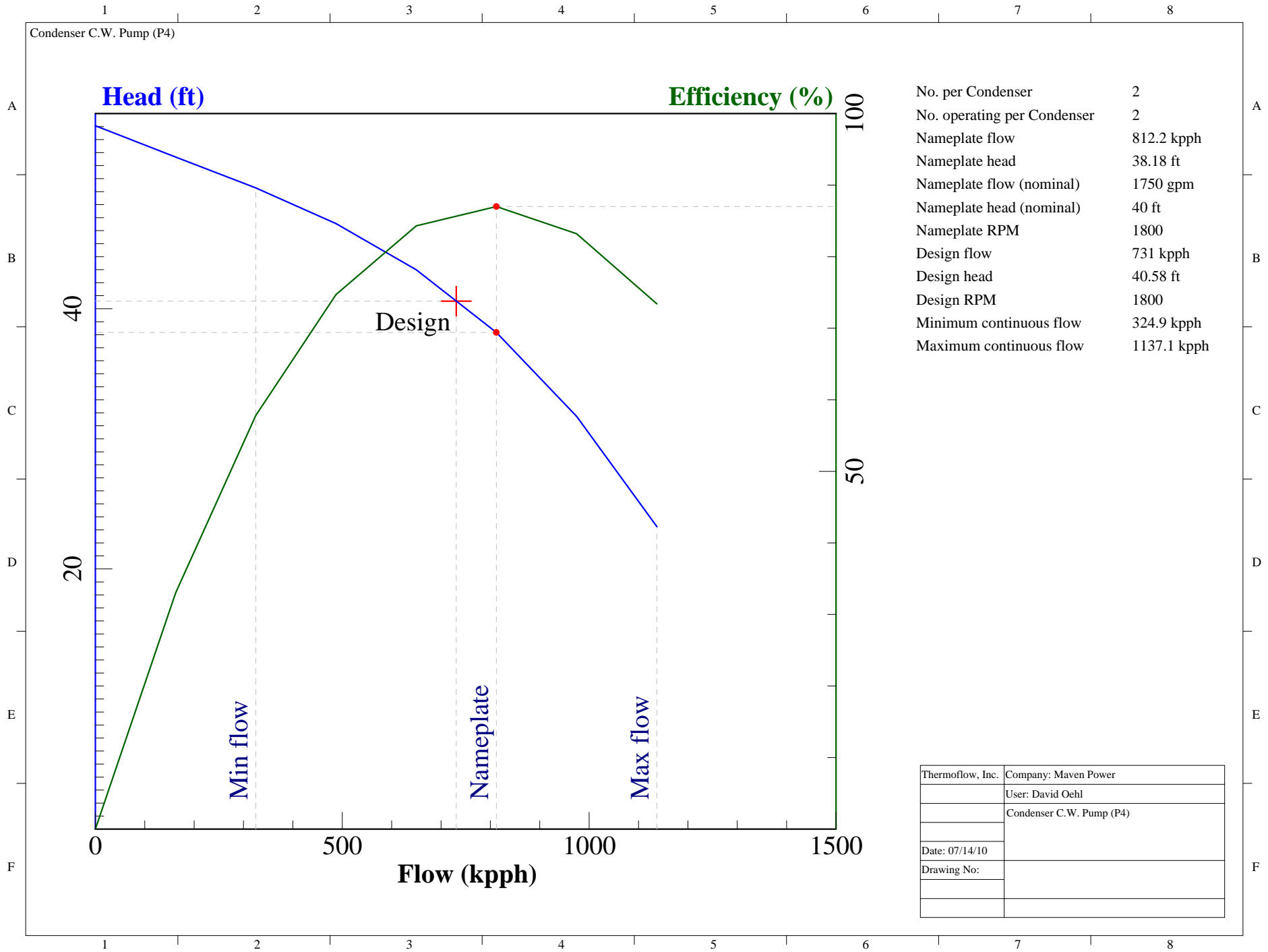


ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	HP Feedwater Pump (P1)
Date: 07/14/10	
Drawing No:	



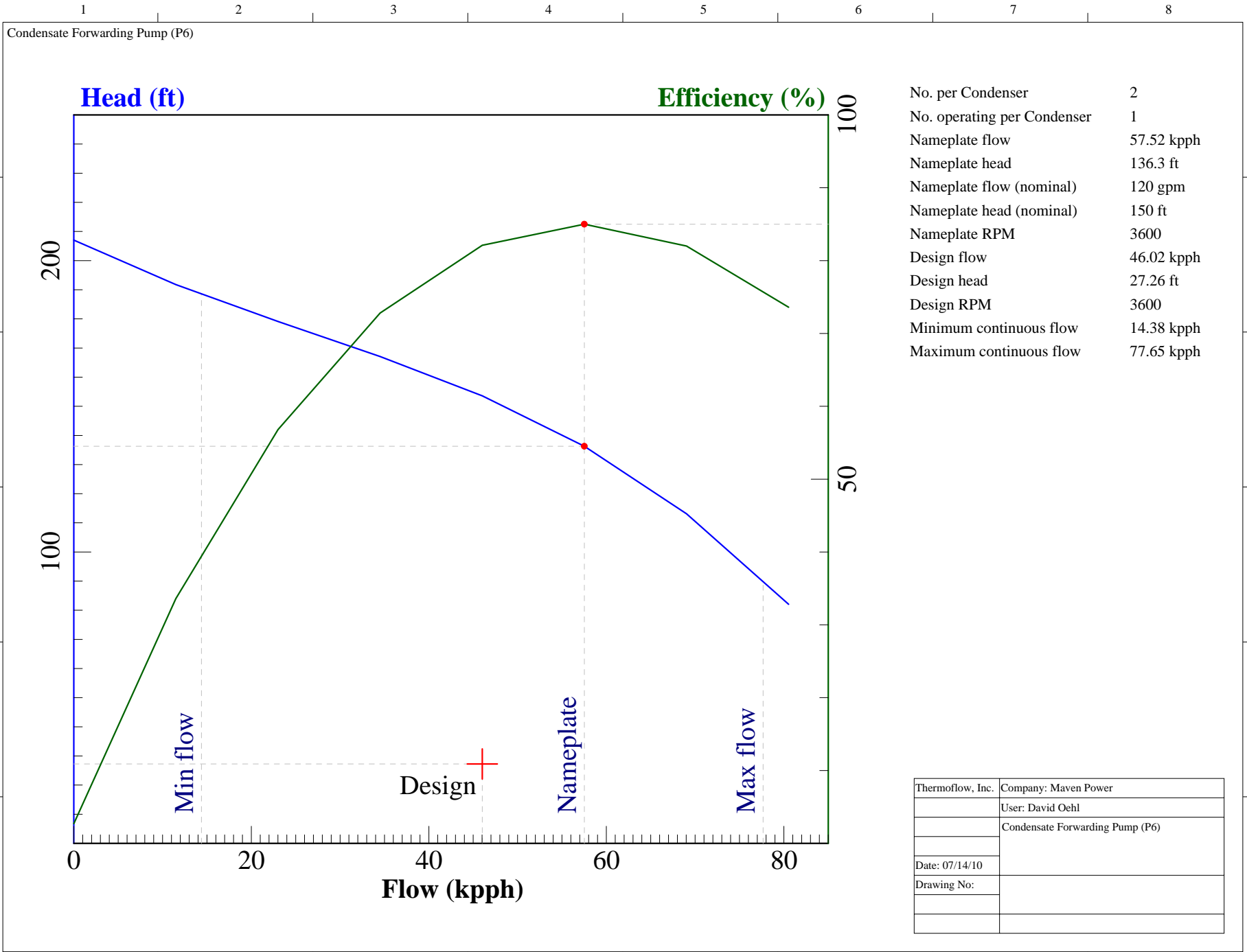
No. per HRSG	3
No. operating per HRSG	2
Nameplate flow	64.25 kpph
Nameplate head	137.4 ft
Nameplate flow (nominal)	140 gpm
Nameplate head (nominal)	150 ft
Nameplate RPM	3600
Design flow	48.19 kpph
Design head	96.16 ft
Design RPM	3600
Minimum continuous flow	21.2 kpph
Maximum continuous flow	83.53 kpph

ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	IP Feedwater Pump (P2)
Date: 07/14/10	
Drawing No:	

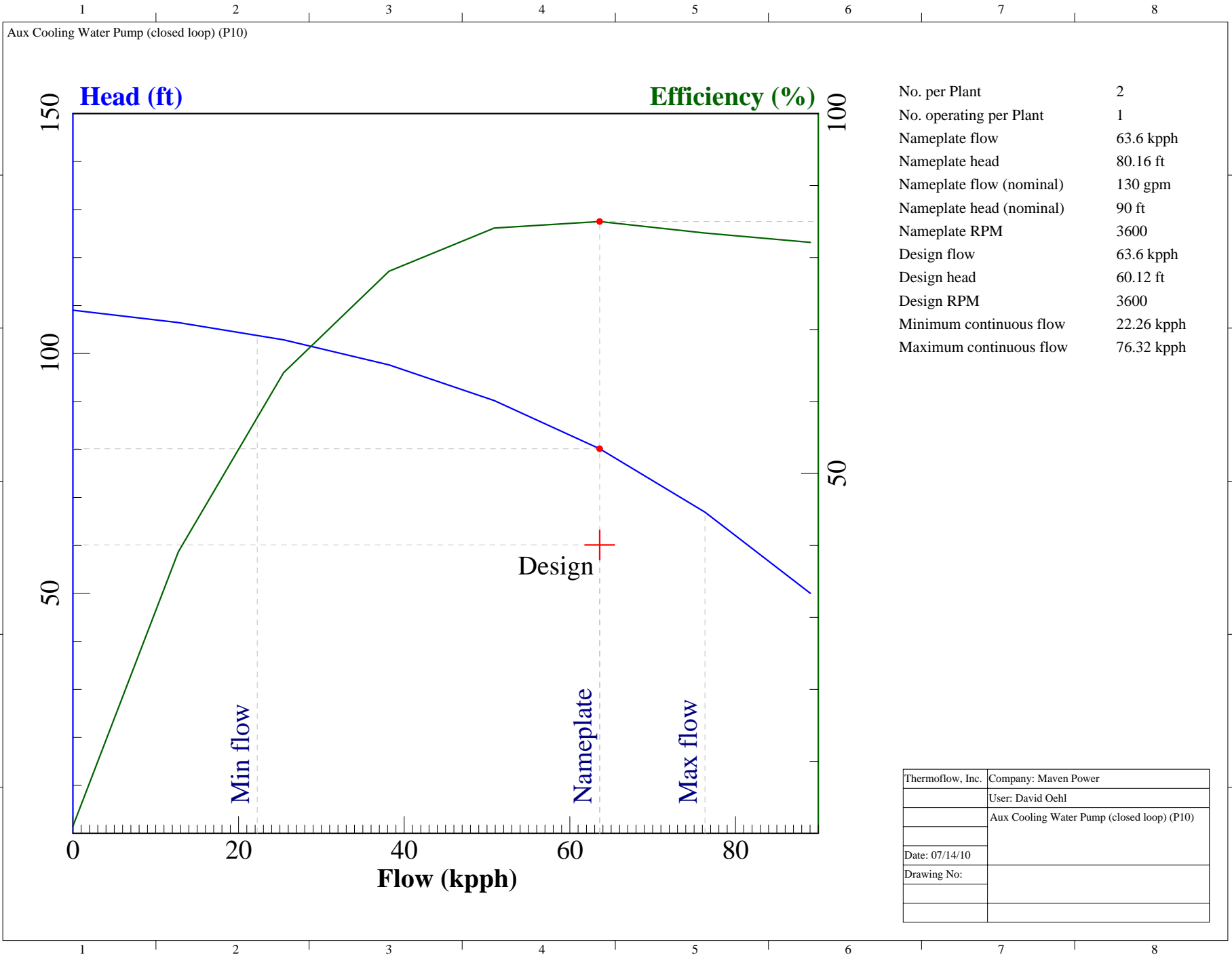


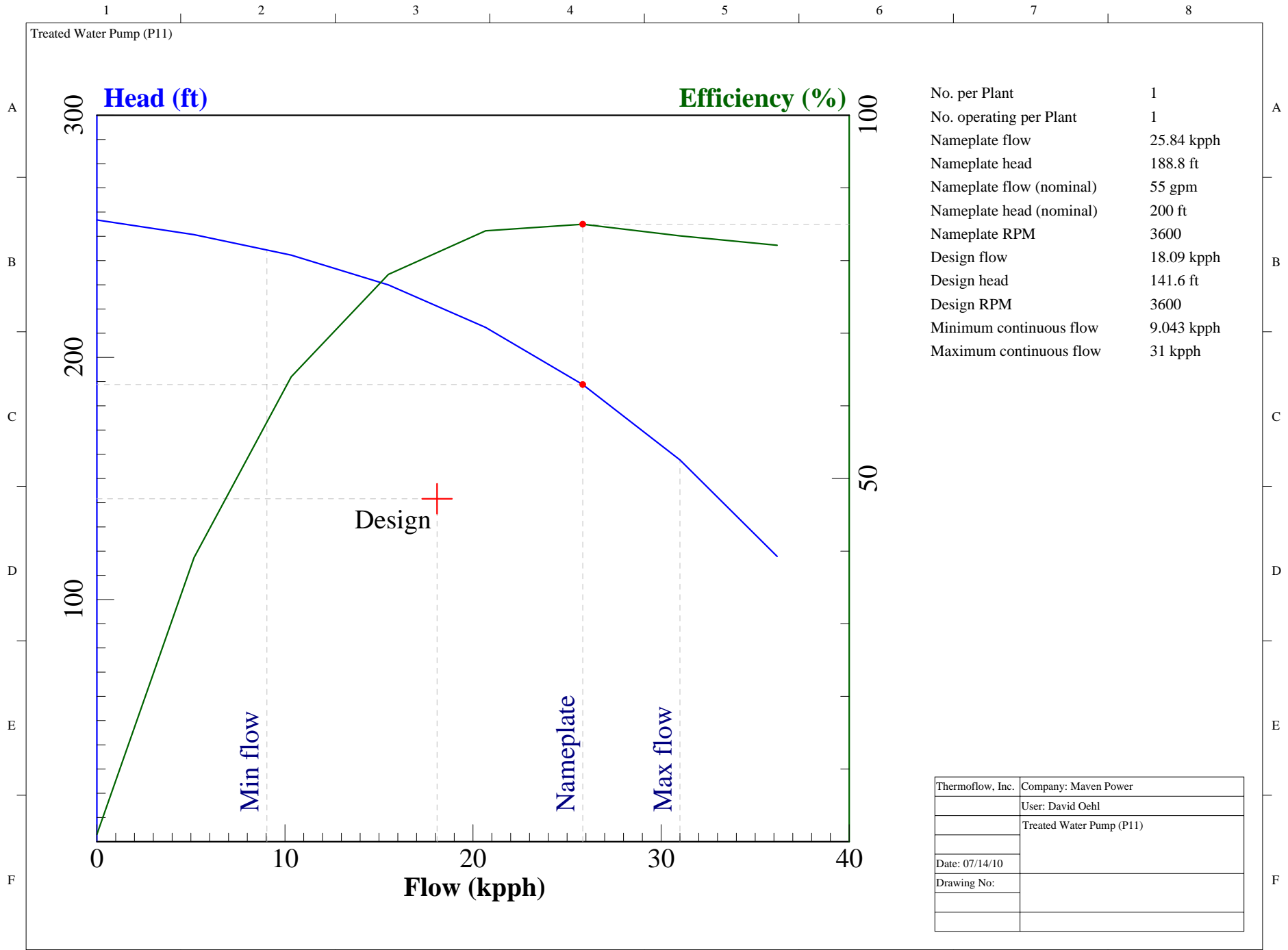
No. per Condenser	2
No. operating per Condenser	2
Nameplate flow	812.2 kpph
Nameplate head	38.18 ft
Nameplate flow (nominal)	1750 gpm
Nameplate head (nominal)	40 ft
Nameplate RPM	1800
Design flow	731 kpph
Design head	40.58 ft
Design RPM	1800
Minimum continuous flow	324.9 kpph
Maximum continuous flow	1137.1 kpph

Thermsflow, Inc.	Company: Maven Power
	User: David Oehl
	Condenser C.W. Pump (P4)
Date: 07/14/10	
Drawing No:	

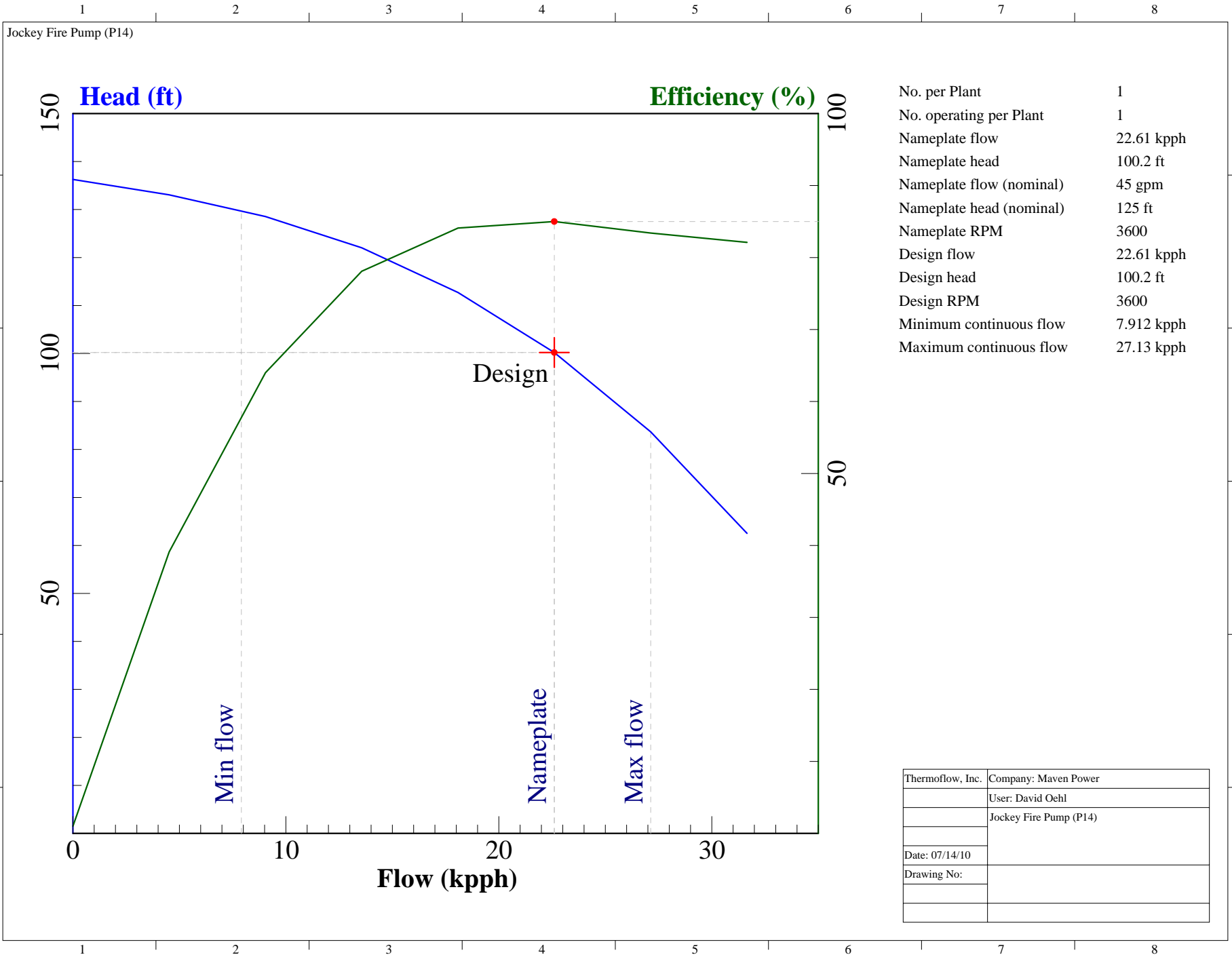


Thermoflow, Inc.	Company: Maven Power
	User: David Oehl
	Condensate Forwarding Pump (P6)
Date: 07/14/10	
Drawing No:	



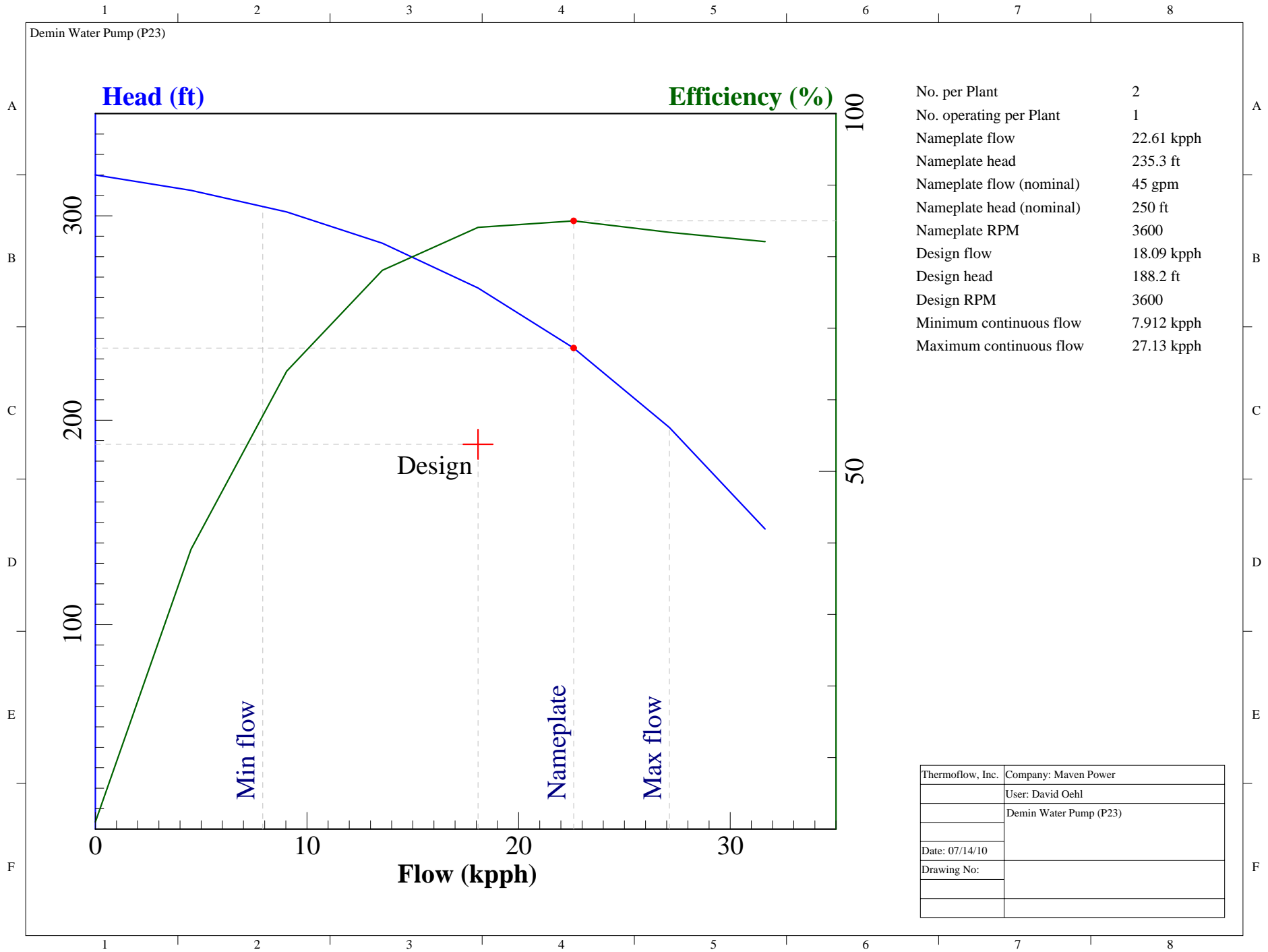


Thermsflow, Inc.	Company: Maven Power
	User: David Oehl
	Treated Water Pump (P11)
Date: 07/14/10	
Drawing No:	

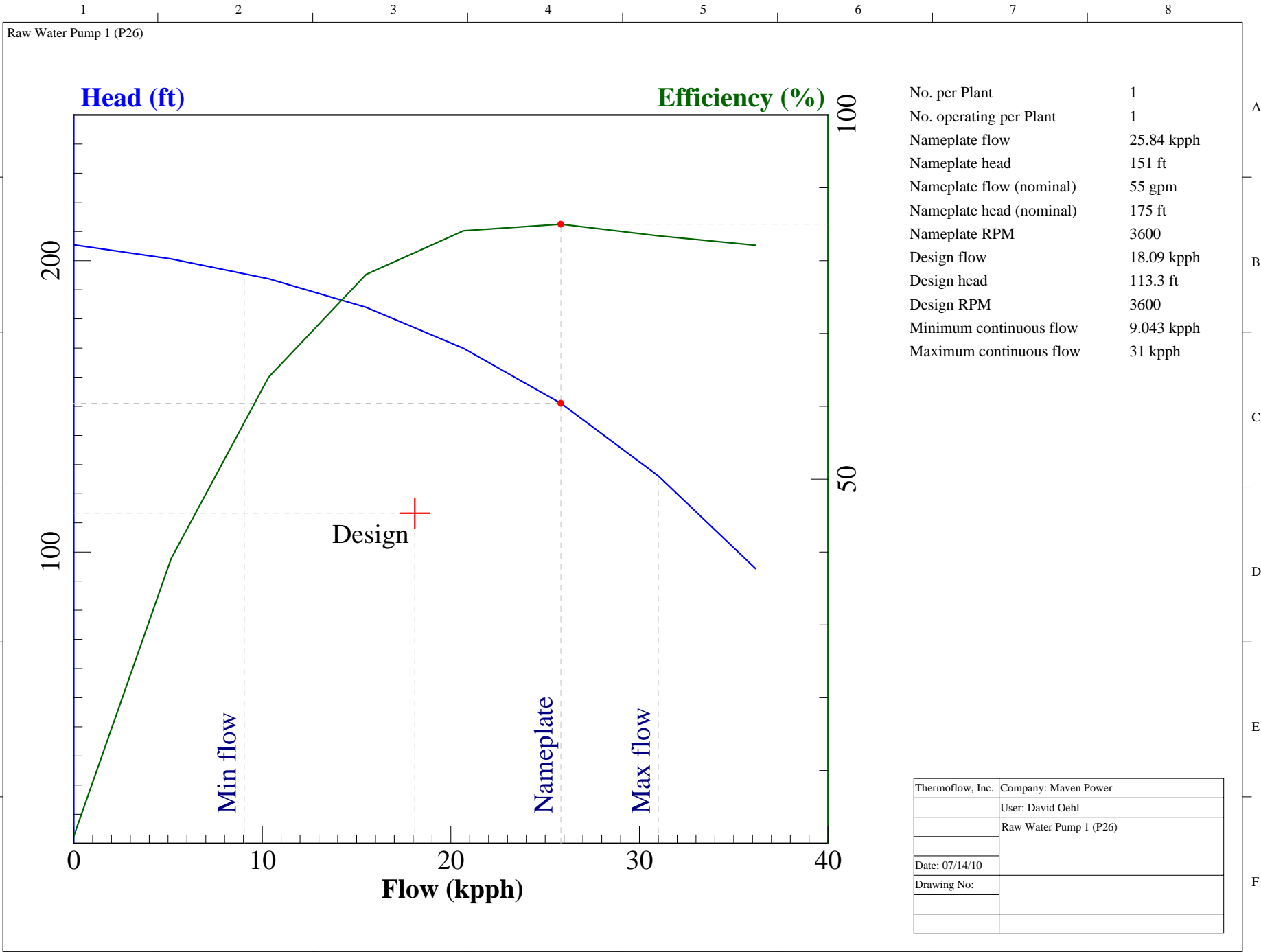


No. per Plant	1
No. operating per Plant	1
Nameplate flow	22.61 kpph
Nameplate head	100.2 ft
Nameplate flow (nominal)	45 gpm
Nameplate head (nominal)	125 ft
Nameplate RPM	3600
Design flow	22.61 kpph
Design head	100.2 ft
Design RPM	3600
Minimum continuous flow	7.912 kpph
Maximum continuous flow	27.13 kpph

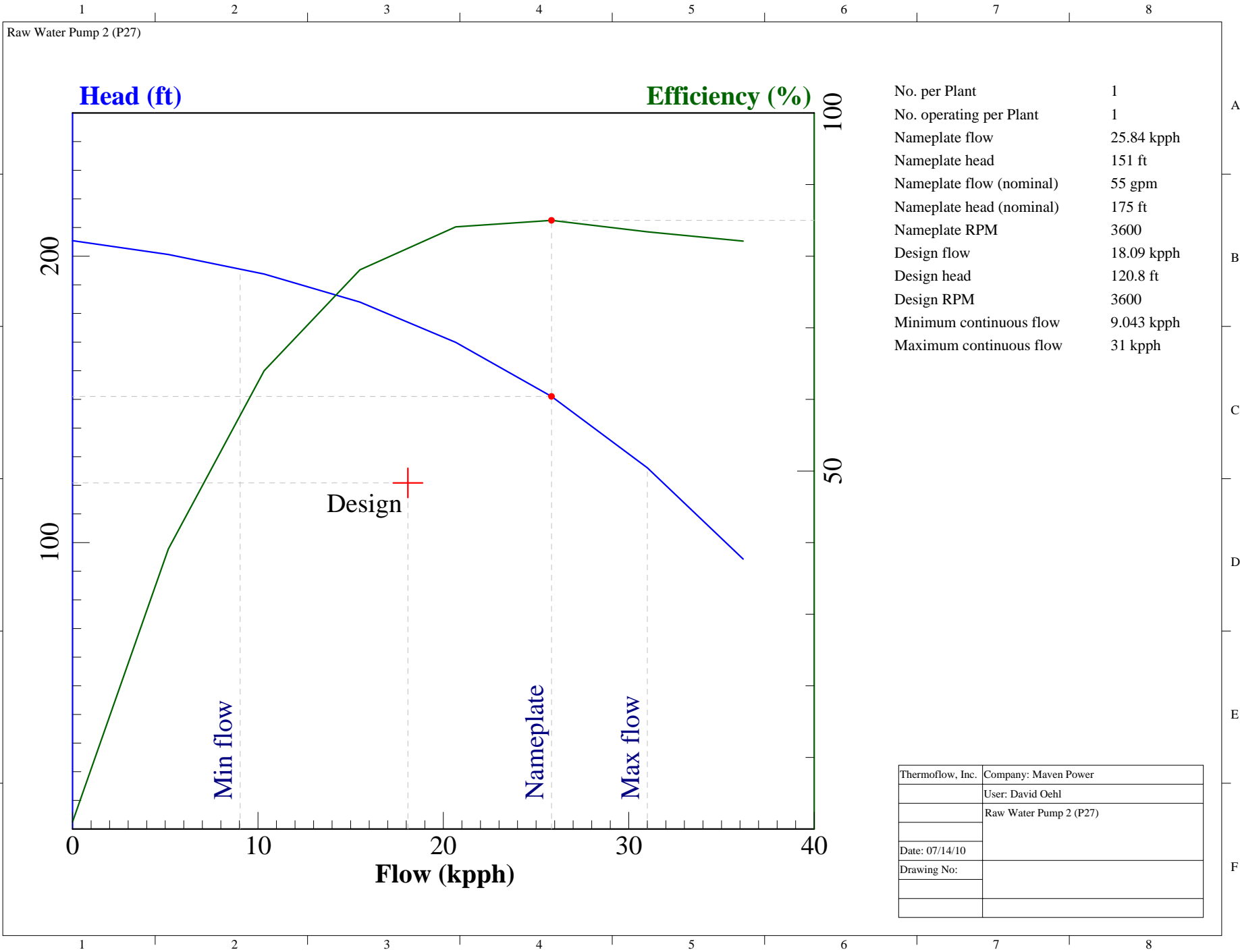
ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	Jockey Fire Pump (P14)
Date: 07/14/10	
Drawing No:	



ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	Demin Water Pump (P23)
Date: 07/14/10	
Drawing No:	

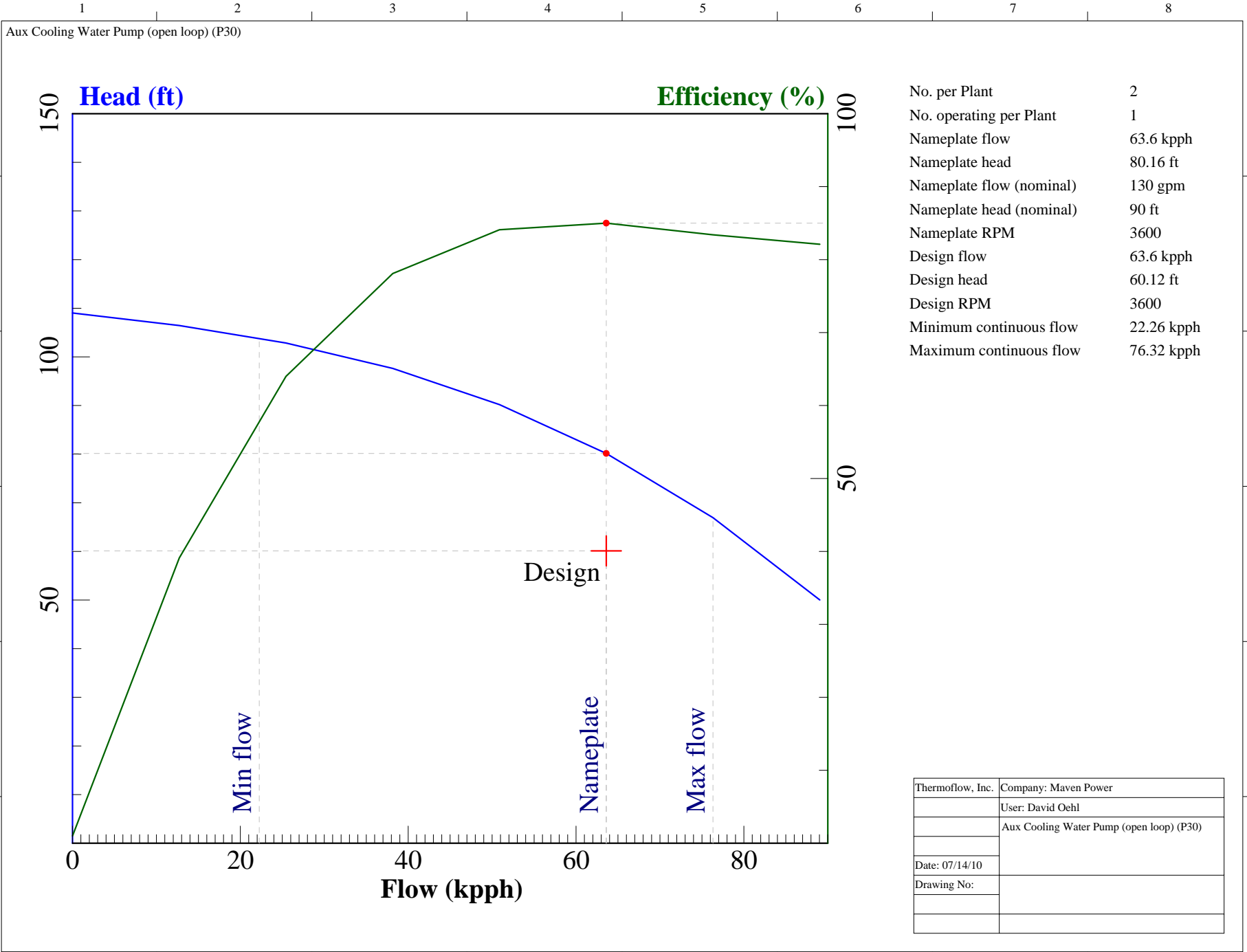


Thermsflow, Inc.	Company: Maven Power
	User: David Oehl
	Raw Water Pump 1 (P26)
Date: 07/14/10	
Drawing No:	



No. per Plant	1
No. operating per Plant	1
Nameplate flow	25.84 kpph
Nameplate head	151 ft
Nameplate flow (nominal)	55 gpm
Nameplate head (nominal)	175 ft
Nameplate RPM	3600
Design flow	18.09 kpph
Design head	120.8 ft
Design RPM	3600
Minimum continuous flow	9.043 kpph
Maximum continuous flow	31 kpph

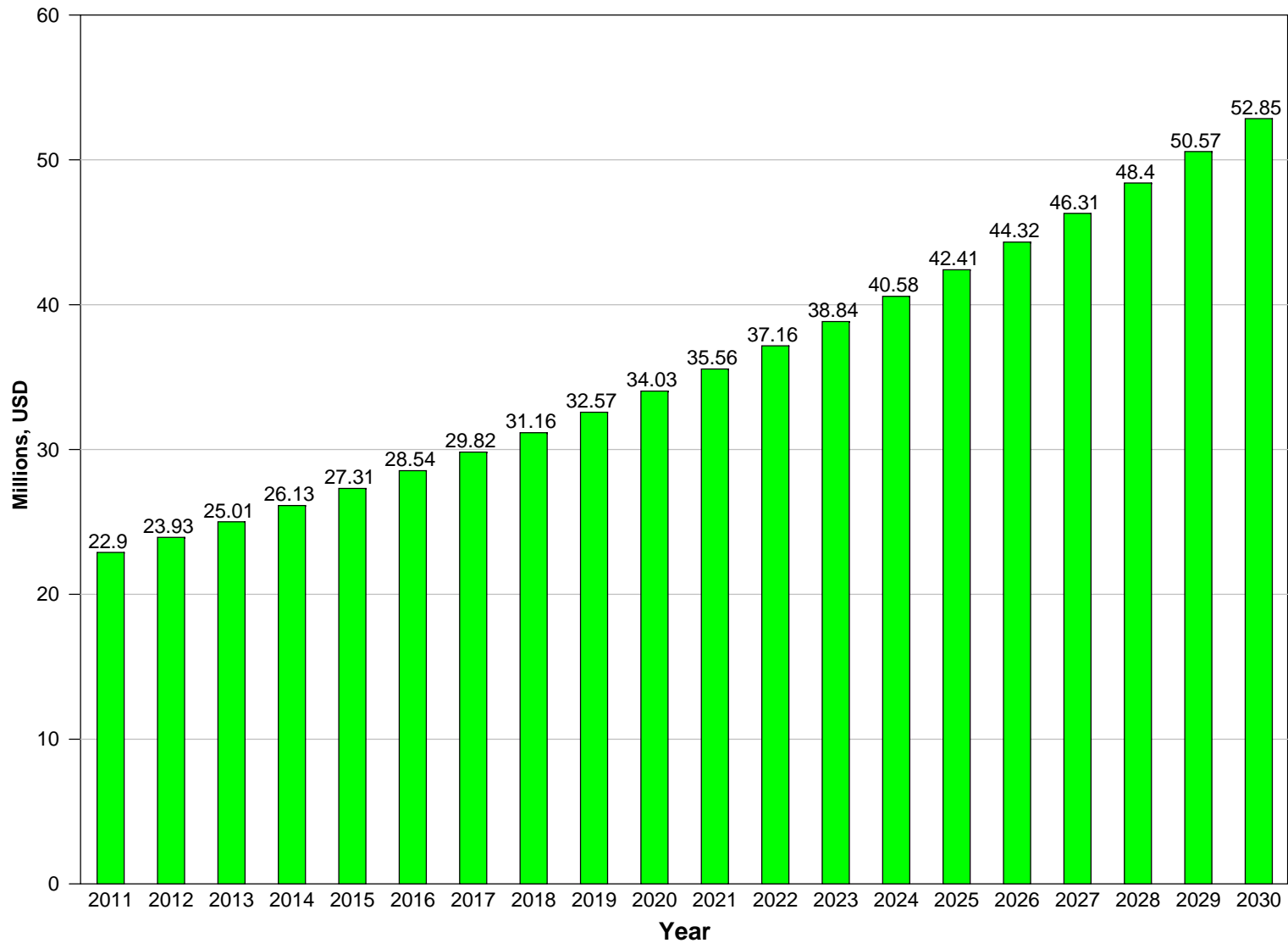
Thermsflow, Inc.	Company: Maven Power
	User: David Oehl
	Raw Water Pump 2 (P27)
Date: 07/14/10	
Drawing No:	



No. per Plant	2
No. operating per Plant	1
Nameplate flow	63.6 kpph
Nameplate head	80.16 ft
Nameplate flow (nominal)	130 gpm
Nameplate head (nominal)	90 ft
Nameplate RPM	3600
Design flow	63.6 kpph
Design head	60.12 ft
Design RPM	3600
Minimum continuous flow	22.26 kpph
Maximum continuous flow	76.32 kpph

ThermoFlow, Inc.	Company: Maven Power
	User: David Oehl
	Aux Cooling Water Pump (open loop) (P30)
Date: 07/14/10	
Drawing No:	

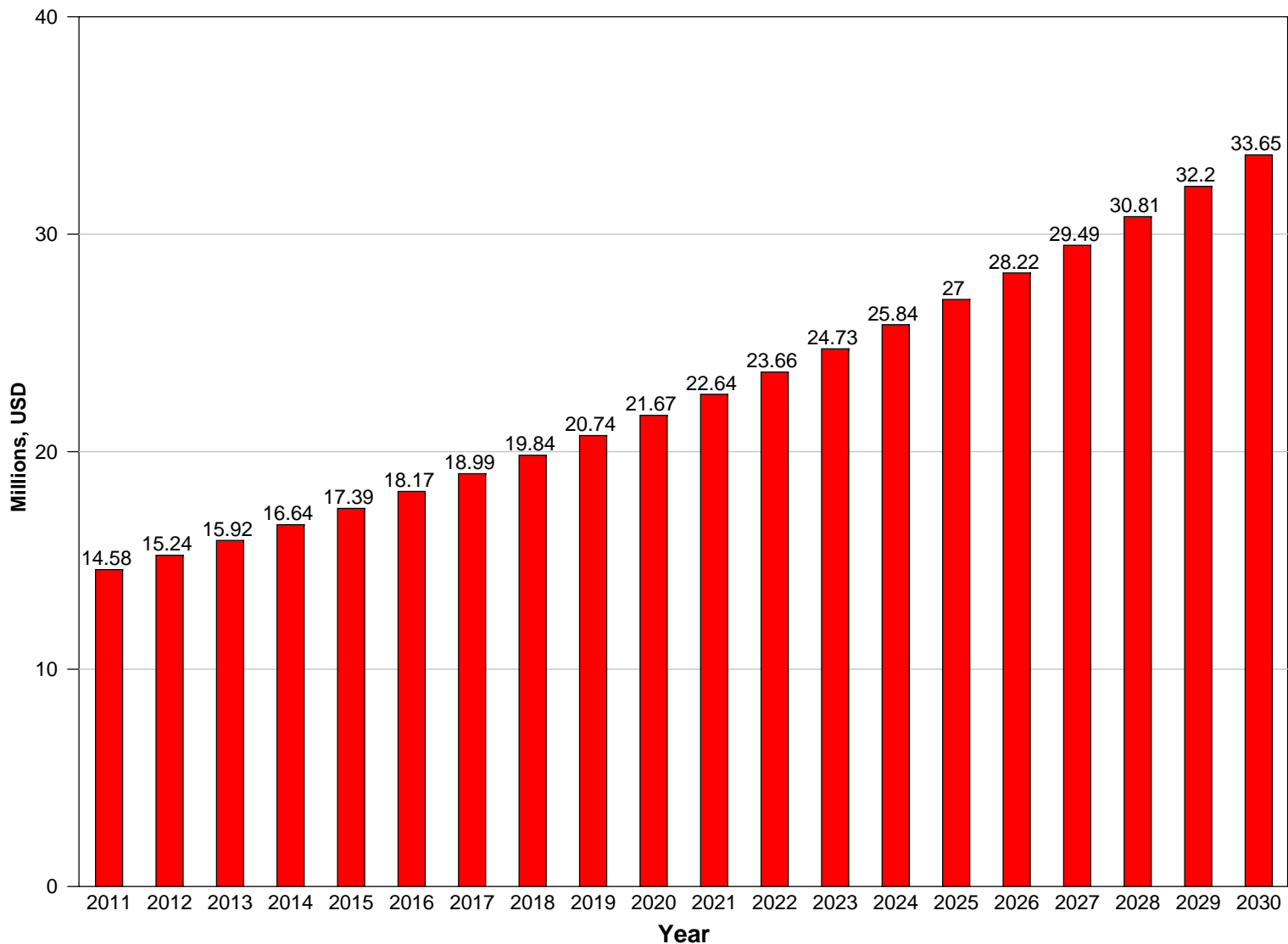
Revenues Millions, USD



Internal Rate of Return on Investment (ROI) = 12.642%

Internal Rate of Return on Equity (ROE) = 21.232%

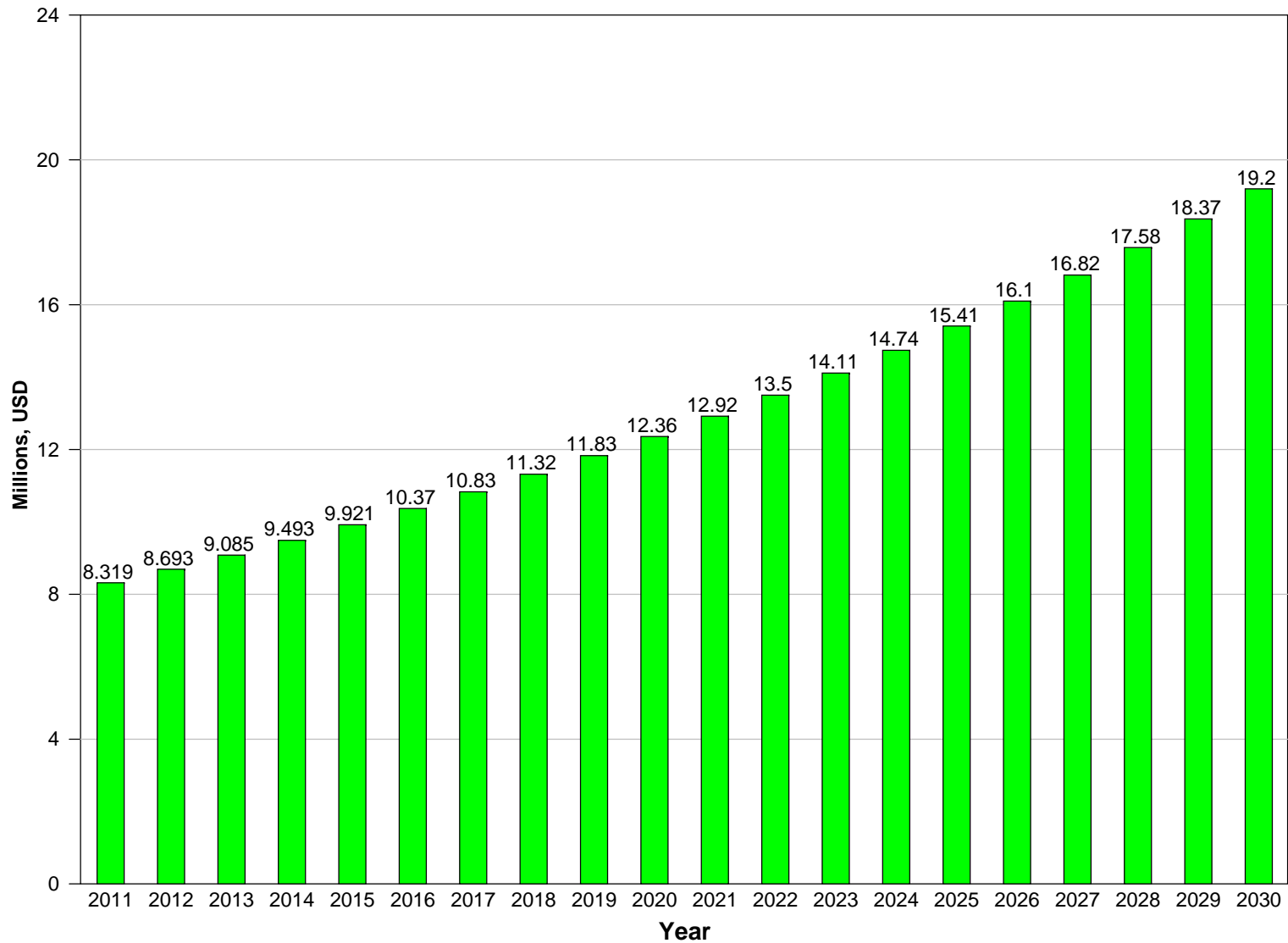
Operating Expenses Millions, USD



Internal Rate of Return on Investment (ROI) = 12.642%

Internal Rate of Return on Equity (ROE) = 21.232%

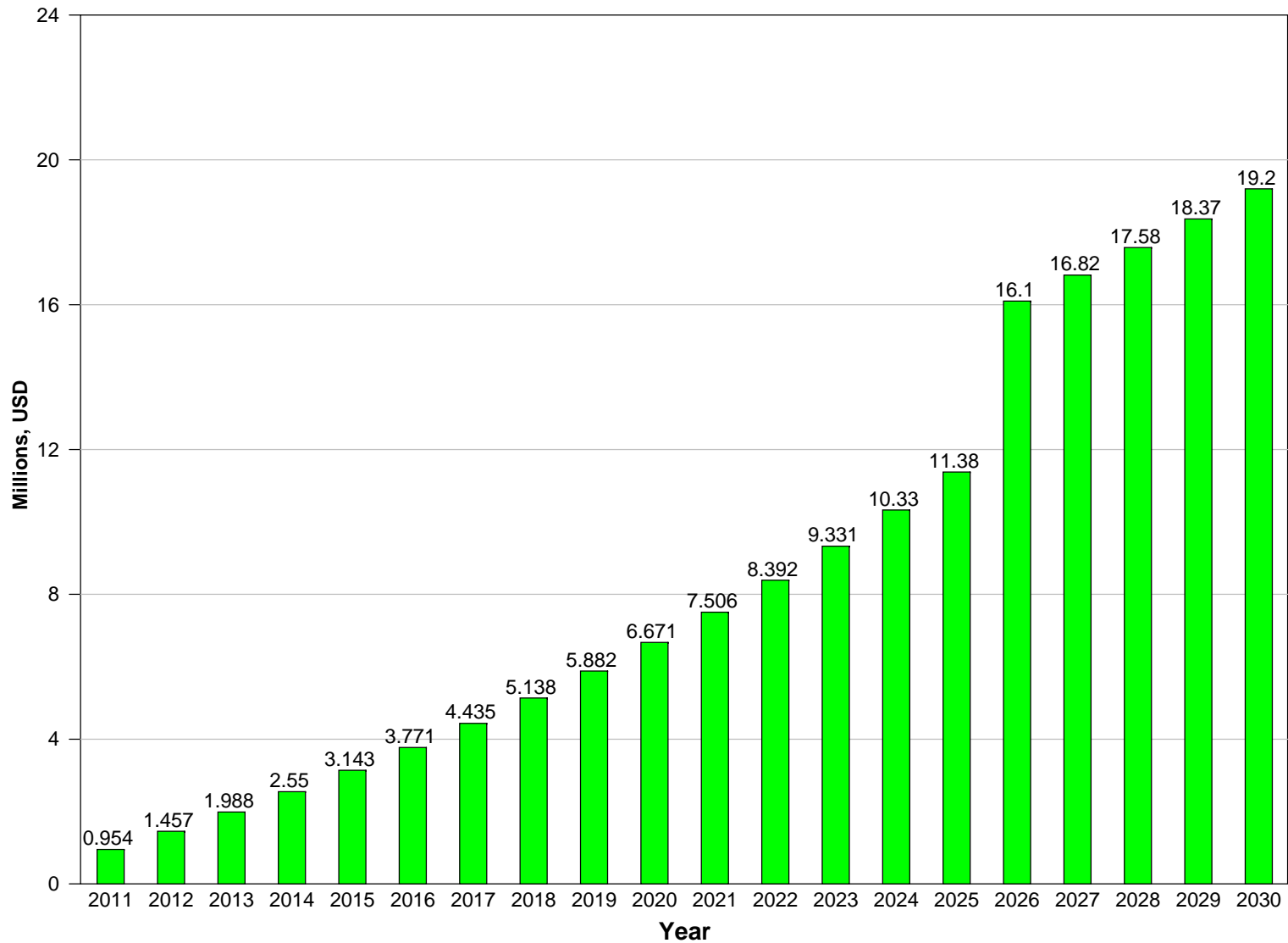
Operating Income Millions, USD



Internal Rate of Return on Investment (ROI) = 12.642%

Internal Rate of Return on Equity (ROE) = 21.232%

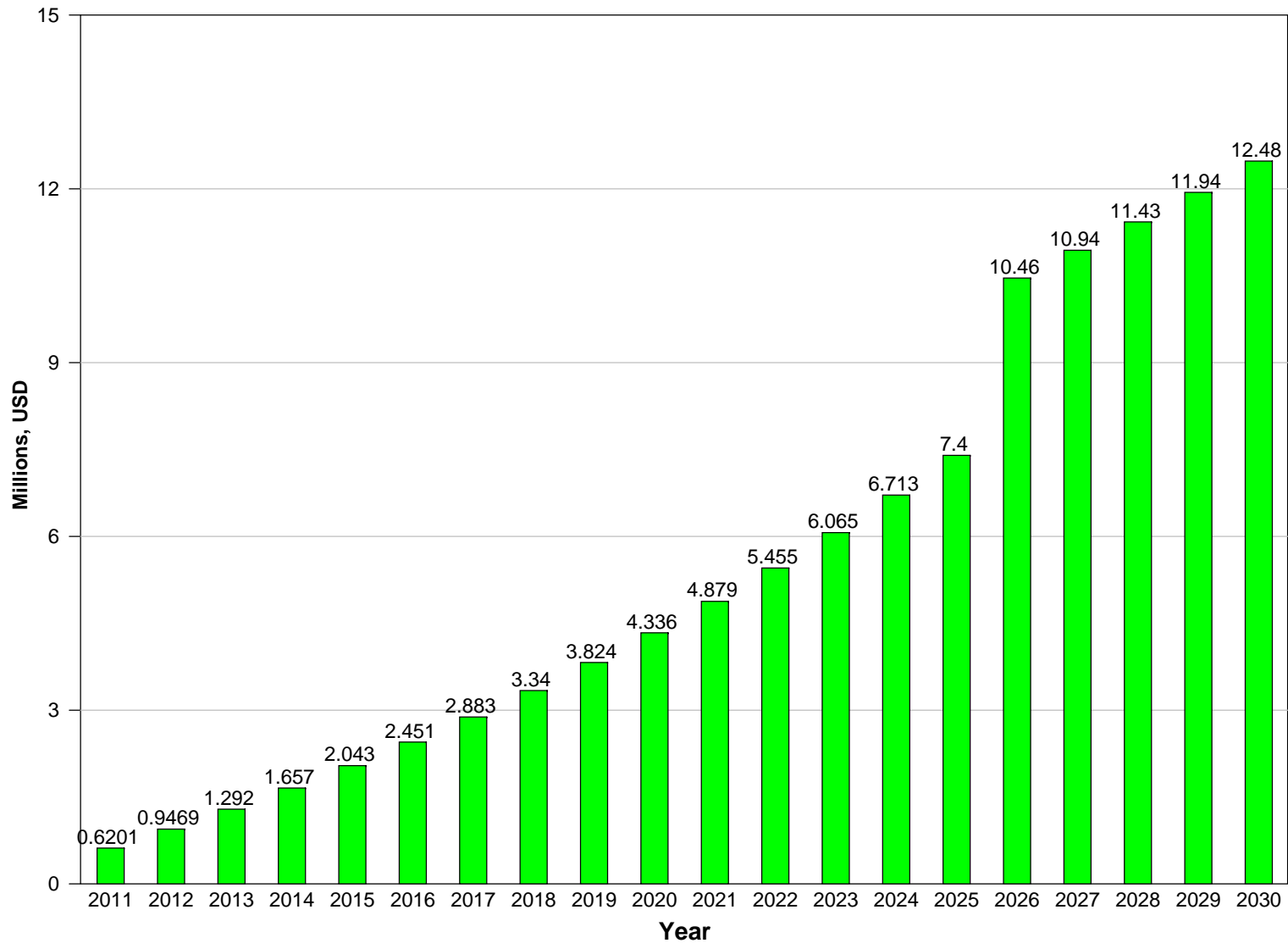
Pre-Tax Income Millions, USD



Internal Rate of Return on Investment (ROI) = 12.642%

Internal Rate of Return on Equity (ROE) = 21.232%

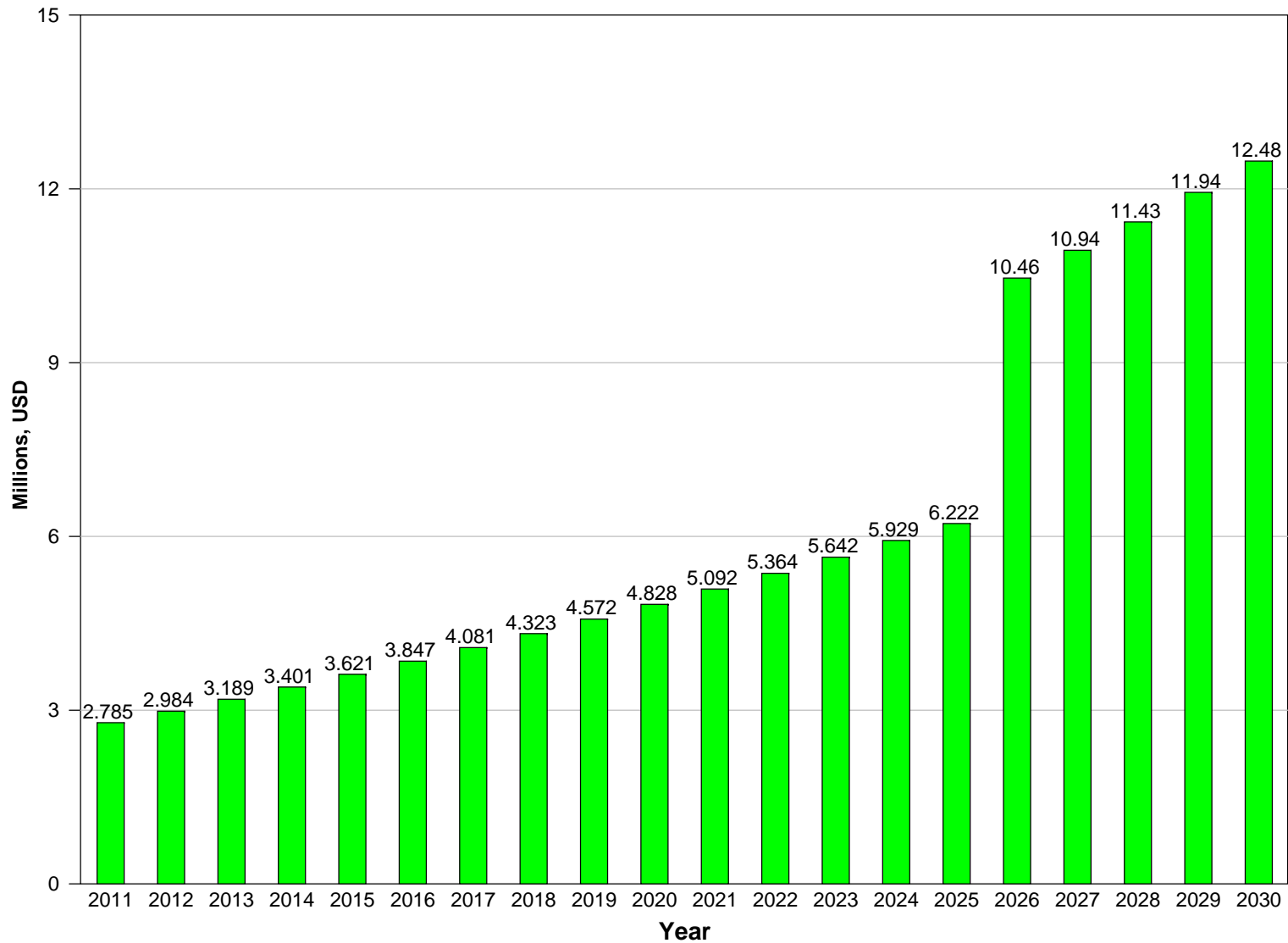
Net Income Millions, USD



Internal Rate of Return on Investment (ROI) = 12.642%

Internal Rate of Return on Equity (ROE) = 21.232%

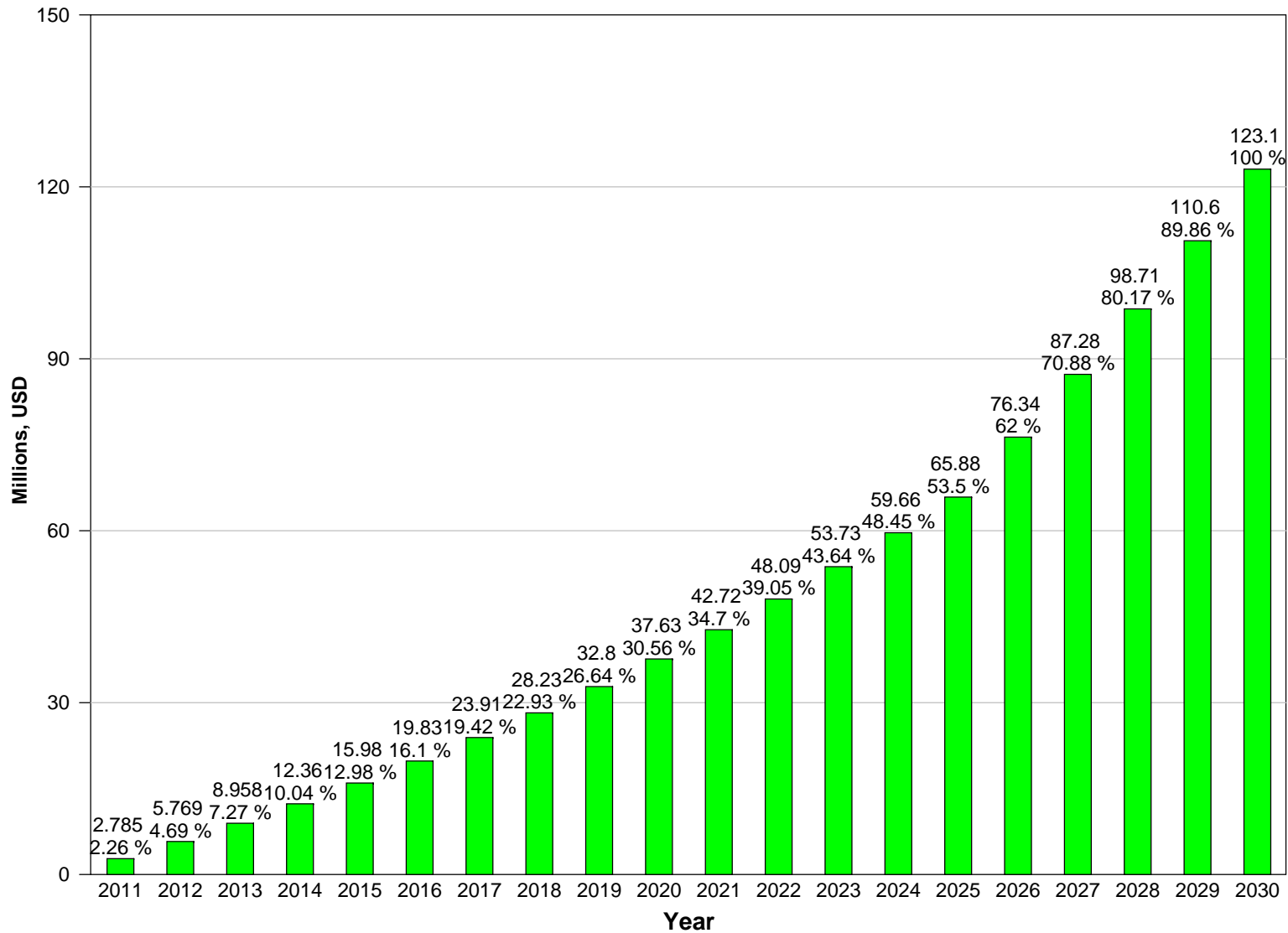
Net Cash Flow Millions, USD



Internal Rate of Return on Investment (ROI) = 12.642%

Internal Rate of Return on Equity (ROE) = 21.232%

Cumulative Net Cash Flow Millions, USD



Internal Rate of Return on Investment (ROI) = 12.642%

Internal Rate of Return on Equity (ROE) = 21.232%