

Southern Environmental Sciences, Inc.

1204 North Wheeler Street □ Plant City, Florida 33563 □ (813) 752-5014, Fax: (813) 752-2475

July 19, 2013

Richard A. Vogel
Director, Environmental & Regulatory Affairs
Vecenergy
1600 SE 17th Street Causeway, Suite 400
Ft. Lauderdale, Florida 33316

Re: Vapor Combustion Unit
Emissions Test Report

Dear Richard:

Attached is a PDF copy of the report detailing the testing performed on the above referenced source on June 12, 2013. You will need to send a copy of the report within 45 days of the testing to following address:

Broward County Environmental Protection
and Growth Management Department
Pollution Prevention, Remediation and Air Quality Division
One North University Drive, Suite 203
Ft. Lauderdale, Florida 33324

If you have any questions concerning the report or need additional copies please do not hesitate to call.

Very truly yours,

SOUTHERN ENVIRONMENTAL
SCIENCES, INC.



Kenneth M. Roberts, QEP
Vice President

MSG/mg

cc: Jim Estler, Clean Air Consulting, Inc. w/ electronic copy

**EMISSIONS TESTING
of the
SOUTH FLORIDA MATERIALS CORP.
DBA VECENERGY
VAPOR COMBUSTION UNIT
Dania Beach, Florida**

June 12, 2013

Broward County Permit No. 0112688-006-AO
SES Reference No. 13S166

Conducted by:

SOUTHERN ENVIRONMENTAL SCIENCES, INC.
1204 North Wheeler Street
Plant City, Florida 33563
Phone (813) 752-5014 Fax (813) 752-2475

Project Participants

Southern Environmental Sciences, Inc.

Byron E. Nelson
Kenneth M. Roberts
Mark S. Gierke
Dale A. Wingler

Clean Air Consulting

James Estler

**EMISSIONS TESTING
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SOUTH FLORIDA MATERIALS CORP.
DBA VECENERGY
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1.0 INTRODUCTION

Southern Environmental Sciences, Inc. conducted an emissions test of the South Florida Materials Corp., dba VECENERGY bulk petroleum and ethanol products loading rack vapor combustion unit (VCU) on June 12, 2013. This facility is located at 1200 SE 32nd Avenue in Dania Beach, Florida. Testing was performed to determine if the plant was operating in compliance with requirements of the Florida Department of Environmental Protection (FDEP) and the Broward County Environmental Protection and Growth Management Department (BCEPGMD) Mr. Art Pennetta of the BCEPGMD was present as an observer during a portion of the test.

2.0 SUMMARY OF RESULTS

The VCU was found to be in compliance with applicable emission limiting standards. Results of the test are summarized in Table 1. Emissions from the vapor collection system due to the loading of liquid product into gasoline tank trucks is limited to 10 milligrams of total organic compounds per liter of gasoline loaded. The emission rate during the test was 7.9 milligrams of total organic compounds per liter of gasoline loaded. The maximum allowable vapor system pressure, measured at each loading rack vapor recovery line is 17.7 inches of water. The maximum pressure observed during the test was 5.0 inches of water.

3.0 PROCESS DESCRIPTION

The VECENERGY, Dania Beach Petroleum Products Terminal truck loading facility controlled by this vapor combustion unit includes one loading rack consisting of four loading stations. Trucks are bottom filled to reduce the amount of vapors generated. All displaced vapors are routed through the vapor combustion unit. The amount of product loaded during the testing period was monitored by facility personnel and is included in Table 1 and in the appendix.

4.0 TESTING PROCEDURES

4.1 Methods

VCU testing and analyses were conducted in accordance with procedures described in 40 CFR 60.503. Volumetric flowrate at the inlet and outlet were determined in accordance with EPA Method 2B - Determination of Exhaust Gas Volume Flow Rate from Gasoline Vapor Incinerators, 40 CFR 60, Appendix A-1. Hydrocarbon concentrations were measured at the inlet and outlet in accordance with EPA Method 25A - Determination of Total Gaseous Organic Concentration Using a Flame Ionization Analyzer, 40 CFR 60, Appendix A-7. Carbon monoxide concentration was measured at the outlet in accordance with EPA Method 10 - Determination of Carbon Monoxide Emissions from Stationary Sources, 40 CFR 60, Appendix A-4. Carbon dioxide was also measured at the outlet using procedures generally described in Method 10 by substituting carbon dioxide gas where the method called for carbon monoxide. The carbon dioxide analyzer was calibrated with an Environics Model 2020 gas dilution system and calibration gases using procedures

TABLE 1. EMISSIONS TEST SUMMARY

Company: SOUTH FLORIDA MATERIALS CORP., DBA VECENERGY
Source: VAPOR RECOVERY UNIT

Date of Test	06/12/13
Start Time (24-hr. clock)	1022
End Time (24-hr. clock)	1622
Inlet Gas Volume (SCM)	780
Outlet Gas Volume (SCM)	16,129
Average Barometric Pressure (in. Hg.)	30.07
Average Static Pressure (in. H2O)	1.3
Average Meter Temperature (°F)	92
Gas Meter Correction Factor	1
Total Loading Positions	4
Total Trucks Checked	21
Trucks With Leaks	0
Trucks With No Leaks	21
Total Gasoline Dispensed (gallons, net)	139,360
Gasoline excluded Due to Leaks (gallons)	
Total Countable Gasoline Dispensed (gallons)	139,360
Total Countable Gasoline Dispensed (liters)	527,478
Average VOC Inlet Concentration, (ppm, as propane)	244,850
Total mass of Inlet Hydrocarbons, (milligrams as carbon)	354,191,733
Average VOC Outlet Concentration, (ppm, as propane)	76.1
Average CO Outlet Concentration, (ppm)	210.7
Average CO2 Outlet Concentration, (ppm)	1.8
Total mass of Outlet Hydrocarbons, (milligrams as carbon)	4,143,839
Average Flare Efficiency, %	99.0
Emission rate (mg/l)	7.9
Allowable Emission rate (mg/l)	10

described in EPA Method 205 - Verification of Gas Dilution Systems for Field Instrument Calibrations, 40 CFR 51, Appendix M. Trucks were checked for leaks with portable flame ionization detectors (FID's) using procedures described in EPA Method 21 - Determination of Volatile Organic Compound Emission Leaks, 40 CFR 60, Appendix A-7. The FID's were calibrated on the day of the test with 450 ppm methane.

4.2 Pretest Preparation

Prior to testing, an eight inch American Meter Company turbine meter was connected in line to measure the total volume of vapor reaching the VCU. The entire vapor collection system, the vapor processing system and each gasoline loading rack were checked for vapor leaks with a combustible gas detector prior to the test. Any leaks detected were repaired prior to testing. Magnehelic gauges were connected at each loading station to measure the vapor collection system pressure. Two Photovac portable flame ionization detectors were calibrated prior to the test with zero air and 485 ppm methane calibration gas. All analyzers were calibrated in accordance with the applicable test method immediately prior to the test.

4.3 Sampling Trains

The inlet Method 25A sampling train consisted of a dilution probe (100:1), a teflon sample line, heated as necessary to prevent condensation and a California Analytical Instruments Model 300HFID(M) heated total hydrocarbon analyzer. The outlet Method 25A sampling train consisted of a heated stainless steel probe, heated teflon sample line and a California Analytical Instruments Model 300HFID(M) heated total hydrocarbon analyzer. A schematic of the hydrocarbon sampling trains is shown in Figure 1. The carbon monoxide sampling train consisted of a heated stainless steel probe, condenser, silica gel tube, carbon dioxide absorption tube, teflon sample line, and a Teledyne Instruments Gas Filter Correlation CO analyzer. The carbon dioxide sampling train consisted of a heated stainless steel sampling probe, condenser, teflon sample line and a California Analytical Instruments Model ZRH carbon dioxide analyzer. A schematic of the carbon monoxide sampling train is shown in Figure 2. Outputs from all analyzers were connected to a Eurotherm Model 6100 Data Acquisition System.

4.4 Data Collection

Inlet volume, temperature and static pressure measurements were recorded at the inlet to the meter at five minute intervals for the duration of the test to determine volume at standard conditions. Inlet and outlet hydrocarbon concentrations and outlet carbon monoxide and carbon dioxide concentrations were measured continuously throughout the six hour test period. During the testing each applicable tank truck was tested for leaks at all domes, boots and vapor recovery connections. The probe of the gas meter was held 2.5 centimeters from the potential leak source and probe movement was maintained at 2 centimeters per second. If an increase in concentration was noted at a possible leak, the probe was moved to locate the point of highest meter response. Leaks greater than or equal to 500 parts per million (as methane) should be

documented on field data sheets, however there were no leaks detected during the test period.

5.0 ANALYTICAL PROCEDURE

5.1 Analysis

Within 2 hours of the start of the test zero and high-level propane calibration gases were introduced into the hydrocarbon analyzers at the calibration valve assembly and the output was adjusted to the appropriate level if necessary. A linear regression was then conducted to calculate the predicted response for the low-level and mid-level gases. The low-level and mid-level gases were then introduced into the measurement system. The difference between the predicted and actual responses were calculated. A difference of less than 5 percent was considered acceptable. To assess the response time of the measurement system, zero gas was introduced into the system. After the output was stabilized, the high-level gas was quickly introduced. The time from the concentration change to the measurement system response equivalent to 95 percent of the step change was determined. The test was repeated three times. Results were recorded and are included in the appendix. The carbon monoxide and carbon dioxide analyzers were calibrated immediately before the beginning of the test by introducing zero and high-level calibration gases into the analyzers at the calibration valve assembly and the outputs were adjusted to the appropriate level if necessary. The low-level and mid-level gases were then introduced into the measurement systems. All instrument calibrations were checked periodically during the test by introducing mid-range and zero gases into the instruments through the sampling trains.

5.2 Data Reduction

The outlet volume was determined in accordance with equations in EPA Method 2B. Hydrocarbon emissions were determined from the outlet hydrocarbon concentrations and the calculated outlet gas flow. The total countable gasoline loaded during the test was calculated by summing the total gasoline loaded then subtracting the total loaded into trucks on which leaks were encountered. Note: There were no leaks detected on any trucks during the test period.

FIGURES

Figure 1. EPA Method 25A Sampling Train

Figure 2. Carbon Monoxide & Carbon Dioxide Sampling System

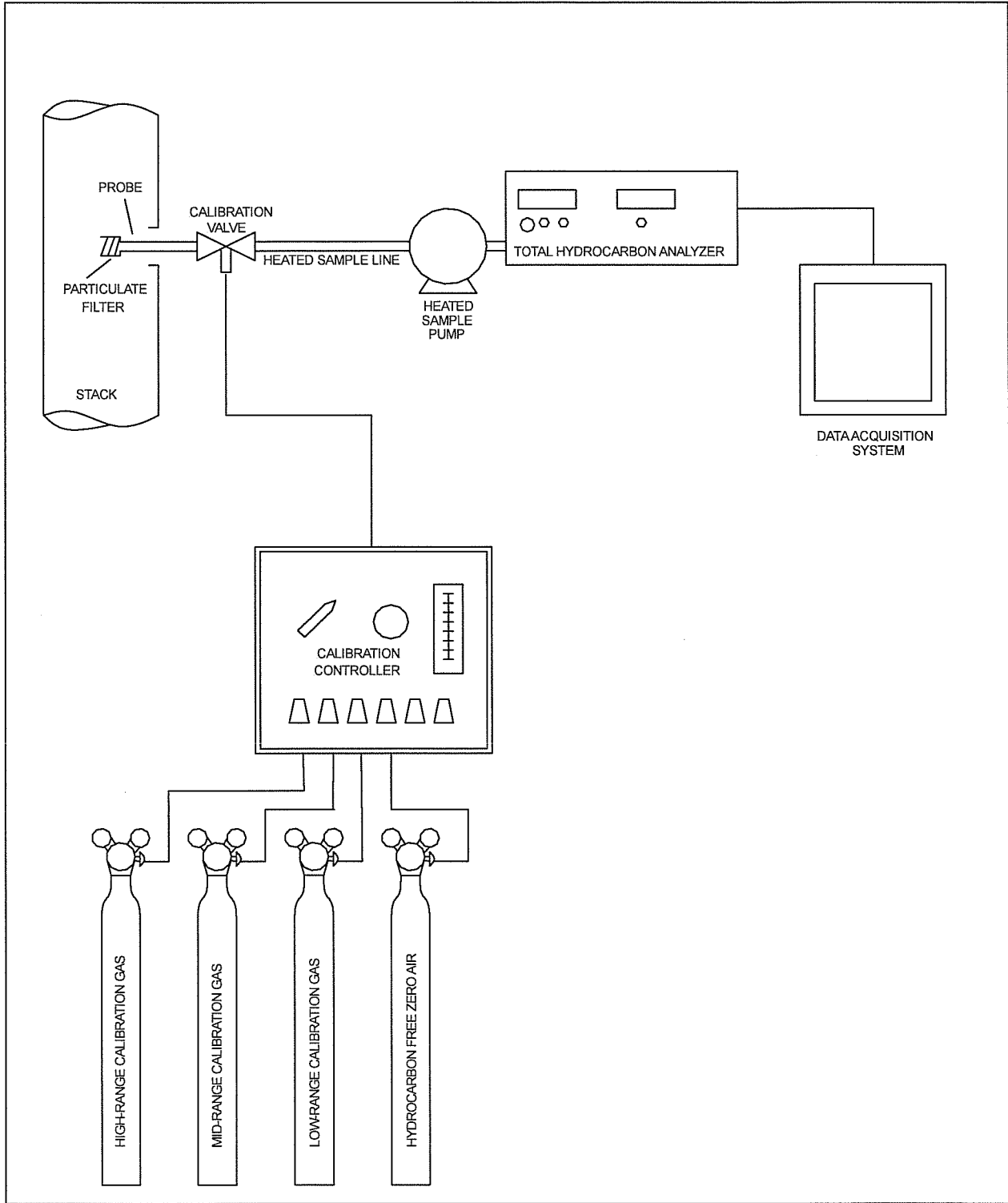


Figure 1. EPA Method 25A Sampling Train.

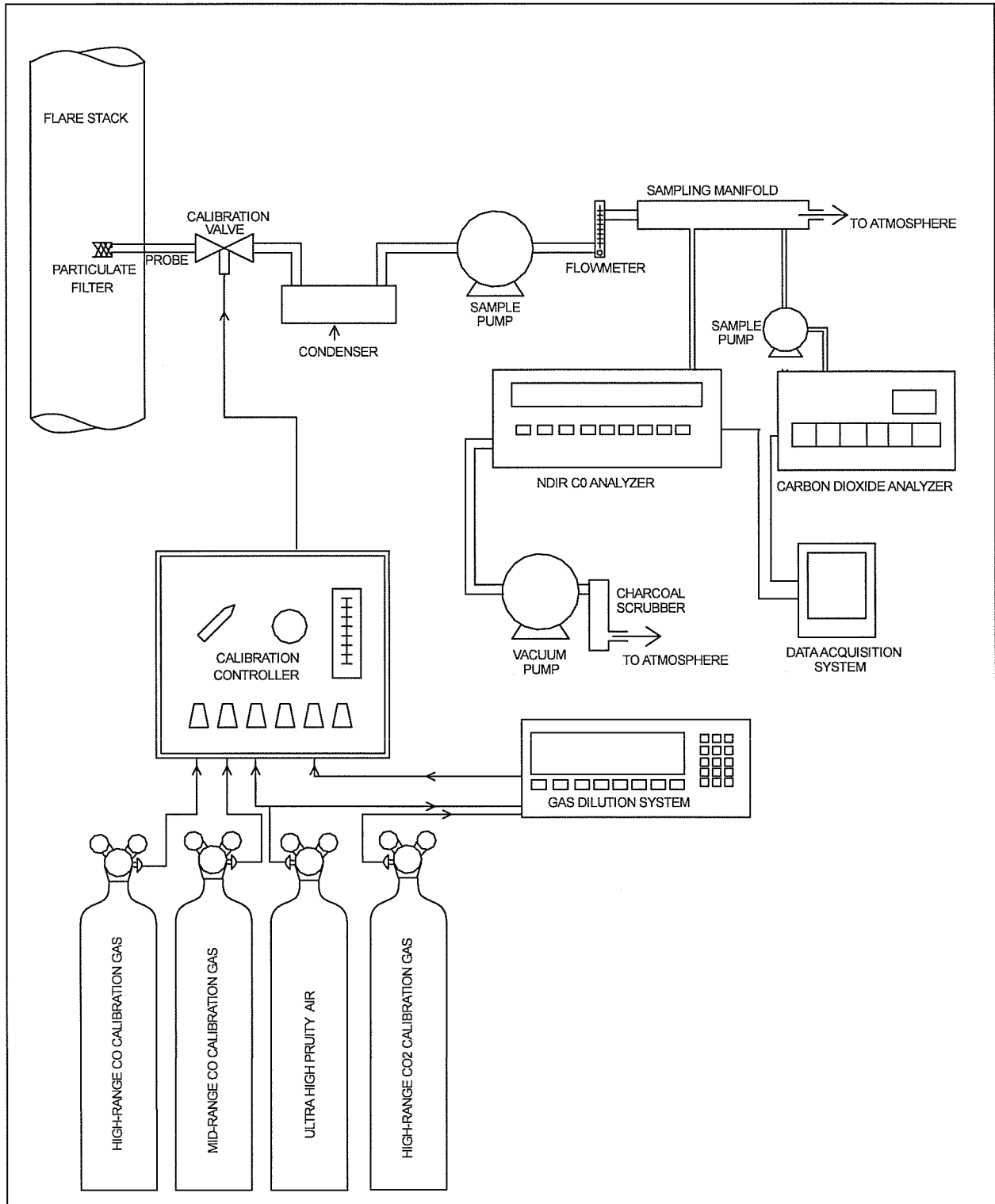


Figure 2. Carbon Monoxide (EPA Method 10) and Carbon Dioxide (APA Method 2B) Sampling Trains.

APPENDIX

Project Participants

Certification

Facility Data

Field Data Sheets

Calculations and Equations

Data Acquisition System Printouts

Calibration Data

PROJECT PARTICIPANTS AND CERTIFICATION
SOUTH FLORIDA MATERIALS CORP. DBA VECENERGY
VAPOR COMBUSTION UNIT

Dania Beach, Florida

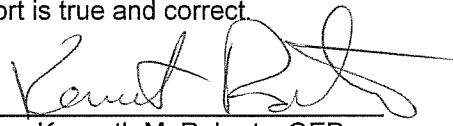
June 12, 2013

Project Participants:

Byron E. Nelson Kenneth M. Roberts Mark S. Gierke Dale A. Wingler	Conducted the field testing.
James Estler (Clean Air Consulting)	Project Coordinator
Richard Vogel (South Florida Materials Corp. dba Vecenergy)	Provided facility data
Kenneth M. Roberts	Computed test results.
Kenneth M. Roberts	Prepared the final test report.

Certification:

I certify that to my knowledge all data submitted in this report is true and correct.



Kenneth M. Roberts, QEP

Product Throughput Report by Tank (Period 1549)

SOUTH FLORIDA MATERIALS CORP PORT EVERGLADES

Report printed on: 6/12/13 at 4:51 PM

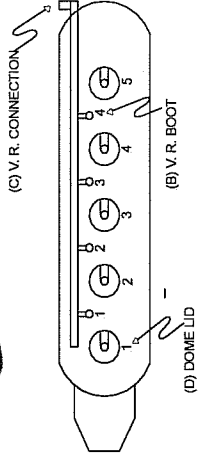
Page 1 of 1

Tank Thruput for Loads # 252866 (6/12/2013 10:27:31AM) through Loads # 252900 (6/12/2013 3:56:

Product	Tank No.	Base Code	Gross Gallons	Net Gallons	Net Barrels	Avg. Temp
ETH	207	1000	<u>13,463</u> 13,463	<u>13,278</u> 13,278	<u>316.1</u> 316.1	83.6
JET D	201 D	3100	<u>39,999</u> 39,999	<u>39,566</u> 39,566	<u>942.0</u> 942.0	81.0
PSG	206	9100	<u>22,419</u> 22,419	<u>22,037</u> 22,037	<u>524.7</u> 524.7	83.9
RSG	209	8500	<u>106,035</u> 106,035	<u>104,045</u> 104,045	<u>2,477.3</u> 2,477.3	87.2
ULSD	205	5200	<u>34,516</u> 34,516	<u>34,042</u> 34,042	<u>810.5</u> 810.5	89.2
		Total:	<u><u>216,432</u></u>	<u><u>212,968</u></u>	<u><u>5,070.7</u></u>	

SOUTHERN ENVIRONMENTAL SCIENCES, INC.
 1204 North Wheeler Street, Plant City, Florida 33563
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TRUCK LEAK CHECKS	
COMPANY	Velocity
LOCATION	Dania, FL
FACILITY	Rack
DATE	6/12/13
OPERATOR(S)	
INSTRUMENT(S)	Milco Fid

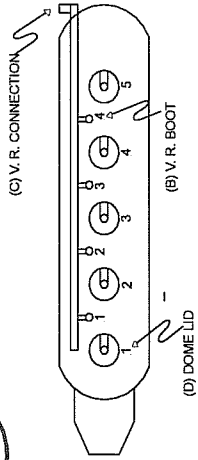


LEAK LOCATION DIAGRAM

OWNER	TRUCK NO.	TIME	RACK NO.	LANE NO.	V.R. BACK PRESSURE (IN. H2O)	GALLONS LOADED	PRODUCT		NO LEAK	LEAK	LEAK LOCATION
							LOAD	LOAD			
Palmdale	TR-7017	1045	1	4	/	Diesel	1		/		
							2				
							3				
							4				
							TOTAL				
W Bear Truck part	05	1045	1	2	3.0	8000	1	REG	/		
							2	PLUM			
							3				
							4				
							TOTAL				
Jet Star	112	1100	1	2	/		1		/		
							2				
							3				
							4				
							TOTAL				
Atlantic Coast Fuels	878	1100	1	4	Jet		1		/		
							2				
							3				
							4				
							TOTAL				
Hickory Transport	1094	1110	1	3	Diesel		1		/		
							2				
							3				
							4				
							TOTAL				
AS16	7374	1115	1	1	Jet		1		/		
							2				
							3				
							4				
							TOTAL				

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LEAK LOCATION DIAGRAM

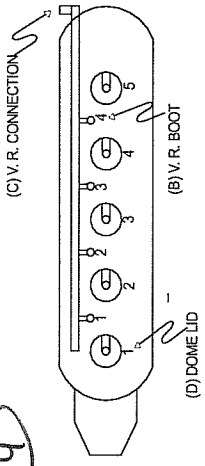
TRUCK LEAK CHECKS	
COMPANY	Security
LOCATION	Dania, FL
FACILITY	Rack
DATE	6/12/13
OPERATOR(S)	
INSTRUMENT(S)	Micro Fid

OWNER	TRUCK NO.	TIME	RACK NO.	LANE NO.	V.R. BACK PRESSURE (IN. H2O)	GALLONS LOADED	PRODUCT		NO LEAK	LEAK LOCATION
							LOAD	LOAD		
Jet Star	167	1118	1	Z	JET	TOTAL	1			
							2			
							3			
							4			
							TOTAL	2000	REG	✓
URBIEIA	8378	1132	1	3	4.0	TOTAL	1			
							2			
							3			
							4			
							TOTAL	2000	DIESEL	
HALLFAH TRANSPORT	611094	1135	1	4	DIESEL	TOTAL	1			
							2			
							3			
							4			
							TOTAL			
CAUD & SEA	35	1143	1	Z	4.0	TOTAL	1			
							2			
							3			
							4			
							TOTAL	2700	REG	✓
URBIEIA	4904	1155	1	1	3.0	TOTAL	1			
							2			
							3			
							4			
							TOTAL	8500	REG	✓
ASIG	7320	1200	1	Z	JET	TOTAL	1			
							2			
							3			
							4			
							TOTAL			

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TRUCK LEAK CHECKS	
COMPANY	WRENERGY
LOCATION	Dunbar, FL
FACILITY	Rack
DATE	6/12/13
OPERATOR(S)	
INSTRUMENT(S)	Macro FID



LEAK LOCATION DIAGRAM

OWNER	TRUCK NO.	TIME	RACK NO.	LANE NO.	V.R. BACK PRESSURE (IN. H2O)	GALLONS LOADED	PRODUCT		NO LEAK	LEAK LOCATION
							THIS LOAD	PREV.		
Palmdale	55770 7029	1200	1	2	4.0	1	REG		✓	
						2				
						3				
						4				
						TOTAL	4300			
MEM	07-	1214	1	2	4.0	1	REG		✓	
						2	REG			
						3	REG			
						4				
						TOTAL	5700			
DBS	2404	1245	1	2	Cancel	1				
						2				
						3				
						4				
						TOTAL				
CWC	T103	1315	1	3	Cancel	1				
						2				
						3				
						4				
						TOTAL				
Palmdale			1		Cancel	1				
						2				
						3				
						4				
						TOTAL				
SouthGate Trucking	108	1320	1	1	5.0	1	REG		✓	
						2				
						3				
						4				
						TOTAL	9000			

5

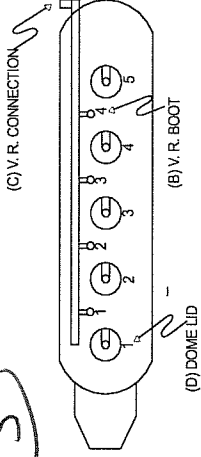
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(813) 752-5014 FAX (813) 752-2475

TRUCK LEAK CHECKS

COMPANY	VEE ENERGY	DATE	6/12/13
LOCATION	Plant City, FL	OPERATOR(S)	
FACILITY	Rack	INSTRUMENT(S)	Mini F.I.D

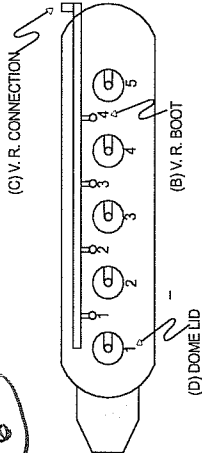


LEAK LOCATION DIAGRAM

OWNER	TRUCK NO.	TIME	RACK NO.	LANE NO.	V.R. BACK PRESSURE (IN. H2O)	GALLONS LOADED	PRODUCT		NO LEAK	LEAK LOCATION
							THIS LOAD	PREV.		
VERBETA	115	1320	1	4	3.5	1	REG		✓	
						2				
						3				
						4				
						TOTAL				
Palmdale	55979	1330	2	Z	4.5	1	REG		✓	
						2				
						3				
						4				
						TOTAL				
Liberty	4554	1336	1	Z	5.0	1	REG		✓	
						2	PREM			
						3				
						4				
						TOTAL				
Liberty	4630	1338	1	3	3.0	1	REG		✓	
						2	PREM			
						3	REG			
						4				
						TOTAL				
Gulfstream Fuel	171	1340	1	1	5.0	1	REG		✓	
						2	PREM			
						3				
						4				
						TOTAL				
Penn Tank Lines	41342	1356	1	4	2.5	1	REG		✓	
						2				
						3				
						4				
						TOTAL				

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SOUTHERN ENVIRONMENTAL SCIENCES, INC.
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 (813) 752-5014 FAX (813) 752-2475



LEAK LOCATION DIAGRAM

TRUCK LEAK CHECKS			
COMPANY	VEENERGY	DATE	6/12/13
LOCATION	Dunwoody, FL	OPERATOR(S)	
FACILITY	Back	INSTRUMENT(S)	720 FID

OWNER	TRUCK NO.	TIME	RACK NO.	LANE NO.	V.R. BACK PRESSURE (IN. H2O)	GALLONS LOADED	PRODUCT		NO LEAK	LEAK LOCATION
							THIS LOAD	PREV.		
CWC	477948	1403	1	1	2.5	1	REG		✓	
						2	PREM			
						3				
						4				
						TOTAL				
URBIETA	8378	1417	1	2	2.5	1				
						2				
						3				
						4				
						TOTAL				
Penn Tank Lines	8776	1535	1	2	Dipped	1	REG		✓	(Dw)
						2				
						3				
						4				
						TOTAL				
URBIETA	121	1543	1	1	4.5	1	REG		✓	
						2				
						3				
						4				
						TOTAL				
						1				
						2				
						3				
						4				
						TOTAL				
						1				
						2				
						3				
						4				
						TOTAL				

COMPANY: VECENERGY
 FACILITY: VAPOR COMBUSTION UNIT
 DATE: 06/11/13

CLOCK TIME	METER RDG. (cf)	METER #1	STATIC PRESSURE ("H ₂ O)	METER TEMP. (deg f)	BAROM. PRESSURE ("Hg)	INLET VOC		OUTLET VOC		ARSON MONOXIDE		CARBON DIOXIDE		INLET		OUTLET		FLARE CONTROL EFF. (%)	ORIFICE VELOCITY		
						INSTRU. SCALE (%)	CONC. (%)	INSTRU. SCALE (PPM)	CONC. (PPM)	INSTRU. SCALE (%)	CONC. (PPM)	INSTRU. SCALE (%)	CONC. (%)	GAS VOLUME (M3)*	MASS (mg)	GAS VOLUME (M3)*	MASS (mg)			GAS VOLUME (M3)*	MASS (mg)
13:27	185	19200	0.9	85	30.08	100	31.76	1,000	102.8	1,000	1,000	208.5	20	1.1	13.82	8,046,559	1174.08	221,234	97.25	2.98	
13:32	190	20700	1.4	84	30.08	100	35.28	1,000	40.9	1,000	1,000	149.7	20	4.3	41.59	26,897,162	1024.41	76,800	99.71	8.98	
13:37	195	21400	0.1	84	30.08	100	40.45	1,000	120.0	1,000	1,000	346.1	20	1.8	19.35	14,345,828	1275.62	280,586	98.04	4.18	
13:42	200	21500	0.1	85	30.08	100	38.78	1,000	18.7	1,000	1,000	16.2	20	0.0	2.76	1,961,188	-14096.62	-483,191	124.64	0.60	
13:47	205	21900	2.4	85	30.08	100	37.46	1,000	81.1	1,000	1,000	63.4	20	1.3	11.10	7,620,325	988.88	142,544	98.13	2.39	
13:52	210	22800	2.9	85	30.08	100	43.09	1,000	41.9	1,000	1,000	229.8	20	3.2	25.00	19,746,590	1008.20	77,433	99.61	5.40	
13:57	215	23900	1.5	84	30.08	100	39.47	1,000	76.5	1,000	1,000	223.3	20	3.3	30.51	22,072,535	1089.66	152,797	99.31	6.58	
14:02	220	24700	2.4	84	30.08	100	22	1,000	59.7	1,000	1,000	387.5	20	2.4	22.24	8,967,182	604.79	66,182	99.26	4.80	
14:07	225	25100	0.8	83	30.08	100	20.33	1,000	88.3	1,000	1,000	108.2	20	0.5	11.10	4,134,736	1333.93	215,902	94.78	2.39	
14:12	230	26000	0.4	85	30.08	100	13.63	1,000	110.3	1,000	1,000	211.7	20	1.2	24.85	6,208,234	829.95	167,800	97.30	5.36	
14:17	235	26500	2.1	85	30.08	100	31.91	1,000	82.5	1,000	1,000	378	20	2.2	13.86	8,108,225	594.41	89,888	98.89	2.99	
14:22	240	26800	1.1	85	30.08	100	35.79	1,000	82.3	1,000	1,000	271.2	20	1.7	8.30	5,443,202	517.40	78,053	98.57	1.79	
14:27	245	27300	0.2	85	30.08	100	12.41	1,000	84.3	1,000	1,000	367.9	20	2.4	13.80	3,138,769	211.22	32,639	98.96	2.98	
14:32	250	27500	0.1	84	30.08	100	15.05	1,000	79.2	1,000	1,000	186.5	20	1.0	5.53	1,525,020	246.53	35,790	97.65	1.19	
14:37	255	27500																			
14:42	260	27500																			
14:47	265	27500																			
14:52	270	27500																			
14:57	275	27500																			
15:02	280	27500																			
15:07	285	27500																			
15:12	290	27500																			
15:17	295	27500																			
15:22	300	27500																			
15:27	305	27500																			
15:32	310	27500																			
15:37	315	27500																			
15:42	320	27500																			
15:47	325	27500																			
15:52	330	28000	1.2	85	30.08	100	25.55	1,000	126.6	1,000	285.7	20	1.4	13.83	6,477,960	738.03	171,267	97.36	2.98		
15:57	335	28500	1.9	85	30.08	100	33.7	1,000	179.6	1,000	432.6	20	1.8	13.86	8,558,893	750.24	246,984	97.11	2.99		
16:02	340	28600	0.1	85	30.08	100	31.15	1,000	20.9	1,000	86.8	20	0.4	2.76	1,575,323	669.77	25,659	98.37	0.60		
16:07	345	28600																			
16:12	350	28600																			
16:17	355	28600																			
16:22	360	28600																			
TOTAL	28600		1.3	92	30.07	24.49			76.1		210.7			1.8	779.973	354,191,733	16,129	4,143,839		98.95	
AVERAGE																					

* At standard conditions of 68 deg F and 29.92in. Hg)

Inlet Gas Volume

$$V_{is} = (V_f - V_i) \times (Y_m) \times [P_{bar} + (P_g/13.6)]/P_{std} \times (T_{std}/T_m)$$

Where:

V_{is} =	Inlet Flow, ft3 at standard conditions
Y_m =	Turbine meter correction factor
V_f =	Final meter reading (ft3)
V_i =	Initial Meter Volume (ft3)
P_{bar} =	Barometric pressure (in, Hg)
P_g =	Static pressure in duct (in. Hg)
P_{std} =	Standard Pressure, 29.92 in. Hg
T_{std} =	Absolute standard temperature, 528 Deg Rankin
T_m =	Absolute meter pressure (Deg Rankin)

Outlet Gas Volume

$$V_{es} = V_{is} \times \left\{ \left[K_i \times (HC_i) / \left[(K_e \times (HC_e) + [(CO_2)_e - (CO_2)_a] + CO_a) \right] \right] \right\}$$

Where:

CO_e =	Mean carbon monoxide concentration in system exhaust, ppm.
$(CO_2)_a$ =	Ambient carbon dioxide concentration, ppm (if not measured during the test period, may be assumed to equal 300 ppm).
$(CO_2)_e$ =	Mean carbon dioxide concentration in system exhaust, ppm.
HC_e =	Mean organic concentration in system exhaust as defined by the calibration gas, ppm.
HC_i =	Mean organic concentration in system inlet as defined by the calibration gas, ppm.
K_e =	Hydrocarbon calibration gas factor for the exhaust hydrocarbon analyzer, unitless [equal to the number of carbon atoms per molecule of the gas used to calibrate the analyzer (2 for ethane, 3 for propane, etc.)].
K_i =	Hydrocarbon calibration gas factor for the inlet hydrocarbon analyzer, unitless.
V_{es} =	Exhaust gas volume, m3.
V_{is} =	Inlet gas volume, m3.
Q_{es} =	Exhaust gas volume flow rate, m3/min.
Q_{is} =	Inlet gas volume flow rate, m3/min.
θ =	Sample run time, min.

COMPANY: VECENERGY	VOC IN RANGE: 100 %
SOURCE: VAPOR COMBUSTION UNIT	VOC OUT RANGE: 1000 PPM
DATE: 6/12/2013	CO RANGE: 1000 PPM
	CO2 RANGE: 20 %

TIME	VOC IN PPM	VOC OUT PPM	CO PPM	CO2 %	VOC IN 5 MIN	VOC OUT 5 MIN	CO 5 MIN	CO2 5 MIN
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6/12/2013 7:30 6/12/13 7:30:50 AM Power Up

6/12/2013 7:30 6/12/13 7:30:50 AM Config Revision:71 Security Revision:0

6/12/2013 7:31	-4.4	-1.9	6.8	0.3				
6/12/2013 7:32	-2.5	-2.1	-1.1	0.3				
6/12/2013 7:33	-3.4	-2.2	0.9	0.2	CALIBRATIONS			
6/12/2013 7:34	-4.5	-2.2	0.9	0.2			CO CAL	
6/12/2013 7:35	-6.2	-2.2	0.9	0.2			0.9	
6/12/2013 7:36	-7	-2.2	722	0.2				
6/12/2013 7:37	-7.1	-2.2	917.2	0.2				
6/12/2013 7:38	-7.6	-2.2	921	0.1				
6/12/2013 7:39	-7.5	-2.3	949.2	0.1				
6/12/2013 7:40	-7.4	-2.2	949.4	0.1				
6/12/2013 7:41	-7.5	-2	949.6	0.1			949.4	
6/12/2013 7:42	-7.7	-2.1	430.6	0.1				
6/12/2013 7:43	-8	-2.2	318.1	0.1				
6/12/2013 7:44	-7.8	-2.1	343.6	0.1				
6/12/2013 7:45	-7.8	-2.2	489.1	0.1				
6/12/2013 7:46	-8.1	-2.2	492.3	0.1				
6/12/2013 7:47	-8.2	-2.2	493.2	0.1			491.5	
6/12/2013 7:48	-8.4	-2.1	88.1	0.1				
6/12/2013 7:49	-8.5	-2.2	3.2	0.1				
6/12/2013 7:50	-8.5	-2.2	1.4	0.1				
6/12/2013 7:51	-8.2	-2.1	133.9	0.1				
6/12/2013 7:52	-8.6	-2.2	200	0.1		METHOD 205		
6/12/2013 7:53	-8.6	-2.2	202.5	0.1		VERIFICATION		
6/12/2013 7:54	-8.7	-2	171.7	0.2			201.25	
6/12/2013 7:55	-9.3	-2.2	7.4	0.2				
6/12/2013 7:56	-8.9	-2.2	95.5	0.2				
6/12/2013 7:57	-9.1	-2.1	198.1	0.2				
6/12/2013 7:58	-9.3	-2.1	201.7	0.2			199.9	
6/12/2013 7:59	-9.1	-2	83.4	0.2				
6/12/2013 8:00	-9	-2.1	3.6	0.2				
6/12/2013 8:01	-9.3	-2.1	1.7	0.2				
6/12/2013 8:02	-8.6	-2	182.4	0.2				
6/12/2013 8:03	-9.5	-2.1	200.6	0.2				
6/12/2013 8:04	-9.2	-2.2	201.1	0.2			200.85	
6/12/2013 8:05	-9.1	-2.2	8.5	0.2				
6/12/2013 8:06	-9.1	-1.1	2	0.2				
6/12/2013 8:07	-9.2	-2	465.1	0.2				
6/12/2013 8:08	-9.5	-1.1	602.7	0.2				
6/12/2013 8:09	-9.4	-1	606	0.2			604.35	
6/12/2013 8:10	-9.5	-0.9	515.4	0.2				
6/12/2013 8:11	-9.5	-0.6	15.9	0.2				
6/12/2013 8:12	-9.7	-1.5	2	0.2				
6/12/2013 8:13	-9.8	-1.7	1.7	0.2				
6/12/2013 8:14	-9.7	-2.6	468.8	0.2				
6/12/2013 8:15	-9.8	-2.4	603.2	0.2				
6/12/2013 8:16	-9.6	-2	606.1	0.2			604.65	

COMPANY: VECENERGY		VOC IN RANGE: 100 %	
SOURCE: VAPOR COMBUSTION UNIT		VOC OUT RANGE: 1000 PPM	
DATE: 6/12/2013		CO RANGE: 1000 PPM	
		CO2 RANGE: 20 %	

TIME	VOC IN PPM	VOC OUT PPM	CO PPM	CO2 %	VOC IN 5 MIN	VOC OUT 5 MIN	CO 5 MIN	CO2 5 MIN
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6/12/2013 9:05
 6/12/2013 9:06
 6/12/2013 9:07
 6/12/2013 9:08
 6/12/2013 9:09
 6/12/2013 9:10
 6/12/2013 9:11
 6/12/2013 9:12
 6/12/2013 9:13
 6/12/2013 9:14
 6/12/2013 9:15
 6/12/2013 9:16
 6/12/2013 9:17
 6/12/2013 9:18
 6/12/2013 9:19
 6/12/2013 9:20
 6/12/2013 9:21
 6/12/2013 9:22
 6/12/2013 9:23
 6/12/2013 9:24
 6/12/2013 9:25
 6/12/2013 9:26
 6/12/2013 9:27
 6/12/2013 9:28
 6/12/2013 9:29
 6/12/2013 9:30
 6/12/2013 9:31
 6/12/2013 9:32
 6/12/2013 9:33
 6/12/2013 9:34
 6/12/2013 9:35
 6/12/2013 9:36
 6/12/2013 9:37
 6/12/2013 9:38
 6/12/2013 9:39
 6/12/2013 9:40
 6/12/2013 9:41
 6/12/2013 9:42
 6/12/2013 9:43
 6/12/2013 9:44
 6/12/2013 9:45
 6/12/2013 9:46
 6/12/2013 9:47
 6/12/2013 9:48
 6/12/2013 9:49
 6/12/2013 9:50
 6/12/2013 9:51
 6/12/2013 9:52

COMPANY: VECENERGY		VOC IN RANGE:	100	%
SOURCE: VAPOR COMBUSTION UNIT		VOC OUT RANGE:	1000	PPM
DATE: 6/12/2013		CO RANGE:	1000	PPM
		CO2 RANGE:	20	%

TIME	VOC IN PPM	VOC OUT PPM	CO PPM	CO2 %	VOC IN 5 MIN	VOC OUT 5 MIN	CO 5 MIN	CO2 5 MIN
6/12/2013 9:53								
6/12/2013 9:54								
6/12/2013 9:55								
6/12/2013 9:56								
6/12/2013 9:57								
6/12/2013 9:58								
6/12/2013 9:59								
6/12/2013 10:00								
6/12/2013 10:01								
6/12/2013 10:02								
6/12/2013 10:03								
6/12/2013 10:04								
6/12/2013 10:05								
6/12/2013 10:06								
6/12/2013 10:07								
6/12/2013 10:08								
6/12/2013 10:09								
6/12/2013 10:10								
6/12/2013 10:11								
6/12/2013 10:12								
6/12/2013 10:13								
6/12/2013 10:14								
6/12/2013 10:15								
6/12/2013 10:16								
6/12/2013 10:17								
6/12/2013 10:18								
6/12/2013 10:19								
6/12/2013 10:20								
6/12/2013 10:21								
6/12/2013 10:22	3156.2	-0.3	3	0.1	BEGIN TEST			
6/12/2013 10:23	3187	5.9	1.6	0.1				
6/12/2013 10:24	3281	21.7	5.7	0.1				
6/12/2013 10:25	3245	43.2	84.2	0.6				
6/12/2013 10:26	3115.7	183.3	122.1	1.5				
6/12/2013 10:27	3877.6	8.2	348.2	1.8				
6/12/2013 10:28	3816.2	-0.7	229	5	3467	51.14	157.84	1.80
6/12/2013 10:29	3711.4	46.3	93.6	4.6				
6/12/2013 10:30	3373.2	111.1	427.6	3.1				
6/12/2013 10:31	3365.1	30.7	328.1	2.6				
6/12/2013 10:32	3561.8	-1	708.6	3.4				
6/12/2013 10:33	3834.9	11.1	184	4.6	3569	39.64	348.38	3.66
6/12/2013 10:34	3774.9	104.3	475.4	3.7				
6/12/2013 10:35	3332.3	59.5	296.7	2.1				
6/12/2013 10:36	3437.4	78.1	216.9	2.4				
6/12/2013 10:37	3369.1	66.8	242.3	1.9				
6/12/2013 10:38	2492.6	52.1	163.1	1.6	3281	72.16	278.88	2.34
6/12/2013 10:39	3044.6	70.4	191.6	2.5				
6/12/2013 10:40	3537.9	95	395.9	2.9				

COMPANY: VECENERGY		VOC IN RANGE: 100 %		VOC OUT RANGE: 1000 PPM		CO RANGE: 1000 PPM		CO2 RANGE: 20 %	
SOURCE: VAPOR COMBUSTION UNIT		VOC IN RANGE: 100 %		VOC OUT RANGE: 1000 PPM		CO RANGE: 1000 PPM		CO2 RANGE: 20 %	
DATE: 6/12/2013		VOC IN RANGE: 100 %		VOC OUT RANGE: 1000 PPM		CO RANGE: 1000 PPM		CO2 RANGE: 20 %	
TIME	VOC IN PPM	VOC OUT PPM	CO PPM	CO2 %	VOC IN 5 MIN	VOC OUT 5 MIN	CO 5 MIN	CO2 5 MIN	
6/12/2013 10:41	3933	0.9	350.1	2.5					
6/12/2013 10:42	3150.7	74.5	417.7	3.6					
6/12/2013 10:43	2111.9	53.3	305	2.4	3156	58.82	332.06	2.78	
6/12/2013 10:44	1647	65.4	162.6	1.2					
6/12/2013 10:45	2364.8	72.7	145.6	1.5					
6/12/2013 10:46	2485.9	78.7	149.4	1.4					
6/12/2013 10:47	2707.5	42.3	130.4	1					
6/12/2013 10:48	2344.1	65.8	79.3	0.6	2310	64.98	133.46	1.14	
6/12/2013 10:49	2424.5	80.8	165	1.4					
6/12/2013 10:50	2305.6	70.8	178.3	1.4					
6/12/2013 10:51	2585.2	156.7	123.1	0.9					
6/12/2013 10:52	1860.8	164.5	308.7	2.4					
6/12/2013 10:53	1527.3	15.7	315.6	3.7	2141	97.70	218.14	1.96	
6/12/2013 10:54	1283.6	39.5	364	3.6					
6/12/2013 10:55	1280.9	89.2	360.9	2.9					
6/12/2013 10:56	1531.8	84.3	238.1	2					
6/12/2013 10:57	1199.7	70.3	182.6	1.7					
6/12/2013 10:58	2149.4	70.1	136.8	1.1	1489	70.68	256.48	2.26	
6/12/2013 10:59	3051.1	73.6	138.7	1.1					
6/12/2013 11:00	2240.2	52.5	140.7	1.1					
6/12/2013 11:01	1977.2	297.4	70.7	0.5					
6/12/2013 11:02	2046.5	86	68.6	0.7					
6/12/2013 11:03	1897.4	91.8	180.9	1.7	2242	120.26	119.92	1.02	
6/12/2013 11:04	1401.6	49.7	189.8	1.9					
6/12/2013 11:05	1999.8	29.7	225.2	2.7					
6/12/2013 11:06	2592.7	4.5	414.5	3.9					
6/12/2013 11:07	2567.7	0.4	303.6	4					
6/12/2013 11:08	2600	13.8	230.8	4.1	2232	19.62	272.78	3.32	
6/12/2013 11:09	2330.9	34.4	351.8	3.3					
6/12/2013 11:10	1993.3	78.5	371.5	3.1					
6/12/2013 11:11	2078.4	23.7	246.5	2.2					
6/12/2013 11:12	2115.6	80.1	333.3	2.7					
6/12/2013 11:13	1624.7	17	232	2.2	2029	46.74	307.02	2.70	
6/12/2013 11:14	1164	57.2	286.4	3					
6/12/2013 11:15	1638.4	68.9	304.9	2.7					
6/12/2013 11:16	1089.5	37.8	195	2.3					
6/12/2013 11:17	482.8	50.9	158	2.1					
6/12/2013 11:18	296	53	152.2	2	934	53.56	219.30	2.42	
6/12/2013 11:19	237.3	62.8	143.1	1.4					
6/12/2013 11:20	170.5	33.3	137.7	1.6					
6/12/2013 11:21	330.6	27.1	139.6	2					
6/12/2013 11:22	252.3	56	182.7	2.6					
6/12/2013 11:23	230.2	60.5	235.4	2.7	244	47.94	167.70	2.06	
6/12/2013 11:24	185.6	59	233.3	2.4					
6/12/2013 11:25	171.4	37.8	233.4	2.6					
6/12/2013 11:26	147.3	38.4	223.3	2.7					
6/12/2013 11:27	137.3	39.3	216.4	2.6					
6/12/2013 11:28	129.9	40	211.6	2.6	154	42.90	223.60	2.58	

COMPANY: VECENERGY		VOC IN RANGE: 100 %		VOC OUT RANGE: 1000 PPM		CO RANGE: 1000 PPM		CO2 RANGE: 20 %	
SOURCE: VAPOR COMBUSTION UNIT		VOC IN RANGE: 100 %		VOC OUT RANGE: 1000 PPM		CO RANGE: 1000 PPM		CO2 RANGE: 20 %	
DATE: 6/12/2013		VOC IN RANGE: 100 %		VOC OUT RANGE: 1000 PPM		CO RANGE: 1000 PPM		CO2 RANGE: 20 %	
TIME	VOC IN PPM	VOC OUT PPM	CO PPM	CO2 %	VOC IN 5 MIN	VOC OUT 5 MIN	CO 5 MIN	CO2 5 MIN	
6/12/2013 11:29	133.4	77	210.4	2.5					
6/12/2013 11:30	134.7	52	207.6	1.6					
6/12/2013 11:31	149.7	49.1	124.9	1.5					
6/12/2013 11:32	143.3	42.3	119.9	1.5					
6/12/2013 11:33	312.9	49.2	118.9	1.6	175	53.92	156.34	1.74	
6/12/2013 11:34	239.1	41.2	119.9	1.6					
6/12/2013 11:35	361.3	38.8	119.7	1.6					
6/12/2013 11:36	1868.2	47.5	116.9	1.6					
6/12/2013 11:37	3323.9	121.2	218	2.4					
6/12/2013 11:38	2934.7	88.3	399	2.3	1745	67.40	194.70	1.90	
6/12/2013 11:39	2103.2	62.9	177.2	1.7					
6/12/2013 11:40	1678.5	38.8	138.4	1.2					
6/12/2013 11:41	1494.3	54.4	70.6	0.5					
6/12/2013 11:42	1532.1	55	120.5	1.1					
6/12/2013 11:43	2269.4	62.8	127.2	1.3	1816	54.78	126.78	1.16	
6/12/2013 11:44	2317.2	58.6	135.1	1.1					
6/12/2013 11:45	3001.3	54.8	127.5	0.9					
6/12/2013 11:46	2482.5	69.3	128.7	0.9					
6/12/2013 11:47	1616.4	100.7	134.2	1.7					
6/12/2013 11:48	2958.6	97.8	270.3	2.5	2475	76.24	159.16	1.42	
6/12/2013 11:49	2708.3	471.4	139.5	0.7					
6/12/2013 11:50	2898.8	99.1	55.6	0.4					
6/12/2013 11:51	2083.2	65.9	158.8	1.5					
6/12/2013 11:52	2589.5	66.6	148.2	1.6					
6/12/2013 11:53	2631.2	60.7	143.1	1	2582	152.74	129.04	1.04	
6/12/2013 11:54	1399.1	32.6	133.7	0.9					
6/12/2013 11:55	783.6	49.4	38.9	0.3					
6/12/2013 11:56	656.2	57.9	9.4	0.2					
6/12/2013 11:57	621.2	55.3	8	0.2					
6/12/2013 11:58	605.2	49	8	0.2	813	48.84	39.60	0.36	
6/12/2013 11:59	593	51	7.7	0.2					
6/12/2013 12:00	1721.9	67.7	44.4	0.5					
6/12/2013 12:01	2222.3	79.5	143.9	1.6					
6/12/2013 12:02	3014.7	74	151.3	1.2					
6/12/2013 12:03	3382.8	117.5	142.3	1.1	2187	77.94	97.92	0.92	
6/12/2013 12:04	3721.1	111.9	196.3	1.7					
6/12/2013 12:05	4074.7	80.2	189.4	1.2					
6/12/2013 12:06	4295.6	181.3	150.1	1					
6/12/2013 12:07	4412.5	7.8	318.9	2.3					
6/12/2013 12:08	3252.8	102.1	394.4	3.7	3951	96.66	249.82	1.98	
6/12/2013 12:09	2537.7	91.3	370.7	2.7					
6/12/2013 12:10	1973.2	71.3	207.6	1.8					
6/12/2013 12:11	1102	137.5	161.7	1.5					
6/12/2013 12:12	670.4	76.8	40.7	0.3					
6/12/2013 12:13	559.4	62.7	13	0.2	1369	87.92	158.74	1.30	
6/12/2013 12:14	422.7	52	8.4	0.2					
6/12/2013 12:15	551.9	53	7.8	0.2					
6/12/2013 12:16	555.7	52.1	7.7	0.2					

COMPANY: VECENERGY		VOC IN RANGE:	100	%
SOURCE: VAPOR COMBUSTION UNIT		VOC OUT RANGE:	1000	PPM
DATE: 6/12/2013		CO RANGE:	1000	PPM
		CO2 RANGE:	20	%

TIME	VOC IN PPM	VOC OUT PPM	CO PPM	CO2 %	VOC IN 5 MIN	VOC OUT 5 MIN	CO 5 MIN	CO2 5 MIN
6/12/2013 12:17	548.4	43.4	7.6	0.2				
6/12/2013 12:18	536.9	36.8	7.4	0.2	523	47.46	7.78	0.20
6/12/2013 12:19	1368.2	71	37.7	0.4				
6/12/2013 12:20	2849.4	113.7	147.9	1.6				
6/12/2013 12:21	4103.9	198.3	201.8	1.7				
6/12/2013 12:22	4654.7	197.8	291.4	1.9				
6/12/2013 12:23	4773.7	103.7	300.1	1.7	3550	136.90	195.78	1.46
6/12/2013 12:24	4868.5	121.6	167.6	1				
6/12/2013 12:25	4904.5	106.4	170.6	1.2				
6/12/2013 12:26	3979.6	112.9	171	1.1				
6/12/2013 12:27	2499.2	42	164.9	1.1				
6/12/2013 12:28	1856.9	56.5	43.9	0.2	3622	87.88	143.60	0.92
6/12/2013 12:29	1678.8	42.7	11.4	0.1				
6/12/2013 12:30	1606.7	48.6	7.7	0.1				
6/12/2013 12:31	1538.6	52	7.4	0.1				
6/12/2013 12:32	1478.9	55.8	7.7	0.1				
6/12/2013 12:33					1576	49.78	8.55	0.10
6/12/2013 12:34								
6/12/2013 12:35								
6/12/2013 12:36								
6/12/2013 12:37								
6/12/2013 12:38								
6/12/2013 12:39								
6/12/2013 12:40	-1.2							
6/12/2013 12:41	-0.8							
6/12/2013 12:42	3088.7							
6/12/2013 12:43	3089.9							
6/12/2013 12:44								
6/12/2013 12:45								
6/12/2013 12:46		0.2						
6/12/2013 12:47		0.2						
6/12/2013 12:48		303						
6/12/2013 12:49		304.5						
6/12/2013 12:50								
6/12/2013 12:51			0.9	0				
6/12/2013 12:52			0.9	0				
6/12/2013 12:53			1	0				
6/12/2013 12:54			73.9	0				
6/12/2013 12:55			2.6	0				
6/12/2013 12:56			152.7	0				
6/12/2013 12:57			485.6	0				
6/12/2013 12:58			486.2	0				
6/12/2013 12:59				0.8				
6/12/2013 13:00				9.4				
6/12/2013 13:01				9.5				9.5
6/12/2013 13:02				0				
6/12/2013 13:03				0				
6/12/2013 13:04								

INSTRUMENT DRIFT CHECKS

VOC IN

-1.2
-0.8
3088.7
3089.9

-1.0

3089.3

VOC OUT

0.2
0.2
303
304.5

0.2

303.8

CO CO2

0.9 0.0

COMPANY: VECENERGY		VOC IN RANGE:	100	%
SOURCE: VAPOR COMBUSTION UNIT		VOC OUT RANGE:	1000	PPM
DATE: 6/12/2013		CO RANGE:	1000	PPM
		CO2 RANGE:	20	%

TIME	VOC IN PPM	VOC OUT PPM	CO PPM	CO2 %	VOC IN 5 MIN	VOC OUT 5 MIN	CO 5 MIN	CO2 5 MIN
6/12/2013 13:05								
6/12/2013 13:06								
6/12/2013 13:07								
6/12/2013 13:08								
6/12/2013 13:09								
6/12/2013 13:10								
6/12/2013 13:11								
6/12/2013 13:12								
6/12/2013 13:13								
6/12/2013 13:14								
6/12/2013 13:15								
6/12/2013 13:16								
6/12/2013 13:17								
6/12/2013 13:18								
6/12/2013 13:19								
6/12/2013 13:20								
6/12/2013 13:21								
6/12/2013 13:22								
6/12/2013 13:23	1760.4	47.8	1.9	0				
6/12/2013 13:24	1787.2	49.8	10.5	0				
6/12/2013 13:25	1705	91.3	30.3	0.1				
6/12/2013 13:26	3428.7	162.2	176.2	1.5				
6/12/2013 13:27	4601.9	208.1	288.5	1.6				
6/12/2013 13:28	4356.4	2.8	537	2.5	3176	102.8	208.5	1.1
6/12/2013 13:29	4459.7	45.9	79.9	6.3				
6/12/2013 13:30	3763.1	-1	248.4	4.2				
6/12/2013 13:31	2784	-1.1	16.5	4.6				
6/12/2013 13:32	3109.5	68.7	64.2	4.2				
6/12/2013 13:33	3571.2	92.1	339.4	2.4	3538	40.9	149.7	4.3
6/12/2013 13:34	3748.5	155.5	210.4	1.3				
6/12/2013 13:35	3925	19.8	429.5	2.1				
6/12/2013 13:36	4107.7	135.5	425.6	2.7				
6/12/2013 13:37	4230.9	116.5	419	2				
6/12/2013 13:38	4211.2	172.8	246.2	1.1	4045	120.0	346.1	1.8
6/12/2013 13:39	4234.9	20.6	45.5	0.1				
6/12/2013 13:40	4100.8	14.9	14.8	0				
6/12/2013 13:41	3792.2	13.4	7.3	0				
6/12/2013 13:42	3585.4	11	6.8	0				
6/12/2013 13:43	3674.5	33.5	6.8	0	3878	18.7	16.2	0.0
6/12/2013 13:44	3757.5	46.6	7.5	0				
6/12/2013 13:45	3458.1	40.4	8.1	0				
6/12/2013 13:46	3276.2	307.8	7.6	0				
6/12/2013 13:47	4104.4	7.7	206	1.3				
6/12/2013 13:48	4135.9	3.2	87.7	5.4	3746	81.1	63.4	1.3
6/12/2013 13:49	4141.7	0.9	268.3	3.9				
6/12/2013 13:50	4261.6	105.4	183.5	3.8				
6/12/2013 13:51	4321.7	101.1	278.9	1.7				
6/12/2013 13:52	4391.4	2.5	287.1	2.9				

		COMPANY: VECENERGY				VOC IN RANGE: 100 %					
		SOURCE: VAPOR COMBUSTION UNIT				VOC OUT RANGE: 1000 PPM					
		DATE: 6/12/2013				CO RANGE: 1000 PPM					
						CO2 RANGE: 20 %					
TIME		VOC IN PPM	VOC OUT PPM	CO PPM	CO2 %	VOC IN 5 MIN	VOC OUT 5 MIN	CO 5 MIN	CO2 5 MIN		
6/12/2013 13:53		4429.9	-0.3	131.4	3.5	4309	41.9	229.8	3.2		
6/12/2013 13:54		4438.9	138.4	24.3	5.1						
6/12/2013 13:55		4091.6	-0.4	272.2	3.2						
6/12/2013 13:56		3835.3	59.8	147	3.9						
6/12/2013 13:57		3648.7	110.6	346.2	2.5						
6/12/2013 13:58		3722	74.3	326.6	1.8	3947	76.5	223.3	3.3		
6/12/2013 13:59		3807.4	78.8	415.1	2.1						
6/12/2013 14:00		2454.8	49.3	468.7	2.3						
6/12/2013 14:01		1740.8	56	387.8	2.5						
6/12/2013 14:02		1517.5	53.4	329	2.5						
6/12/2013 14:03		1477.5	61.2	336.9	2.5	2200	59.7	387.5	2.4		
6/12/2013 14:04		1853.9	83.6	195.6	1						
6/12/2013 14:05		1978	46.7	62.2	0.2						
6/12/2013 14:06		2013.9	179	65.3	0.2						
6/12/2013 14:07		2105.8	76	100.6	0.6						
6/12/2013 14:08		2212.9	56	117.2	0.5	2033	88.3	108.2	0.5		
6/12/2013 14:09		1779.2	92.6	379.5	2.5						
6/12/2013 14:10		1753.7	115.3	290.5	1.6						
6/12/2013 14:11		1240.6	41.3	251.8	1.4						
6/12/2013 14:12		1040.4	166.8	94.5	0.3						
6/12/2013 14:13		1002.4	135.5	42.2	0	1363	110.3	211.7	1.2		
6/12/2013 14:14		1818.3	93.6	244.7	1.6						
6/12/2013 14:15		3078.6	64.7	405.3	2.4						
6/12/2013 14:16		3521.2	55.2	417.1	2.6						
6/12/2013 14:17		3709.7	81.7	406.3	2.6						
6/12/2013 14:18		3825.4	117.3	416.5	2	3191	82.5	378.0	2.2		
6/12/2013 14:19		3938.2	101.9	252.5	1.2						
6/12/2013 14:20		3990.1	120.9	242.3	1.2						
6/12/2013 14:21		4028.4	159.2	187.9	0.8						
6/12/2013 14:22		3941.7	17.3	339.7	1.9						
6/12/2013 14:23		1994.9	12.3	333.7	3.2	3579	82.3	271.2	1.7		
6/12/2013 14:24		1784.5	22.6	389.5	3.5						
6/12/2013 14:25		1669.6	92.7	494	2.9						
6/12/2013 14:26		1171.5	108	296.4	1.7						
6/12/2013 14:27		851.2	114.7	337.9	1.8						
6/12/2013 14:28		726	83.4	321.8	1.9	1241	84.3	367.9	2.4		
6/12/2013 14:29		938.7	75.9	254.5	1.5						
6/12/2013 14:30		1789.5	109.7	189.3	1.1						
6/12/2013 14:31		2255.8	46.3	208	1.2						
6/12/2013 14:32		2291.6	84.9	94.3	0.3						
6/12/2013 14:33		251				1505	79.2	186.5	1.0		
6/12/2013 14:34											
6/12/2013 14:35											
6/12/2013 14:36											
6/12/2013 14:37											
6/12/2013 14:38											
6/12/2013 14:39											
6/12/2013 14:40											

COMPANY: VECENERGY		VOC IN RANGE: 100 %						
SOURCE: VAPOR COMBUSTION UNIT		VOC OUT RANGE: 1000 PPM						
DATE: 6/12/2013		CO RANGE: 1000 PPM						
		CO2 RANGE: 20 %						
TIME	VOC IN PPM	VOC OUT PPM	CO PPM	CO2 %	VOC IN 5 MIN	VOC OUT 5 MIN	CO 5 MIN	CO2 5 MIN

6/12/2013 14:41
 6/12/2013 14:42
 6/12/2013 14:43
 6/12/2013 14:44
 6/12/2013 14:45
 6/12/2013 14:46
 6/12/2013 14:47
 6/12/2013 14:48
 6/12/2013 14:49
 6/12/2013 14:50
 6/12/2013 14:51
 6/12/2013 14:52
 6/12/2013 14:53
 6/12/2013 15:11
 6/12/2013 15:12
 6/12/2013 15:13
 6/12/2013 15:14
 6/12/2013 15:15
 6/12/2013 15:16
 6/12/2013 15:17
 6/12/2013 15:18
 6/12/2013 15:19
 6/12/2013 15:20
 6/12/2013 15:21
 6/12/2013 15:22
 6/12/2013 15:23
 6/12/2013 15:24
 6/12/2013 15:25
 6/12/2013 15:26
 6/12/2013 15:27
 6/12/2013 15:28
 6/12/2013 15:29
 6/12/2013 15:30
 6/12/2013 15:31
 6/12/2013 15:32
 6/12/2013 15:33
 6/12/2013 15:34
 6/12/2013 15:35
 6/12/2013 15:36
 6/12/2013 15:37
 6/12/2013 15:38
 6/12/2013 15:39
 6/12/2013 15:40
 6/12/2013 15:41
 6/12/2013 15:42
 6/12/2013 15:43
 6/12/2013 15:44
 6/12/2013 15:45

COMPANY: VECENERGY		VOC IN RANGE:	100	%
SOURCE: VAPOR COMBUSTION UNIT		VOC OUT RANGE:	1000	PPM
DATE: 6/12/2013		CO RANGE:	1000	PPM
		CO2 RANGE:	20	%

TIME	VOC IN PPM	VOC OUT PPM	CO PPM	CO2 %	VOC IN 5 MIN	VOC OUT 5 MIN	CO 5 MIN	CO2 5 MIN
6/12/2013 15:46								
6/12/2013 15:47								
6/12/2013 15:48	2008.6	40.6	11.2	0				
6/12/2013 15:49	2152.3	183.4	22.6	0.1				
6/12/2013 15:50	2569.2	160.4	336.7	2				
6/12/2013 15:51	2959.3	131.1	495.7	2.4				
6/12/2013 15:52	3085.9	117.4	562.5	2.5	2555	126.6	285.7	1.4
6/12/2013 15:53	3117.4	186.7	593.6	2.4				
6/12/2013 15:54	3242	222.2	340.9	1.5				
6/12/2013 15:55	3505.4	203.8	317.6	1.5				
6/12/2013 15:56	3603.3	196.7	320.9	1.4				
6/12/2013 15:57	3383.6	88.5	590.2	2.4	3370	179.6	432.6	1.8
6/12/2013 15:58	3331.7	40.7	355.7	1.4				
6/12/2013 15:59	3272.1	18.5	49.3	0.2				
6/12/2013 16:00	3199.8	15.8	14.6	0.1				
6/12/2013 16:01	2973.4	12.8	7.6	0.1				
6/12/2013 16:02	2795.8	16.5	6.8	0.1	3115	20.9	86.8	0.4
6/12/2013 16:03	2674	21.3	6.8	0.1				
6/12/2013 16:04	2570.9	4.5	6.7	0.1				
6/12/2013 16:05	2470.4	3.3	4.1	0.1				
6/12/2013 16:06	2433.1	4.2	0.9	0.1				
6/12/2013 16:07	2450.5	4.6	0.8	0	2520	7.6	3.9	0.1
6/12/2013 16:08	2459.7	2.7	0.8	0				
6/12/2013 16:09	2468.1	1.8	0.8	0				
6/12/2013 16:10	2471.9	1.8	0.8	0				
6/12/2013 16:11	2483.6	1.8	0.8	0				
6/12/2013 16:12	2474.2	1.9	0.8	0	2472	2.0	0.8	0.0
6/12/2013 16:13	2466.3	1.6	0.8	0				
6/12/2013 16:14	2484.2	2.2	0.8	0				
6/12/2013 16:15	2467.5	2.3	1.1	0				
6/12/2013 16:16	2487.4	2.7	1.1	0				
6/12/2013 16:17	2495.7	2.9	0.7	0	2480	2.3	0.9	0.0
6/12/2013 16:18	2481.8	284.4	0.5	0				
6/12/2013 16:19	1.5	2.9	1.1	0.1	VOC IN			
6/12/2013 16:20	1.5	0.2	0.6	0	1.5	VOC OUT		
6/12/2013 16:21	2815.5	0.2	0.2	0		0.2	CO	
6/12/2013 16:22	3099.1	289.5	0.3	0			0.25	
6/12/2013 16:23	3098.3	300.3	333.5	0	3098.7	294.9		
6/12/2013 16:24	-10.2	2.8	485.2	0				
6/12/2013 16:25	-16.6	-6.1	490.9	0				
6/12/2013 16:26	-14.2	-5.9	491.7	0				CO2
6/12/2013 16:27	535	-3.5	491.8	0			491.75	0
6/12/2013 16:28	-1.5	-2.2	-0.2	9.2				
6/12/2013 16:29	-0.3	-2.2	-0.2	9.6				9.4
6/12/2013 16:30	-0.3	-2.1	-0.2	9.1				
6/12/2013 16:31	-0.2	-2.2	-0.2	0.4				

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

1204 North Wheeler Street St. Plant City, Florida 33563 (813) 752-5014

METHOD 25A CALIBRATION

TEST DATA	
DATE	06/12/13
COMPANY	VECENERGY
SOURCE	VAPOR COMBUSTION UNIT - INLET
RUN #S	ALL

INSTRUMENT DATA		
	MONITOR	DAS
MANUFACTURER	CALIF. ANAL.	Eurotherm
MODEL NO.	HFID300	6100
INSTR. NO.		
RANGE (PPM)	10,000	

predicted	actual
0	0.7
9035	9044.1
Slope	1.0009297

CALIBRATION GASES			
SUPPLIER	AIRGAS	AIRGAS	AIRGAS
CYLINDER #	CC211087	SG902174	SG9103283
CONCENTRATION	3106	5089	9035
EXPIRATION DATE	12/02/13	02/12/15	02/13/15

CALIBRATION ERROR TEST (within 2 hrs. of test)								
Selected Range	10000	PPM						
Adjusted zero gas response	0.7	PPM						
Adjusted span gas response	9044.1	PPM						
Linear Regression Analysis	Slope:	1.00092972	Intercept:	0.7				
Mid-level gas response	Predicted:	5094.4	PPM	Actual:	5098.3	PPM	% diff.	0.1
Low-level gas response	Predicted:	3109.6	PPM	Actual:	3090.4	PPM	% diff.	-0.6
RESPONSE TIME TEST								
1)	48 SECONDS	2)	45 SECONDS	3)	50 seconds			
TEST PERIOD								
Start Time:	1022	Stop Time:	1622					

DRIFT DETERMINATION				
Time	Zero Response (PPM)	Zero Drift % diff.(span)	Span Response (PPM)	Calibration Drift % diff.
1300	-1	-0.02	3089.3	0.0
1624	1.5	0.03	3098.7	0.1

Calibration error must be < 5% of calibration gas value
 Zero and calibration drift must be < 3% of span value

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

1204 North Wheeler Street St. Plant City, Florida 33563 (813) 752-5014

METHOD 25A CALIBRATION

TEST DATA	
DATE	06/12/13
COMPANY	VECENERGY
SOURCE	VAPOR COMBUSTION UNIT - OUTLET
RUN #S	ALL

INSTRUMENT DATA		
	MONITOR	DAS
MANUFACTURER	CALIF. ANAL.	Eurotherm
MODEL NO.	HFID300	6100
INSTR. NO.		
RANGE (PPM)	1,000	

predicted	actual
0	0
867.3	875.1
Slope	1.0089934

CALIBRATION GASES			
SUPPLIER	AIRGAS	AIRGAS	AIRGAS
CYLINDER #	CC205293	CC2811789	SG910868
CONCENTRATION	304.4	507	867.3
EXPIRATION DATE	12/02/13	02/12/15	02/13/15

CALIBRATION ERROR TEST (within 2 hrs. of test)								
Selected Range	1000	PPM						
Adjusted zero gas response	0	PPM						
Adjusted span gas response	875.1	PPM						
Linear Regression Analysis	Slope:	1.00899343	Intercept:	0				
Mid-level gas response	Predicted:	511.6	PPM	Actual:	515.2	PPM	% diff.	0.7
Low-level gas response	Predicted:	307.1	PPM	Actual:	305.2	PPM	% diff.	-0.6
RESPONSE TIME TEST								
1)	120 SECONDS	2)	121 SECONDS	3)	120 seconds			
TEST PERIOD								
Start Time:		1022		Stop Time:		1622		

DRIFT DETERMINATION				
Time	Zero Response (PPM)	Zero Drift % diff.(span)	Span Response (PPM)	Calibration Drift % diff.
1300	-0.2	0.0	303.8	-0.1
1620	0.2	0.0	294.9	-0.9
		0.0		

0

Calibration error must be < 5% of calibration gas value
Zero and calibration drift must be < 3% of span value

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

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CARBON MONOXIDE ANALYZER CALIBRATION DATA

EPA METHOD 10

COMPANY	VECENERGY	
SOURCE	VAPOR COMBUSTION UNIT - INLET	
OPERATOR	KR	
DATE	6/12/13	
RUN #'S	ALL	
INSTRUMENT SERIAL #		
RESPONSE TIME	1.2	Minutes
INSTRUMENT RANGE	1000	PPM
CALIBRATION SPAN	945.2	PPM (High Span Gas)

	Cylinder value (PPM)	Analyzer calibration responses (PPM)	Absolute difference (PPM)	Difference (% of Span)
Zero	0	0.9	0.9	0.1
Mid-range	488.9	491.5	2.6	0.3
High-range	945.2	949.4	4.2	0.4

SYSTEM CALIBRATION BIAS AND DRIFT DATA

		Initial Values			Final Values		Average Bias Response (ppm)	Drift (%)
		Analyzer calibration response (PPM)	System calibration response (PPM)	System Bias (% of Cal. Span)	System calibration response (PPM)	System Bias (% of Cal. Span)		
Run 1	Zero	0.9	0.9	0.0	0	-0.1	0.5	0.1
	Upscale	491.5	491.5	0.0	485.9	-0.6	488.7	0.6
Run 2	Zero	0.9	0	-0.1	0.25	-0.1	0.1	0.0
	Upscale	491.5	485.9	-0.6	491.75	0.0	488.8	0.6

$$\text{System Calibration Bias} = \frac{\text{System Cal. Response} - \text{Direct Cal. Response}}{\text{Calibration Span}} \times 100 \quad \longrightarrow \quad \text{Must be } \leq 5\%$$

$$\text{Drift} = \left| \text{Final System Bias} - \text{Initial System Bias} \right| \quad \longrightarrow \quad \text{Must be } \leq 3\%$$

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

1204 North Wheeler St. Plant City, Florida 33563 (813) 752-5014

CARBON DIOXIDE ANALYZER CALIBRATION DATA

COMPANY	VECENERGY	
SOURCE	VAPOR COMBUSTION UNIT - INLET	
OPERATOR	KR	
DATE	06/12/13	
RUN #'S	ALL	
INSTRUMENT SERIAL #		
RESPONSE TIME	1.1 MINUTES	
INSTRUMENT RANGE	20	%
CALIBRATION SPAN	17.94	% (High Span Gas)

	Cylinder value (%)	Analyzer calibration responses (%)	Absolute difference (%)	Difference (% of Span)
Zero	0	0	0	0.0
Mid-range	9.5	10	0.2	1.1
High-range	17.94	17.94	0	0.0

SYSTEM CALIBRATION BIAS AND DRIFT DATA

		Initial Values			Final Values		Average Bias Response (%)	Drift (%)
		Analyzer calibration response (%)	System calibration response (%)	System Bias (% of Cal. Span)	System calibration response (%)	System Bias (% of Cal. Span)		
Run 1	Zero	0	0	0.0	0	0.0	0.0	
	Upscale	9.7	9.7	0.0	9.5	-1.1	9.6	1.1
Run 2	Zero	0	0	0.0	0	0.0	0.0	
	Upscale	9.7	9.5	-1.1	9.4	-1.7	9.5	0.6

$$\text{System Calibration Bias} = \frac{\text{System Cal. Response} - \text{Direct Cal. Response}}{\text{Calibration Span}} \times 100 \longrightarrow \text{Must be } \leq 5\%$$

$$\text{Drift} = \left| \text{Final System Bias} - \text{Initial System Bias} \right| \longrightarrow \text{Must be } \leq 3\%$$

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

GAS DILUTION SYSTEM FIELD EVALUATION

COMPANY	VECENERGY
SOURCE	VAPOR COMBUSTION UNIT
DATE	6/12/13
DILUTION INSTRUMENT	ENVIRONICS MODEL 2020
SERIAL #	1899
MEASUREMENT INSTRUMENT	TELEDYNE
	CO ANALYZER
SUPPLY GAS	945.2
MIDRANGE GAS	488.9

SUPPLY GAS (PPM)	MFM #	PREDICTED	INJECTION			AVERAGE (PPM)	ACCEPTABLE RANGE			% DIFFERENCE
		GAS CONC. (PPM)	#1 (PPM)	#2 (PPM)	#3 (PPM)			to		
945.2	2	200	201.3	199.9	200.9	200.7	204.7	to	196.7	0.4%
945.2	2	600	604.4	604.7	606.3	605.1	617.2	to	593.0	0.9%
								to		
								to		
MID RANGE		488.9	489.8	489.8	489.5	489.7	499.5	to	479.9	0.2%

EPA METHOD 205 - VERIFICATION OF GAS DILUTION SYSTEMS FOR FIELD INSTRUMENT CALIBRATIONS
40 CFR 51, APPENDIX M

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

PRESSURE MEASUREMENT DEVICE CALIBRATION FORM

Device Type	Magnehelic
Range	0 - 5" H2O
Manufacturer	Dwyer
Serial No.	R961205N154
Calibration Date	09/11/12
Calibrated by	K. ROBERTS
Reference Device	Manometer
Measurement Units	" H2O

Magnehelic	Manometer	% Difference*
0.0	0.0	0.0
1.0	1.0	0.0
2.0	2.0	0.0
4.0	4.0	0.0
4.9	5.0	-2.0

* % difference shall not exceed +/- 5%

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

PRESSURE MEASUREMENT DEVICE CALIBRATION FORM

Device Type	Magnehelic
Range	0 - 20" H2O
Manufacturer	Dwyer
Serial No.	R940629LPD24
Calibration Date	09/11/12
Calibrated by	K. Roberts
Reference Device	Slack Tube Manometer
Measurement Units	" H2O

Magnehelic	Manometer	% Difference*
0.0	0.0	0.00
5.0	5.0	0.00
10.0	10.0	0.00
15.0	14.8	1.35
20.0	20.0	0.00

* % difference shall not exceed +/- 5%

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

PRESSURE MEASUREMENT DEVICE CALIBRATION FORM

Device Type	Magnehelic
Range	0 - 20" H2O
Manufacturer	Dwyer
Serial No.	R940629LPB12
Calibration Date	09/11/12
Calibrated by	K. ROBERTS
Reference Device	Manometer
Measurement Units	" H2O

Magnehelic	Manometer	% Difference*
0.0	0.0	0.00
5.0	5.0	0.00
10.0	10.0	0.00
15.0	15.0	0.00
20.1	20.0	0.50

* % difference shall not exceed +/- 5%

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

PRESSURE MEASUREMENT DEVICE CALIBRATION FORM

Device Type	Magnehelic
Range	0 - 20" H2O
Manufacturer	Dwyer
Serial No.	R940629LPD23
Calibration Date	09/11/12
Calibrated by	K. ROBERTS
Reference Device	Manometer
Measurement Units	" H2O

Magnehelic	Manometer	% Difference*
0.0	0.0	0.00
5.0	5.0	0.00
9.9	10.0	-1.00
15.1	15.0	0.67
19.8	20.0	-1.00

* % difference shall not exceed +/- 5%

SOUTHERN ENVIRONMENTAL SCIENCES, INC.

PRESSURE MEASUREMENT DEVICE CALIBRATION FORM

Device Type	Magnehelic
Range	0 - 20" H ₂ O
Manufacturer	Dwyer
Serial No.	R9602025L4
Calibration Date	09/11/12
Calibrated by	K. ROBERTS
Reference Device	Manometer
Measurement Units	" H ₂ O

Magnehelic	Manometer	% Difference*
0.0	0.0	0.00
5.0	5.0	0.00
10.0	10.0	0.00
15.0	15.2	-1.32
20.2	20.0	1.00

* % difference shall not exceed +/- 5%

Southern Environmental Sciences, Inc.

1204 North Wheeler Street Plant City, Florida 33563 (813) 752-5014

TURBINE METER CALIBRATION

Turbine Meter No	94-54464
Pitot Cp	0.99
Calibration Date	08/21/12
Technician	B. Nelson

		Run 1	Run 2	Run 3
Delta P Readings ("H2O)	P1	0.220	0.220	0.200
	P2	0.230	0.240	0.220
	P3	0.275	0.250	0.260
	P4	0.280	0.260	0.260
	P5	0.280	0.290	0.300
	P6	0.280	0.260	0.300
	P7	0.240	0.240	0.240
	P8	0.230	0.240	0.220
Avg. Sq. Rt of Delta P ("H2O)		0.5037	0.4996	0.4988
Temp. Readings (Deg F)	T1	85	85	86
	T2	85	85	86
	T3	85	86	86
	T4	85	86	87
	T5	85	86	87
	T6	85	86	87
	T7	85	86	87
	T8	85	86	87
Avg. Temperature		85	85.75	86.625
Static Pressure ("H2O)		0	0	0
Barometric Pressure ("Hg)		30.08	30.08	30.08
Moisture (%)		2.0	2.0	2.0
Total Pressure ("Hg)		30.08	30.08	30.08
Molecular Weight		28.42	28.42	28.42
Duct Diameter (inches)		6	6	6
Duct Area (sq. ft)		0.1963	0.1963	0.1963
Duct Velocity (ft/min)		34.04	33.79	33.76
Reference Flowrate (ft ³ /hr)		401.0	398.0	397.7
Test Meter Flowrate (ft ³ /hr)		400	400	400
Difference (%)		-0.26	0.49	0.57

Average Difference (%)	0.27
Tolerance (%)	5

SOUTHERN ENVIRONMENTAL SCIENCES, INC.
THERMOMETER CALIBRATIONS
 TEMPERATURE ARE IN DEGREES RANKIN

Calibrated by: IC/DW Date: 3/6/2013

ID No.	Type	Range	ICE BATH			TEPID WATER			BOILING WATER			HOT OIL		
			Std. Therm.	Temp	Deg or % Diff	Std. Therm.	Temp	Deg or % Diff	Std. Therm.	Temp	Deg or % Diff	Std. Therm.	Temp	Deg or % Diff
T1	PT	2000° F	500	498	0.40%	535	532	0.56%	655	659	-0.61%	810	814	-0.49%
T2	PT	2000° F	500	498	0.40%	535	532	0.56%	655	659	-0.61%	810	814	-0.49%
T3	PT	2000° F	500	498	0.40%	535	533	0.37%	655	654	0.15%	810	814	-0.49%
T4	PT	2000° F	500	498	0.40%	535	533	0.37%	655	654	0.15%	810	814	-0.49%
T5	PT	2000° F	500	498	0.40%	535	533	0.37%	655	656	-0.15%	810	814	-0.49%
T6	PT	2000° F	500	498	0.40%	535	532	0.56%	655	656	-0.15%	810	814	-0.49%
T7	PT	2000° F	500	498	0.40%	535	532	0.56%	655	656	-0.15%	810	814	-0.49%
T8	PT	2000° F	500	498	0.40%	535	532	0.56%	655	657	-0.31%	810	814	-0.49%
ADAP 1	PT	2000° F	500	497	0.60%	535	532	0.56%	655	657	-0.31%	810	814	-0.49%
ADAP 2	PT	2000° F	500	497	0.60%	535	533	0.37%	655	657	-0.31%	810	814	-0.49%
ADAP 3	PT	2000° F	500	498	0.40%	535	533	0.37%	655	657	-0.31%	810	814	-0.49%
ADAP 4	PT	2000° F	500	498	0.40%	535	533	0.37%	655	657	-0.31%	810	814	-0.49%
2.5PA	PT	2000° F	501	498	0.60%	535	533	0.37%	655	658	-0.46%	810	814	-0.49%
2.5PB	PT	2000° F	501	497	0.80%	535	533	0.37%	655	658	-0.46%	820	824	-0.49%
3P	PT	2000° F	501	499	0.40%	535	533	0.37%	655	657	-0.31%	820	819	0.12%
3INC	PT	2000° F	501	499	0.40%	535	534	0.19%	655	658	-0.46%	820	822	-0.24%
5A	PT	2000° F	501	499	0.40%	535	534	0.19%	655	659	-0.61%	820	823	-0.37%
5B	PT	2000° F	501	498	0.60%	535	534	0.19%	655	659	-0.61%	820	823	-0.37%
5C	PT	2000° F	501	500	0.20%	535	537	-0.37%	659	663	-0.61%	820	819	0.12%
5D	PT	2000° F	501	500	0.20%	535	535	0.00%	659	660	-0.15%	820	821	-0.12%
5E	PT	2000° F	501	500	0.20%	535	533	0.37%	661	662	-0.15%	820	822	-0.24%
5VP	PT	2000° F	501	499	0.40%	535	533	0.37%	661	663	-0.30%	820	822	-0.24%
5INC	PT	2000° F	501	503	-0.40%	535	534	0.19%	661	662	-0.15%	820	823	-0.37%
6P	PT	2000° F	501	503	-0.40%	535	538	-0.56%	661	664	-0.45%	820	824	-0.49%
8A	PT	2000° F	501	502	-0.20%	535	536	-0.19%	661	663	-0.30%	824	825	-0.12%
8B	PT	2000° F	501	502	-0.20%	535	536	-0.19%	660	663	-0.45%	824	827	-0.36%
8C	PT	2000° F	501	503	-0.40%	535	536	-0.19%	661	662	-0.15%	824	827	-0.36%
8D	PT	2000° F	501	503	-0.40%	535	532	0.56%	661	662	-0.15%	824	827	-0.36%
10A	PT	2000° F	501	503	-0.40%	535	533	0.37%	660	662	-0.30%	825	828	-0.36%
10B	PT	2000° F	501	503	-0.40%	535	533	0.37%	660	661	-0.15%	825	827	-0.24%

Quality Control Limits: Impinger Thermometers 2 Deg R, Bimetallic Thermometers (Bm) 5 Deg R, Pyrometers/Thermocouples (PT) 1.5%

Southern Environmental Sciences, Inc.

1204 North Wheeler Street Plant City, Florida 33566 (813) 752-5014

COMBUSTIBLE GAS DETECTOR CALIBRATION

INSTRUMENT

Manufacturer	Photovac
Model No.	Portable Flame Ionization detector
Serial No.	SES 1

CALIBRATION GAS DATA

	Zero	Span
Gas Type	Zero Air	Methane/air
Concentration (PPM)	0	450
Supplier	Air Products	GASCO

CALIBRATION

	Observed Conc. (%LEL)	Actual Conc. (LEL)	Percent Diff
Zero	0	0	0
Span	448	450	0.4
Response Time	11	SECONDS	
Calibration Date	06/12/13	Technician: Mark Gierke	

Southern Environmental Sciences, Inc.

1204 North Wheeler Street Plant City, Florida 33566 (813) 752-5014

COMBUSTIBLE GAS DETECTOR CALIBRATION

INSTRUMENT

Manufacturer	Photovac
Model No.	Portable Flame Ionization detector
Serial No.	SES 2

CALIBRATION GAS DATA

	Zero	Span
Gas Type	Zero Air	Methane/air
Concentration (PPM)	0	450
Supplier	Air Products	GASCO

CALIBRATION

	Observed Conc. (%LEL)	Actual Conc. (LEL)	Percent Diff
Zero	0	0	0
Span	445	450	1.1
Response Time	11	SECONDS	
Calibration Date	06/12/13	Technician: Mark Gierke	



GASCO AFFILIATES, LLC.

320 Scarlet Blvd.
Oldsmar, FL 34677
(800) 910-0051
fax: (866) 755-8920
www.gascogas.com

CERTIFICATE OF ANALYSIS

Date: June 3, 2013
Order Number: 12311
Lot Number: GAN-150A-450-1

Customer: AMP-Cherokee Instruments Inc
Use Before: 06/03/2017

<u>Component</u>	<u>Specification (+/- 10%)</u>	<u>Analytical Result (+/- 2%)</u>
Methane	450 PPM	465 PPM
Air	Balance	Balance

Cylinder Size: 3.6 Cu. Ft.
Contents: 103 Liter

Valve: 5/8" -18UNF
Pressure: 1000 psig

The calibration gas prepared by Gasco is considered a certified standard. It is prepared by gravimetric, or partial pressure techniques. The calibration standard provided is certified against Gasco's G.M.I.S. (Gas Manufacturer's Intermediate Standard) which is either prepared by weights traceable to the National Institute of Standards and Technology (NIST) or by using NIST Standard Reference Materials where available.

Analyst:

A handwritten signature in black ink, appearing to read "Rebecca O'Leary". The signature is written in a cursive, flowing style.



Praxair Distribution Mid-Atlantic
 145 Shimersville Rd.
 Bethlehem, PA 18015
 Telephone: (610) 317-1608
 Facsimile: (610) 758-8382

DocNumber: 000007952

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

CHEROKEE INSTRUMENTS INC *
 901 BRIDGE ST
 FUQUAY VARINA NC 275260

Praxair Order Number: 15303079
 Customer P. O. Number: 11036
 Customer Reference Number:

Fill Date: 12/9/2010
 Part Number: NI CD18E-AS
 Lot Number: 917034333
 Cylinder Style & Outlet: AS CGA 580
 Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

Certified Concentration:

Expiration Date:	12/16/2013	NIST Traceable
Cylinder Number:	CC263475	Analytical Uncertainty:
17.94 %	CARBON DIOXIDE	± 1 %
Balance	NITROGEN	

Certification Information: Certification Date: 12/16/2010 Term: 36 Months Expiration Date: 12/16/2013

This cylinder was certified according to the 1997 EPA Traceability Protocol, Document #EPA-600/R-97/121, using Procedure G1
 Do Not Use this Standard if Pressure is less than 150 PSIG

Analytical Data:

(R=Reference Standard, Z=Zero Gas, C=Gas Candidate)

1. Component: CARBON DIOXIDE

Requested Concentration: 18 %
 Certified Concentration: 17.94 %
 Instrument Used: SIEMENS ULTRAMAT 5E SN. D2-412
 Analytical Method: NON-DISPERSIVE INFRARED
 Last Mullipoint Calibration: 12/2/2010

Reference Standard Type: GMIS
 Ref. Std. Cylinder #: SA18907
 Ref. Std. Conc: 18.09 %
 Ref. Std. Traceable to SRM #: 2745
 SRM Sample #: 9-C-34
 SRM Cylinder #: CAL016063

First Analysis Data:				Date:	12/16/2010
Z:	0	R:	18.08	C:	17.94
Conc:	17.937	Z:	0	C:	17.94
Conc:	17.937	R:	18.1	C:	17.937
UOM:	%	Mean Test Assay:	17.937 %		

Second Analysis Data:						Date:	
Z:	0	R:	0	C:	0	Conc:	0
R:	0	Z:	0	C:	0	Conc:	0
Z:	0	C:	0	R:	0	Conc:	0
UOM:	%	Mean Test Assay:	0 %				

Analyzed by:

Robin Morgan

Certified by:

Michelle Kostik



CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E02NI99E15A0681	Reference Number: 83-124243123-1
Cylinder Number: CC205933	Cylinder Volume: 144.4 CF
Laboratory: ASG - Port Allen - LA	Cylinder Pressure: 2015 PSIG
PGVP Number: NONPGVP	Valve Outlet: 350
Gas Code: PPN	Certification Date: Dec 02, 2010

Expiration Date: Dec 02, 2018

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
PROPANE	300.0 PPM	304.4 PPM	G1	+/- 1% NIST Traceable	12/02/2010
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	000519	SG9103755BAL	483.6 PPM PROPANE/NITROGEN		Jul 01, 2013

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801556 M1C3H8	FTIR	Dec 02, 2010

Triad Data Available Upon Request

Notes:

Signature on file

Approved for Release



CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E02NI99E15A0932	Reference Number:	122-124303002-1
Cylinder Number:	CC281789	Cylinder Volume:	144.4 CF
Laboratory:	ASG - Durham - NC	Cylinder Pressure:	2015 PSIG
PGVP Number:	B22012	Valve Outlet:	350
Gas Code:	PPN	Certification Date:	Feb 13, 2012

Expiration Date: Feb 13, 2020

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
PROPANE	500.0 PPM	507.0 PPM	G1	+/- 1% NIST Traceable	02/13/2012
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	100605	CC281272	495.3 PPM PROPANE/NITROGEN	+/- 0.5%	Feb 18, 2016

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801333 C3H8	FTIR	Feb 01, 2012

Triad Data Available Upon Request

Notes:

Signature on file

Approved for Release



CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E02NI99E15A0477 Reference Number: 122-124303177-1
 Cylinder Number: SG9108685BAL Cylinder Volume: 144.4 CF
 Laboratory: ASG - Durham - NC Cylinder Pressure: 2015 PSIG
 PGVP Number: B22012 Valve Outlet: 350
 Gas Code: PPN Certification Date: Feb 14, 2012

Expiration Date: Feb 14, 2020

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
PROPANE	850.0 PPM	867.3 PPM	G1	+/- 1% NIST Traceable	02/14/2012
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	010506	SG9149357BAL	965.6 PPM PROPANE/NITROGEN	0.50	May 15, 2012

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801333 C3H8	FTIR	Feb 01, 2012

Triad Data Available Upon Request

Notes:

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E02NI99E15A0702 Reference Number: 122-124303000-1
 Cylinder Number: CC211087 Cylinder Volume: 144.6 CF
 Laboratory: ASG - Durham - NC Cylinder Pressure: 2015 PSIG
 PGVP Number: B22012 Valve Outlet: 350
 Gas Code: PPN Certification Date: Feb 15, 2012

Expiration Date: Feb 15, 2020

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
PROPANE	3000 PPM	3106 PPM	G1	+/- 1% NIST Traceable	02/15/2012
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	060605	XC024198B	4941 PPM PROPANE/NITROGEN	+/- 0.6%	May 01, 2016

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801333 C3H8	FTIR	Feb 01, 2012

Triad Data Available Upon Request

Notes:

Signature on file

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E02NI99E15A0561 Reference Number: 122-124303008-1
 Cylinder Number: SG902174ALB Cylinder Volume: 144.7 CF
 Laboratory: ASG - Durham - NC Cylinder Pressure: 2015 PSIG
 PGVP Number: B22012 Valve Outlet: 350
 Gas Code: PPN Certification Date: Feb 15, 2012

Expiration Date: Feb 15, 2020

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
PROPANE	5000 PPM	5089 PPM	G1	+/- 1% NIST Traceable	02/15/2012
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	060605	XC024198B	4941 PPM PROPANE/NITROGEN	+/- 0.6%	May 01, 2016

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801333 C3H8	FTIR	Feb 01, 2012

Triad Data Available Upon Request

Notes:

Signature on file

Approved for Release

Airgas

CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number:	E02NI99E15A1028	Reference Number:	83-124272181-1
Cylinder Number:	SG9103283BAL	Cylinder Volume:	145.1 CF
Laboratory:	ASG - Port Allen - LA	Cylinder Pressure:	2015 PSIG
PGVP Number:	B42011	Valve Outlet:	.350
Gas Code:	PPN	Certification Date:	Jul 06, 2011

Expiration Date: Jul 06, 2019

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
PROPANE	9000 PPM	9035 PPM	G1	+/- 1% NIST Traceable	07/06/2011
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	06060603	XC024146B	0.9748 % PROPANE/NITROGEN	1	May 01, 2016

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801556 C3H8 HC3H8	FTIR	Jun 13, 2011

Triad Data Available Upon Request

Notes:

Signature on file

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CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E02NI99E15A03L6 Reference Number: 122-124323956-1
 Cylinder Number: CC275 Cylinder Volume: 144.3 CF
 Laboratory: ASG - Durham - NC Cylinder Pressure: 2015 PSIG
 PGVP Number: B22012 Valve Outlet: 350
 Gas Code: CO Certification Date: Jul 09, 2012

Expiration Date: Jul 09, 2020

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON MONOXIDE	490.0 PPM	488.9 PPM	G1	+/- 1% NIST Traceable	06/30/2012, 07/09/2012
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	120603	CC353950	249.3 PPM CARBON MONOXIDE/NITROGEN	+/- 0.4%	Oct 26, 2017

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801549 CO	FTIR	Jun 13, 2012

Triad Data Available Upon Request

Notes:

Signature on file

Approved for Release



CERTIFICATE OF ANALYSIS

Grade of Product: EPA Protocol

Part Number: E02NI99E15A0305	Reference Number: 122-124303001-1
Cylinder Number: CC176634	Cylinder Volume: 144.4 CF
Laboratory: ASG - Durham - NC	Cylinder Pressure: 2015 PSIG
PGVP Number: B22012	Valve Outlet: 350
Gas Code: CO	Certification Date: Feb 20, 2012

Expiration Date: Feb 20, 2020

Certification performed in accordance with "EPA Traceability Protocol for Assay and Certification of Gaseous Calibration Standards (May 2012)" document EPA 600/R-12/531, using the assay procedures listed. Analytical Methodology does not require correction for analytical interference. This cylinder has a total analytical uncertainty as stated below with a confidence level of 95%. There are no significant impurities which affect the use of this calibration mixture. All concentrations are on a volume/volume basis unless otherwise noted.

Do Not Use This Cylinder below 100 psig, i.e. 0.7 megapascals.

ANALYTICAL RESULTS					
Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty	Assay Dates
CARBON MONOXIDE	950.0 PPM	945.2 PPM	G1	+/- 1% NIST Traceable	02/13/2012, 02/20/2012
NITROGEN	Balance				

CALIBRATION STANDARDS					
Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
110603	110603	XC031808B	988.8 PPM CARBON MONOXIDE/NITROGEN	0.40	Dec 13, 2016

ANALYTICAL EQUIPMENT		
Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801549 CO	FTIR	Jan 26, 2012

Triad Data Available Upon Request

Notes:

Signature on file

Approved for Release

CERTIFICATE OF ANALYSIS AIR - ULTRA ZERO

Airgas USA, LLC

1620 Tampa East Blvd

Tampa, FL 33619

Office: (813) 626-2905 Fax: (813) 620-0150

www.airgas.com

Part Number: A1 UZ300CT
Cylinder Number: W814660
Laboratory: ASO - Tampa Plant - FL
Analysis Date: Jun 04, 2013
Lot Number: 21-400207457-1

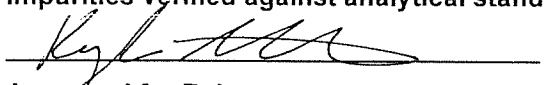
Reference Number: 21-400207457-1
Cylinder Volume: 312.0 CF
Cylinder Pressure: 2640 PSIG
Valve Outlet: 590

ANALYTICAL RESULTS

Component	Requested Purity	Certified Concentration
AIR		
CO + CO2	< 1 PPM	0.74 PPM
THC	< 0.1 PPM	<LDL 0.02 PPM
Percent Oxygen	20-22 %	21.60 %
Moisture	< 2 PPM	1.251 PPM

Notes:

Impurities verified against analytical standards traceable to NIST by weight and/or analysis.


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