

CAYUGA, LLC – DATABASE NOTES

Table 1 Database Notes

Data Collection	Data Logger: Data Collection Interval: Collection Method:	Martin Energy Group Carbon Catcher (Red Lion) 15-min Intervals Nightly FTP transfer to Frontier Energy server
Site Information	DER Unit (make & model): Nameplate Capacity: Heat Recovery Medium: Heat Recovery Uses: Excess Heat:	Jenbacher JGS312 Engine / Stamford CG 634 J – 440 VAC Generator 633 kW Hot Water Digester, hydrolysis tank, gasholder effluent tank, pre-processing building Rejected to atmosphere using dump radiator
DER Electricity Generated (WG)	Engineering Units: Energy Measurement (net/gross): Measurement Type:	kWh Gross Accumulated kWh from Shark 100 power meter.
Biogas to Generator (FGE)	Engineering Units: Measurement type:	cf Calculated from accumulated cf data from Sage gas meter.
Biogas to Flare (FGF)	Engineering Units: Measurement type:	cf Calculated from pulse output from RCM panel (repeated signal from Sage meter).
H2S to Scrubber (H2S_IN)	Engineering Units: Measurement type:	ppm Sampled every hour by Sewerin BioControl 4/Multitec 545 gas analyzer
H2S to Generator (H2S_OUT)	Engineering Units: Measurement type:	ppm Sampled every 2 hrs by Sewerin BioControl 4/Multitec 545 gas analyzer
Methane Content (CH4)	Engineering Units: Measurement type:	% CH4 Sampled every hour by Sewerin BioControl 4/Multitec 545 gas analyzer

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Table 2 Event Timeline

Date	Event
April 9, 2019	Monitored data collection began
May 10, 2019	Complete monitored data begins on the NYSERDA DER Website
March 10, 2020	Relational checks added. Engine is dual fuel and has been operating on NG. This is apparent because the data shows power generation with no biogas consumption, which results in artificially elevated system electrical efficiencies. Power data is now marked invalid when no biogas is consumed by the engine.

CAYUGA, LLC – DATABASE NOTES

Range Checks

Table 3 Range Checks

Data Point	Units	Database Lower Range	Database Upper Range	Notes
DER Electricity Generated	kWh/hour	0	700	
Biogas to Generator	cfh	0	15,000	
Biogas to Flare	cfh	0	15,000	
H2S to Scrubber	ppm	0	5,000	
H2S to Generator	ppm	0	5,000	
Methane Content	%	0	100	
Ambient Temperature	°F	-20	130	NOAA Airport Code - KSYR

CAYUGA, LLC – DATABASE NOTES

Relational Checks

Table 4 Relational Checks

Evaluated Point(s)	Criteria	Result
Electricity Generated Fuel Consumed	Fuel Consumed > 0 and Electricity Generated Invalid Electricity Generated > 0 and Fuel Consumed Invalid	Fuel Consumed = invalid Electricity Generated = invalid
Electricity Generated	Electricity Generated > 0 and Fuel Consumed = 0	Electricity Generated = invalid