Churchill – Database Notes

Table 1 Database Notes

Data Collection	Data Logger: Data Collection Interval: Collection Method: Timestamp Reference:	Obvius Aquisuite (CDH) 1-minute Obvius Upload Eastern Standard Time
Site Information	Cogeneration Units: Nameplate Capacity: Heat Recovery Medium: Heat Recovery Uses: Excess Heat Use:	2 - AEGEN TP-75 150 kW Hot water Space Heating , Domestic Hot Water Rejected from the water loop to heat exchanger with dump radiator
DG/CHP Generator Electrical Output	Engineering Units: Energy Measurement (net/gross): Measurement Type: Generator Power Measurements: Parasitic Power Measurements:	kWh/kW Net calculated: gross (measured) – parasitic load Accumulated energy per interval One for both engines combined One for entire parasitic panel
DG/CHP Generator Electrical Output Demand	Engineering Units: Measurement Type:	kW From energy measurement, based on peak 1-minute power
DG/CHP Generator Fuel Input	Engineering Units: Measurement Type:	CF Pulse output from Con-Ed gas meter
DG/CHP Useful Heat Recovery	Engineering Units: Heat Measurement Type:	MBtu Two BTU Meters – one measures the total heat output from the plant and the second from the heat rejected from the dump radiator. Net useful heat recovery is calculated from the difference between the two meters. Heat, flow and temperatures across useful loads are collected from the BTU meters.

DG/CHP Unused Heat Recovery	Engineering Units: Heat Measurement Type:	MBtu BTU meter measures heat, flow and temperature measurements (across dump HX)
DG/CHP Status/Runtime	Engineering Units:	Not collected
Facility Purchased Energy	Engineering Units: Measurement Type:	kWh Metered by datalogger
Facility Purchased Demand	Engineering Units: Measurement Type:	kW Metered by datalogger
Other Facility Gas Use	Engineering Units:	Not collected

Note: See addendum for further details

Table 2 Event Timeline

Date	Event
March 1, 2013	Logging begins.
March 20, 2013	CDH on site to check leads for pulse/continuity. Leads terminated opposite of what they had been with still no pulse. Gas meter pulser to be checked. Flow meter sensor measurements verified with portflow.
September 10, 2013	CDH on site to diagnose failed power meter, verified recovered loop #1 flow (FL1), and fixed wire termination for gas meter (FG).
October 30, 2013	CDH on site to replace second failed Veris power meter with Wattnode power meter (WG).

Range Checks

Table 3. Range Checks

Data Point	Hourly Data Method	Units	Sensor Lower Range	Sensor Upper Range	Database Lower Range	Database Upper Range	Notes
DG/CHP Generator Output	Sum	kWh/int	0	150/int	-20	800	Database range accounts for parasitic loads
DG/CHP Generator Output Demand	Max	kW	0	150	-20	800	Database range accounts for parasitic loads
DG/CHP Generator Gas Use	Sum	cf/int	0	2500	0	17500	Utility Gas Pulse Output
Total Facility Purchased Energy	Sum	kWh/int	0	15000	0	15000	
Total Facility Purchased Demand	Max	kW	0	15000	0	15000	
Other Facility Gas Use	Sum	cf/int	-	-	-	-	Not installed
Useful Heat Recovery	Sum	MBtu/int	-	-	0	1500	Calculated Value
Unused Heat Recovery	Sum	MBtu/int	-	-	0	1500	Calculated Value
Status/Runtime of DG/CHP Generator	Sum	hr	-	-	-	-	Not installed
Ambient Temperature	Avg	°F	-30	300	-30	300	

Notes:

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

Doral Arrowwood - Database Notes

Relational Checks

Table 4. Relational Checks

Evaluated Point	Criteria	Result