Lamb – Database Notes

Table 1 Database Notes

Data Collection	Data Logger: Data Collection Interval: Collection Method:	2x Red Lion data loggers 15 – Minute Automated CDH Python script; *catcher.py*
Site Information	Cogeneration Units: Nameplate Capacity: Heat Recovery Medium: Heat Recovery Uses: Excess Heat:	Guascor MGG-712 450 kW Hot Water Digester heating and space heating Rejected to atmosphere using dump radiator
DG/CHP Generator Electrical Output	Engineering Units: Energy Measurement (net/gross): Measurement Type:	kWh Gross power measurement from Intelisys NT engine controller Accumulated kWh
DG/CHP Generator Electrical Output Demand	Engineering Units: Measurement Type:	kW Calculated : accumulated kWh / int * # intervals
DG/CHP Generator Fuel Input	Engineering Units: Measurement type:	CF Pulse output from Sage SIP hotwire anemometer gas meter.
DG/CHP Useful Heat Recovery	Engineering Units: Heat Measurement Type:	- -
CH$_4$ In Biogas	Engineering Units: Measurement Type:	% CH$_4$ INCA gas analyzer; 30 minute samples.
DG/CHP Status/Runtime	Engineering Units: Measurement Type:	- -

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H$_2$S Entering Scrubber	<u>Engineering Units:</u> <u>Measurement Type:</u>	Parts per million (ppm) INCA gas analyzer; 30 minute samples.
H$_2$S Leaving Scrubber	<u>Engineering Units:</u> <u>Measurement Type:</u>	Parts per million (ppm) INCA gas analyzer; 30 minute samples.
Other Facility Gas Use (Flare Gas)	<u>Engineering Units:</u> <u>Measurement Type:</u>	CF Pulse output from Sage SIP hotwire anemometer gas meter.

Table 2 Event Timeline

Date	Event
November 2009	Data collection for new ADG system, from initial Red Lion data logger, begins. Data points include generator power, gas to engine, and flare gas (WG, FGE, FGF).
March 2015	Scrubber and second Red Lion data logger installation is completed. Scrubber data points include methane in biogas, hydrogen sulfide in gas entering scrubber, and hydrogen sulfide in gas leaving scrubber (CH$_4$, H$_2$S_IN, and H$_2$S_OUT). These additional points have been added to website.
December 2017 – January 2018	Issues with scrubber control panel and data logger caused gaps in H$_2$S and CH$_4$ data. Control panel replaced in early February 2018 and data collection resumed.

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Range Checks

Table 3. Range Checks

Data Point	Units	Hourly Data Calculation Method	Database Lower Range	Database Upper Range	Notes
DG/CHP Generator Output (WG_d)	kWh/int	Sum	0	200	
DG/CHP Generator Output Demand (WG_KW_d)	kW	Max	0	520	*WG_KW_d = WG_d * # Intervals*
DG/CHP Generator Gas Use (FG_d)	Cfh/int	Sum	0	3,000	
H_2S Entering Scrubber (H2S_IN)	ppm	Avg	0	5000	
H_2S Leaving Scrubber (H2S_OUT)	ppm	Avg	0	5000	
Other Facility Gas Use (FT_d)	cf/int	Sum	0	3,000	
Useful Heat Recovery (QHR_d)	MBtu/int	-	-	-	
CH_4 In Biogas (CH4)	%	Avg	0	100	
Status/Runtime of DG/CHP Generator (SG_d)	hr	-	-	-	
Ambient Temperature (TAO)	°F	Avg	-20	130	*WUG Airport Code - ITH*

Notes:

1.   This table contains values from *lamb.csv*

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Relational Checks

Table 4. Relational Checks

Evaluated Point	Criteria	Result
FG_d	FG_d < 100 and WG_KW_d >30	DQ flag FG_d = 2

Notes:

1. This table contains values from *relational_checks.pro*