Technical Consultant: Daniel Robb
Project Participant: Sunnyside Farms - 122N

1st visit: 12/4/2009

All monitoring instrumentation was inspected to insure that it is accurately installed and that it reliably measures the required data. The monitoring equipment is installed in the correct location, and meter readings were verified with one time measurements.

Some issues with flare readings (for farm use only). When flare isn't lit the temperature reading is very high (64960), or negative

2nd visit: 4/6/2010

All monitoring equipment is in same location and operating correctly. No changes were observed with the genset, electric panels, or meters. The equipment has been running very reliably.

The farm had some manure shortages during the beginning of March. This can be seen in the power and biogas data where they dip well below the typical values of 500 kWh and 14,000 cf.

3rd visit: 7/15/2010

All monitoring equipment is in same location and appeared to be operating correctly. No changes were observed with the genset or electric panels. The only difference is that the Carbon Catcher display screen wasn't showing the biogas flow information for either the flare or engine. However the sage meters were still functioning properly and the log files still contain the values.

4th visit: 11/2/2010

All monitoring equipment is in same location and appeared to be operating correctly. No changes were observed with the genset or electric panels. The Carbon Catcher display screen is once again showing the flow readings for both engine and flare flows. Greg has been talking with NYSEG about a dedicated line being run to farms in the area in order to handle power being exported back to the grid. If it is built the farm would finally be able to install a second 500 kW engine as they had originally planned / hoped to do.

5th visit: 3/15/2011

All monitoring equipment is in same location and appeared to be operating correctly. No changes were observed with the genset or electric panels. The generator was down in the middle of February for a few days so the headers could be changed.

6th visit: 8/4/2011

All monitoring equipment is in same location and appeared to be operating correctly. No changes were observed with the genset or electric panels.

7th visit: 11/18/2011

All monitoring equipment is in same location and appeared to be operating correctly. No changes were observed with the genset or electric panels.

8th visit: 1/17/2012

All monitoring equipment is in same location and appeared to be operating correctly. No changes were observed with the genset or electric panels.

9th visit: 5/23/2012

All monitoring equipment is in same location and appeared to be operating correctly. No changes were observed with the genset or electric panels. Installation of a 2nd engine was in process.

10th visit: 8/23/2012

All monitoring equipment is in same location and appeared to be operating correctly. No changes were observed with the genset or electric panels. Installation of a 2nd 500 kW engine was complete; 2nd unit was up and running. Installation of 2nd engine results in no gas being flared.

11th visit: 11/7/2012

All monitoring equipment is in same location and appeared to be operating correctly. No changes were observed with the genset or electric panels.

Sunnyside Farms - Quarterly M&V

	12/4/2009	4/6/2010	7/15/2010	11/2/2010	3/15/2011	8/4/2011	11/18/2011	1/17/2012	5/23/2012	8/23/2012	11/7/2012
Runtime - GHD Panel											
Genset Pump 1 (hr)	3,415.5	6,297.8	8,602.6	11,097.4	14,276.7	17,486.5	19,747.0	21,180.2	24,157.4	26,126.0	27,760.0
Main Heat Zone East (hr)	3,220.3	3,621.9	4,054.8	4,364.1	4,778.4	5,043.3	5,580.4	5,617.7	6,104.2	6,171.0	6,241.5
East Heat Zone 1 (hr)	3,112.6	3,113.4	3,113.4	3,113.4	3,155.2	3,155.2	3,639.7	3,639.7	3,776.7	3,776.7	3,819.5
East Heat Zone 2 (hr)	4,163.9	6,784.5	8,616.5	10,666.1	13,802.2	16,499.1	18,427.3	19,833.3	22,547.9	24,001.0	25,251.1
East Heat Zone 3 (hr)	1,425.4	2,153.6	2,501.3	2,786.9	4,084.3	4,346.9	4,606.8	4,753.4	5,185.3	5,215.0	5,292.4
East Heat Zone 4 (hr)	1,494.5	1,973.6	2,398.5	2,565.3	3,302.9	3,663.5	3,850.3	4,431.8	5,169.8	5,173.0	5,173.0
Blank Meter (hr)	38,410.0	-	-	-	-	-	-	-	24,940.2	27,122.0	28,940.0
Genset Pump 2 (hr)	1,101.3	1,101.3	1,101.3	1,101.3	1,101.3	1,101.3	1,101.3	1,101.3	1,101.3	1,126.0	1,137.2
Main Heat Zone West (hr)	4,236.8	5,319.9	5,828.4	6,261.0	7,776.7	8,864.2	9,738.7	10,552.3	12,356.8	12,724.0	13,034.9
West Heat Zone 1 (hr)	5,933.6	8,432.6	10,427.4	11,998.5	14,728.2	17,608.9	19,420.8	20,747.3	23,568.4	24,094.0	24,140.2
West Heat Zone 2 (hr)	3,604.6	5,573.2	6,613.6	7,662.2	9,923.0	11,198.1	12,657.1	13,881.6	16,396.9	18,040.0	19,532.4
West Heat Zone 3 (hr)	5,492.5	7,961.4	8,853.6	9,917.4	11,718.4	13,058.1	13,423.5	13,497.4	13,953.5	13,953.5	14,350.8
West Heat Zone 4 (hr)	2,508.4	3,085.9	3,153.4	3,426.1	3,867.1	3,867.3	4,004.3	4,077.5	4,150.3	4,150.0	4,440.0
Barn Heat (hr)	-	-	-	-	-	-	-	-	1,200.6	1,200.6	1,200.6
Engine Blower 1 (hr)	3,671.9	6,494.5	8,741.2	11,238.3	14,186.5	17,531.6	19,654.9	21,077.9	24,065.9	26,194.0	28,010.1
Engine Blower 2 (hr)	-	-	-	-	-	-	-	-	-	826.0	2,637.4
Turbo Cooler 1 (hr)	3,832.0	6,799.8	9,176.4	11,811.5	14,998.9	18,405.6	20,722.5	22,165.8	25,188.0	27,377.0	29,199.3
Turbo Cooler 2 (hr)	-	-	-	-	-	-	-	-	-	891.0	2,713.3
East Sludge Pump (hr)	4,341.6	5,163.8	5,163.9	5,163.9	5,163.9	5,163.9	5,163.9	5,163.9	5,163.9	5,163.9	5,163.9
West Sludge Pump (hr)	4,352.8	7,058.3	9,454.8	11,284.2	11,284.2	11,284.2	11,284.2	11,284.2	11,284.2	11,284.2	11,284.2
Skidsteer Pit Mixer (hr)	40.3	281.5	2,636.4	5,272.7	8,467.2	9,333.0	11,217.6	11,256.5	11,531.4	13,322.0	15,144.6
Carbon Catcher											
Engine Flow (cfm)	198	202	-	153	157	156	111	127.0	169.0	153.0	151
Flare Flow (cfm)	70	90	-	113	215	205	220	190.0	293.0	-	19
Engine Flow (acc)	20,344,362	52,051,070	-	98,634,350	125,373,100	155,776,401		184,741,303.0	212,514,765.0	234,153,367.0	249838579
Flare Flow (acc)	9,612,431	20,083,670	-	56,831,595	89,483,975	126,229,890		170,967,858.0	213,340,899.0	236,670,350.0	240861483
Gen_1_kWh	1,798,395	3,134,232	4,174,642	5,394,618	6,843,573	8,451,010	9,418,406.0	10,070,903.0	-		
Engine Control Panel											
Engine Output (kW)	500-503	-	-	498-503	449	479	335-340	497-506	507	445	501
Sage Flow Meters											
Engine Flow (cfm)	196	201	159	154	159	155	109	128	-	-	-
Engine Flow (cf)	20,344,437	52,046,370	75,491,425	98,639,861	125,376,710	-	174,649,187	184,741,668	-	-	-
Flare Flow (cfm)	-	-	-	-	-	-		-	-	-	-
Fluke											
Engine Output (kW)	512.0	-									
Digester Temps											
Tank Temp (F)	143	169	168	155	160	170	153	149	162	175	176
Main Zone - East (F)	137	132	131	130	135	132	134	130	134	136	142
Zone 1 - East (F)	100	100	100	99	98	100	98	98	99	100	100
Zone 2 - East (F)	100	100	100	100	99	100	100	99	100	100	101
Zone 3 - East (F)	100	101	100	100	100	101	100	100	100	101	101
Zone 4 - East (F)	100	100	100	100	100	100	99	100	100	100	102
Main Zone -West (F)	128	140	146	135	135	143	139	130	137	150	143
Zone 1 - West (F)	97	101	101	99	98	101	100	97	100	100	96
Zone 2 - West (F)	97	101	101	100	100	101	100	100	100	99	96
Zone 3 - West (F)	98	100	100	101	100	101	100	101	100	100	100
Zone 4 - West (F)	99	100	101	101	101	101	100	101	100	100	99
One Time Measurments											
Parasitic Loads											
GHD Control (kW)	43.1										
GHD Control (A)	66.0										
Seperator Room (kW)	3.3										
Seperator Room (A)											
208 Service (kW)											
208 Service (A)	5.6										
480 V Panel (kW)	6.2										
480 V Panel (A)	9.0										
Piston Pumps (kW)	7.9										
Piston Pumps (kW)	17.0										