

Project Name MEG 435NS  
 Project Location  
 Prepared by Vishnu Barran

Engine Information		
Siemens Engine ID		IC-G-B-24-033
Model Number		SGE-24SL
RPM		1800
Fuel Type		Natural gas
Aspiration & NO <sub>x</sub>	g/bhp-hr	Lean, 1.0
Supply Fuel Pressure	psi	3-5

Generator Information		
Newage Model		HCI534E
105°C rise NEMA-F rating	kwe	540
KVA		436
Voltage		480
Frequency	Hz	60
Power Factor		1.0

Engine Performance		Unit	100%	75%	50%
Electrical Power		kWe	436	326	215
Mechanical Power		bHP	607	455	304
Exhaust Flow		lb/h	4,990	3,799	2,641
Exhaust Temp		°F	768	793	817
Heat to Radiation	(Ambient)	BTU/h	68,220	58,020	47,760
Fuel Consumption	(LHV)	BTU/h	4,122,137	3,170,816	2,170,632
Fuel Consumption	(LHV)	BTU/bHP-hr	6,791	6,965	7,152
Fuel Consumption	(LHV)	BTU/kWh	9,449	9,731	10,115

Energy Balance					
Total Primary Heat Recovered		BTU/h	1,995,182	1,637,404	1,234,290
Total Secondary Heat Recovered		BTU/h	0	0	0
Total Steam Recovered		BTU/h	0	0	0
Total Heat Recovered		BTU/h	1,995,182	1,637,404	1,234,290
Electrical Efficiency	(LHV)	%	36.11%	35.06%	33.73%
Thermal Efficiency	(LHV)	%	48.40%	51.64%	56.86%
Total Efficiency	(LHV)	%	84.51%	86.70%	90.60%

Primary Circuit <i>Water</i>					
Process Water Flow		GPM	205	168	127
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	1,112,400	908,790	674,843
Exhaust Heat	cooled to 248 °F	BTU/h	698,522	558,838	405,936
Oil Cooler Heat		BTU/h	184,260	169,776	153,512
HT Radiator Rejection		BTU/h	0	0	0
Jacket Water Temp Inlet		°F	181	183	186
Jacket Water Temp Outlet		°F	194	194	194
Jacket Water Flowrate		GPM	225	225	225

Engine LT Circuit <i>50% Ethylene glycol</i>					
Intercooler Heat		BTU/h	262,740	146,916	56,072
LT Radiator Rejection		BTU/h	-262,740	-146,916	-56,072
Intercooler Water Temp Inlet		°F	125	128	130
Intercooler Water Temp Outlet		°F	131	131	131
Intercooler Water Flowrate		GPM	110	110	110

Radiator Specifications	% Oversize	Capacity BTU/h	Ambient	Altitude	Voltage
HT Radiator	10	1,426,326	105 °F	1,000 ft	480
LT Radiator	25	328,425			

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

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**Issue Date**  
 7/13/2018