

Project Name MEG 840NS
Project Location
Prepared by Vishnu Barran

Engine Information		
Siemens Engine ID		IC-G-B-48-111
Model Number		SGE-48SL
RPM		1800
Fuel Type		Natural gas
Aspiration & NO _x	g/bhp-hr	Lean, 0.5
Supply Fuel Pressure	psi	3-5

Generator Information		
Marathon Model		575RSL4044
105°C rise NEMA-F rating	kWe	975
KVA		835
Voltage		480
Frequency	Hz	60
Power Factor		1.0

Engine Performance		Unit	100%	75%	50%
Electrical Power		kWe	835	623	409
Mechanical Power		bHP	1,153	865	577
Exhaust Flow		lb/h	10,270	7,803	5,430
Exhaust Temp		°F	828	850	867
Heat to Radiation	(Ambient)	BTU/h	119,400	102,360	92,100
Fuel Consumption	(LHV)	BTU/h	8,134,415	6,230,524	4,332,398
Fuel Consumption	(LHV)	BTU/bHP-hr	7,055	7,205	7,515
Fuel Consumption	(LHV)	BTU/kWh	9,737	10,000	10,598

Energy Balance					
Total Primary Heat Recovered		BTU/h	4,383,831	3,447,075	2,529,833
Total Secondary Heat Recovered		BTU/h	0	0	0
Total Steam Recovered		BTU/h	0	0	0
Total Heat Recovered		BTU/h	4,383,831	3,447,075	2,529,833
Electrical Efficiency	(LHV)	%	35.04%	34.12%	32.20%
Thermal Efficiency	(LHV)	%	53.89%	55.33%	58.39%
Total Efficiency	(LHV)	%	88.93%	89.45%	90.59%

Primary Circuit <i>Water</i>					
Process Water Flow		GPM	450	354	260
Process Water Temp Inlet		°F	170	170	170
Process Water Temp Outlet		°F	190	190	190

Secondary Circuit <i>None</i>					
Secondary Water Flow		GPM	0	0	0
Secondary Water Temp Inlet		°F	0	0	0
Secondary Water Temp Outlet		°F	0	0	0

Steam Production					
Steam Produced		lb/h	N/A	N/A	N/A

Engine HT Circuit <i>50% Ethylene glycol</i>					
Jacket Water Heat		BTU/h	2,460,000	1,890,870	1,356,300
Exhaust Heat	cooled to 248 °F	BTU/h	1,609,911	1,270,462	910,793
Oil Cooler Heat		BTU/h	313,920	285,743	262,740
HT Radiator Rejection		BTU/h	0	0	0
Jacket Water Temp Inlet		°F	178	182	185
Jacket Water Temp Outlet		°F	194	194	194
Jacket Water Flowrate		GPM	400	400	400

Engine LT Circuit <i>50% Ethylene glycol</i>					
Intercooler Heat		BTU/h	187,680	150,938	102,360
LT Radiator Rejection		BTU/h	-187,680	-150,938	-102,360
Intercooler Water Temp Inlet		°F	127	128	129
Intercooler Water Temp Outlet		°F	131	131	131
Intercooler Water Flowrate		GPM	120	120	120

Radiator Specifications	% Oversize	Capacity BTU/h	Ambient	Altitude	Voltage
HT Radiator	10	3,051,312	105 °F	1,000 ft	480
LT Radiator	25	234,600			

Notes
 Energy balance data is stated at ISO 3046-1 conditions

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 7/13/2018