AIR EMISSION TEST REPORT
Wiggins, Mississippi Wood Pellet Production Facility
Enviva Pellets Wiggins, LLC

Submitted to

Enviva Pellets Wiggins, LLC

Submitted by

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Definitions

Total Hydrocarbons	All organic compounds containing hydrogen and carbon that are detected by a flame ionization detector operated in accordance with U.S. EPA Method 25A.
Volatile Organic Compounds	All organic compounds that are emitted to the atmosphere in a gaseous or vapor form that can participate in photochemical reactions to produce ozone. All volatile organic compounds are considered VOCs unless specifically exempted in 40 CFR 51.100(s). Relevant excluded compounds include methane, ethane, and acetone.
VOC Emissions	Mass emissions of VOC measured on a pounds of carbon basis.

Acronyms

EPA	U.S. Environmental Protection Agency
FID	Flame Ionization Detector
FTIR	Fourier Transform Infrared Spectrometer
HAP	Hazardous Air Pollutant
MC	Moisture Content
MDEQ	Mississippi Department of Environmental Quality
ODT	Oven Dried Tons
THC	Total Hydrocarbons
VOC	Volatile Organic Compounds
C1	Carbon

Units of Measure

ppm	Parts per million (wet basis)
ppmvd	Parts per million (dry basis)
ppm C_3	Parts per million as propane
ppm C_1	Parts per million as carbon
mg	Milligram
kg	Kilogram
µg	Micrograms

Permit Designations/Titles

Dryer 1	AA-001, 30 MMBTU Wood-Fired Dryer (No. 1) with a Multiclone
Dryer 2	AA-002, 45 MMBTU Wood Fired Dryer (No. 2) with a Cyclone
Dry Hammermill 1	AA-006, No. 1 Secondary Hammermill w/High-Eff. Cyclone
Dry Hammermill 2	AA-007, No. 2 Secondary Hammermill w/High-Eff. Cyclone
Pellet Cooler 1	AA-004, Includes Line 1 Press Aspiration (AA-012)
Pellet Cooler 2	AA-014, Pellet Cooler 2 w/Hi-Efficiency Cyclone
Aspiration System	AA-013, Line 2 Pellet Mill Aspiration System
Green Hammermill	AA-016 (Hammermill Bin)

Air Emission Test Report
Wiggins, Mississippi Wood Pellet Production Facility

1. SUMMARY

Enviva Pellets, Wiggins, LLC (Enviva) has sponsored air emission testing to satisfy the requirements of Agreed Order 6366-13 dated June 16, 2013 (the "Order"). These test results are being submitted to the Mississippi Department of Environmental Quality (MDEQ) by October 31, 2013 in accordance with the Order.

The scope of the testing program included volatile organic compounds (VOCs) and six organic hazardous air pollutants (HAPs). Annual emissions of each analyte have been calculated and compared to applicable permit limits. The results of the testing program are summarized in Table 1-1 based on the present maximum permitted production limit of 185,550 ODT per year in the permit.

Table 1-1. Total Emissions at Plant Permit Limit of 185,550 ODT/Year

Analyte	Dryer 1	Dryer 2	Dry Hammermill 2	Green Hammermill	Pellet Cooler 1	Pellet Cooler 2	Aspirator	Dry Hammermill 1	Total
Total VOC	66.3	57.6	11.1	21.1	15.7	7.8	46.4	7.4	233.5
Organic HAPs									
Methanol	1.85	7.26	0.08	0.27	0.16	0.24	0.34	0.05	10.3
Acetaldehyde	0.00	1.40	0.25	0.61	0.39	0.35	0.23	0.17	2.0
Acrolein	1.03	2.32	0.43	1.24	0.77	0.68	0.20	0.29	7.0
Formaldehyde	2.01	3.48	0.39	0.37	0.49	0.34	0.03	0.26	7.4
Phenol	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.4
Propionaldehyde	1.06	1.82	0.17	0.09	0.16	0.11	0.00	0.11	3.5
Total HAPS	5.96	14.87	1.32	2.59	2.35	1.72	0.80	0.88	31.89

At the current maximum permitted production limit, VOC emissions remain below the PSD threshold of 250 tons per year. However, HAP emissions exceed the 25 ton per year threshold for major source classification, and methanol exceeds the 10 ton per year single compound threshold for major source classification. Importantly, the plant has never operated at the maximum permitted production limit of 185,550 ODT per year.

Enviva plans to propose to MDEQ a new maximum permitted production limit of 140,000 ODT/year. VOC and HAP emissions based on this proposed maximum permitted production limit are summarized in Table 1-2. Like the current limit of 185,000 ODT/year, to date, the Wiggins plant has also never achieved 140,000 ODT/year.

VOC emissions at the newly proposed production rate limit would be well below the PSD threshold of 250 tons per year. Furthermore, combined HAPs emissions are less than 25 tons per year, and none of the HAPs are emitted at more than 10 tons per year. Because the plant has never achieved a production rate of 140,000 ODT/year, the plant has never exceeded the major source threshold for VOCs or HAPs.

Table 1-2. Total Emissions at Plant Permit Limit of 140,000 ODT/Year

Analyte	Dryer 1	Dryer 2	Dry Hammermill 2	Green Hammermill	Pellet Cooler 1	Pellet Cooler 2	Aspirator	Dry Hammermill 1	Total
Total VOC	50.1	43.4	8.4	15.9	11.7	5.9	35.0	5.6	175.9
Organic HAPs									
Methanol	1.40	5.48	0.06	0.21	0.12	0.18	0.26	0.04	7.7
Acetaldehyde	0.00	1.06	0.19	0.46	0.29	0.26	0.17	0.12	2.6
Acrolein	0.78	1.75	0.33	0.93	0.58	0.51	0.15	0.22	5.3
Formaldehyde	1.52	2.62	0.30	0.28	0.37	0.26	0.03	0.20	5.6
Phenol	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.3
Propionaldehyde	0.80	1.37	0.13	0.07	0.12	0.08	0.00	0.08	2.7
Total HAPS	4.50	12.28	0.99	1.95	1.78	1.30	0.61	0.66	24.06

These tests were conducted in accordance with the emission test protocol[1] submitted to MDEQ on July 31, 2013. The scope of the emission test program was increased since submittal of the test program protocol in order to ensure that Enviva evaluated emissions from all possible sources of VOCs and HAPs.

The air emission tests were conducted by Air Control Techniques, P.C. using EPA Reference Methods 1, 2, 3, 4, 25A, and 320. The emission tests were conducted from Thursday, October 10 through Sunday, October 13, 2013. This report summarizes the emissions test data, quality assurance data, test method procedures, sampling equipment calibrations, process operating conditions, and test program participants.

2. EMISSION TEST PROGRAM DESCRIPTION

2.1 Wiggins, Mississippi Plant Description

Enviva operates a plant producing wood pellets. The plant consists of a wood receiving yard, log debarkers and chippers, two rotary dryers, two hammermills, two pellet presses and coolers, and an aspiration system. The plant processes wood composed of a range of hardwoods and softwoods.

2.2 Purpose and Scope of the Emission Test Program

Based on a voluntary self-evaluation, Enviva reported to the Mississippi Department of Environmental Quality (MDEQ) that it may have underreported emissions of volatile organic compounds (VOCs) in its permit application. Enviva's concern was based on a set of engineering-oriented tests [2] conducted in November 2012 that indicated that VOC emissions from a hammermill source and a press cooler aspiration vent may be higher than previously known. While emissions from specific wood pellet plants are highly dependent on the specific equipment employed and to a lesser degree the hardwood/softwood mix of raw material, Enviva's preliminary findings in the November 2012 engineering test are generally consistent with other recent findings in the Wood Pellet Industry, specifically the engineering-oriented tests[3] at a Georgia Biomass, Inc. plant in Waycross, Georgia and Green Circle Bio Energy in Cottondale, Florida.

This air emission testing program is intended to address Enviva's concern and fulfills the requirements of the Order. Specifically, Enviva agreed to generate VOC emissions data for the following sources.

- Dryer 1 multiclone stack
- Dryer 2 cyclone stack
- Secondary Hammermill 2 cyclone outlet
- Pellet Mill 2 Aspiration System

Since signing the Order, Enviva has determined that it would be beneficial to expand the scope of the emission testing program to include these three additional sources.

- Green Hammermill
- Pellet Cooler 1
- Pellet Cooler 2

The tests at Secondary Hammermill 2 cyclone outlet also represent emissions from Secondary Hammermill 1. Secondary Hammermill 2 is identical to Secondary Hammermill 1 except for the larger capacity of Secondary Hammermill 2.

2.3 Test Participants

The Enviva project manager for this project was Mr. Michael Doniger, Director of Plant Operations. He was assisted by Mr. Joe Harrell, Environmental Manager, Mr. Mike Jones, and Mr. Gary Williams, Wiggins Plant Manager.

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Legal counsel for Enviva is Mr. Alan McConnell. Mr. McConnell participated in this study to ensure that it addressed the requirements of the Order.

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Enviva retained Air Control Techniques, P.C. to conduct the air emission testing program at the Wiggins plant. The Air Control Techniques, P.C. project manager was John Richards, Ph.D., P.E, QSTI. He was assisted by David Goshaw, P.E., QSTI, Todd Brozell, P.E., QSTI, and Jonas Gilbert. Tom Holder, QSTI provided quality assurance services for the test program. Contact information for Air Control Techniques, P.C. includes the following.

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Enthalpy, Inc. provided the laboratory analyses of the samples. The Enthalpy project manager for this project was Mr. Bryan Tyler. He was assisted by Dr. Grant Plummer, Mr. Clint Thrasher, and Mr. Steve Eckert, President.

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3. TEST MATRIX AND TEST RESULTS

3.1 Test Matrix

Table 3-1 summarizes the test program analytes, sampling methods, and analytical methods used for the seven sources listed in Section 1.1

Table 3-1. Test Matrix, Air Emission Testing
Enviva Pellets, Wiggins, Mississippi

Analyte	Test Method	Number of Runs	Run Length	Analytical Method
Acetaldehyde, Acrolein, Formaldehyde, Methanol, Phenol, Propionaldehyde	EPA Method 320	3	60 min	FTIR
Gas Flow	EPA Method 2	3	60 min	Manometer
Gas Molecular Weight, Oxygen, Carbon Dioxide	EPA Method 3	3	60 min	Fyrite® Analyzer
Gas Moisture	EPA Method 4	3	60 min	Gravimetric
Total Hydrocarbons (THC)	EPA Method 25A	3	60 min	FID

The tests were conducted on Thursday, October 10 through Sunday October 13, 2013. During all of the tests, the plant operated with a 60% softwood/40% hardwood feed.

3.2 Test Results

The VOC and organic HAP test results and calculated annual emission rates are summarized in Tables 3-2 through 3-8. VOC and HAP emissions were measured simultaneously at each of the seven emission units tested.

The VOC emissions have been calculated based on the total hydrocarbon data provided by Method 25A. The Method 25A data have been converted from a wet to a dry basis to account for the moisture in the stack gas stream. Total hydrocarbon concentrations (THC) has been used as a surrogate for VOCs.

The VOC emission calculations do not include any corrections for methane, ethane, or acetone despite the fact that these compounds are detected by Method 25A but are not classified as VOCs. Accordingly, the reported VOC emissions are biased to higher-than-true levels to the extent that these three compounds affected the Method 25A results.

The Method 25A data reflect the combined THC concentrations consisting of (1) alpha and beta pinene, (2) numerous other terpenes such as limonene and 3-carene, and (3) the organic HAPs. The organic HAP emissions discussed later in this report are also classified as VOCs and represent a small fraction of the total VOC emissions reported.

Method 320 was used to measure six organic compounds. Several of the organic compounds were below the detection limits of Method 320 in this matrix of gaseous constituents. These non-detection concentrations are designated by shading in Tables 3-2 through 3-8.

Table 3-2. Green Hammermill[1] Emission Test Results

Parameter	Run 1	Run 2	Run 3	Average
Date	10/10/2013	10/10/2013	10/10/2013	N/A
Start	9:17	10:36	11:50	N/A
Stop	10:17	11:36	12:50	N/A
Throughput, tons/hour	36	36	36	36.0
Moisture Content Outlet, %wt.	47.15	47.15	47.15	47.2
Throughput, ODT/hour	19.026	19.026	19.026	19.0
ACFM	27,642	27,273	27,189	27,368.0
DSCFM	25,184	24,803	25,031	25,006
Stack Temperature, °F	70.8	70.6	70.9	70.8
O_2, %	20.9	20.9	20.9	20.9
% Moisture	3.41	3.62	2.37	3.1
VOC, ppmvd as Propane	31.9	33.4	27	30.8
VOC, ppmvd as C1	95.7	100.3	81.1	92.4
VOC, lbs/hour as C1	4.5	4.7	3.8	4.3
VOC, lbs/ODT	0.24	0.25	0.20	0.2
Methanol, ppmvd	0.53	0.48	0.39	0.46
Acetaldehyde, ppmvd	0.79	0.75	0.74	0.76
Acrolein, ppmvd	1.17	1.25	1.18	1.20
Formaldehyde, ppmvd	0.77	0.65	0.57	0.66
Phenol, ppmvd	0.91	0.91	0.90	0.91
Propionaldehyde, ppmvd	0.24	0.24	0.26	0.247
Methanol, lbs/hour	0.066	0.060	0.049	0.058
Acetaldehyde, lbs/hour	0.136	0.129	0.127	0.131
Acrolein, lbs/hour	0.257	0.274	0.259	0.263
Formaldehyde, lbs/hour	0.090	0.077	0.068	0.078
Phenol, lbs/hour	0.000	0.000	0.000	0.000
Propionaldehyde, lbs/hour	0.000	0.000	0.058	0.019
Methanol, lbs/ODT	0.003	0.003	0.002	0.003
Acetaldehyde, lbs/ODT	0.007	0.007	0.006	0.007
Acrolein, lbs/ODT	0.013	0.014	0.013	0.013
Formaldehyde, lbs/ODT	0.005	0.004	0.003	0.004
Phenol, lbs/ODT	0.000	0.000	0.000	0.000
Propionaldehyde, lbs/ODT	0.000	0.000	0.003	0.001

1. Note: Shaded area indicates a calculated minimum detection limit. Emissions were calculated based on zero for non-detect values.

Table 3-3. Dryer 1 Emissions[1] Emission Test Results

Parameter	Run 1	Run 2	Run 3	Average
Date	10/10/2013	10/11/2013	10/11/2013	N/A
Start	17:38	10:00	11:37	N/A
Stop	18:38	11:00	12:37	N/A
Throughput, tons/hour	8.5	8.45	9	8.7
Moisture Content Outlet, %wt.	15.5	14.36	18.9	16.3
Throughput, ODT/hour	7.18	7.24	7.30	7.2
ACFM	44,448	42,243	42,593	43,095
DSCFM	32,404	31,700	31,215	31,773
Stack Temperature, °F	146.3	150.1	147.3	147.9
O_2, %	19.0	17.0	17.0	17.7
% Moisture	16.07	12.79	15.23	14.7
VOC, ppmvd as Propane	79.5	71	67.4	72.6
VOC, ppmvd as C1	238.8	213.3	202.6	218.2
VOC, lbs/hour as C1	14.4	12.6	11.8	12.93
VOC, lbs/ODT	2.00	1.74	1.62	1.79
Methanol, ppmvd	3.00	1.95	1.88	2.28
Acetaldehyde, ppmvd	1.51	1.46	1.50	1.49
Acrolein, ppmvd	2.13	1.97	2.03	2.04
Formaldehyde, ppmvd	3.96	1.83	2.10	2.63
Phenol, ppmvd	2.43	2.34	2.41	2.39
Propionaldehyde, ppmvd	0.76	0.81	0.59	0.72
Methanol, lbs/hour	0.483	0.308	0.292	0.36
Acetaldehyde, lbs/hour	0.0	0.0	0.0	0.000
Acrolein, lbs/hour	0.598	0.0	0.0	0.199
Formaldehyde, lbs/hour	0.597	0.272	0.307	0.392
Phenol, lbs/hour	0.0	0.0	0.0	0.000
Propionaldehyde, lbs/hour	0.222	0.233	0.167	0.207
Methanol, lbs/ODT	0.067	0.043	0.040	0.050
Acetaldehyde, lbs/ODT	0.0	0.0	0.0	0.000
Acrolein, lbs/ODT	0.083	0.0	0.0	0.028
Formaldehyde, lbs/ODT	0.083	0.038	0.042	0.054
Phenol, lbs/ODT	0.0	0.0	0.0	0.000
Propionaldehyde, lbs/ODT	0.031	0.032	0.023	0.029

1. Note: Shaded area indicates a calculated minimum detection limit. Emissions were calculated based on zero for non-detect values.

Table 3-4. Pellet Cooler 1[1] Emission Test Results

Parameter	Run 1	Run 2	Run 3	Average
Date	10/12/2013	10/12/2013	10/12/2013	N/A
Start	8:58	10:22	11:41	N/A
Stop	9:58	11:22	12:41	N/A
Throughput, tons/hour	4	4	4	4.0
Moisture Content Outlet, %wt.	7.9	7.9	7.9	7.9
Throughput, ODT/hour	3.68	3.68	3.68	3.68
ACFM	16,168	16,246	16,134	16,182.7
DSCFM	15,189	14,870	14,825	14,961
Stack Temperature, °F	82.3	94.8	97.7	91.6
O_2, %	20.9	20.9	20.9	20.9
% Moisture	3.35	3.68	2.79	3.27
VOC, ppmvd as Propane	40.4	34.6	36.7	37.2
VOC, ppmvd as C1	121.2	103.8	110.1	111.7
VOC, lbs/hour as C1	3.44	2.88	3.05	3.12
VOC, lbs/ODT	0.93	0.78	0.83	0.85
Methanol, ppmvd	0.56	0.34	0.36	0.42
Acetaldehyde, ppmvd	0.71	0.73	0.78	0.74
Acrolein, ppmvd	1.01	1.06	1.39	1.15
Formaldehyde, ppmvd	1.49	1.30	1.30	1.36
Phenol, ppmvd	1.03	1.02	1.01	1.02
Propionaldehyde, ppmvd	0.39	0.30	0.25	0.31
Methanol, lbs/hour	0.042	0.026	0.027	0.032
Acetaldehyde, lbs/hour	0.074	0.076	0.081	0.077
Acrolein, lbs/hour	0.135	0.141	0.184	0.153
Formaldehyde, lbs/hour	0.105	0.092	0.092	0.096
Phenol, lbs/hour	0.2	0.0	0.0	0.077
Propionaldehyde, lbs/hour	0.054	0.041	0.000	0.032
Methanol, lbs/ODT	0.011	0.007	0.007	0.009
Acetaldehyde, lbs/ODT	0.020	0.021	0.022	0.021
Acrolein, lbs/ODT	0.037	0.038	0.050	0.042
Formaldehyde, lbs/ODT	0.029	0.025	0.025	0.026
Phenol, lbs/ODT	0.063	0.000	0.0	0.021
Propionaldehyde, lbs/ODT	0.015	0.011	0.000	0.009

1. Note: Shaded area indicates a calculated minimum detection limit. Emissions were calculated based on zero for non-detect values.

Table 3-5. Dryer 2[1] Emission Test Results

Parameter	Run 1	Run 2	Run 3	N/A
Date	10/13/2013	10/13/2013	10/13/2013	N/A
Start	9:21	11:14	12:31	N/A
Stop	10:21	12:52	13:47	N/A
Throughput, tons/hour	14.5	11.2	11.3	12.3
Moisture Content Outlet, %wt.	18.5	13.45	13.75	15.2
Throughput, ODT/hour	11.82	9.69	9.75	10.4
ACFM	24,998	25,318	25,278	25,198.0
DSCFM	14,745	15,224	14,842	14,937
Stack Temperature, °F	174.3	154.9	171.8	167.0
O_2, %	16.5	17	17	16.8
% Moisture	29.04	29.86	29.64	29.5
VOC, ppmvd as Propane	129.4	115.8	138.1	127.8
VOC, ppmvd as C1	388.2	347.4	414.3	383.3
VOC, lbs/hour as C1	10.70	9.88	11.49	10.69
VOC, lbs/ODT	0.91	1.02	1.18	1.03
Methanol, ppmvd	26.5	14.5	15.3	18.795
Acetaldehyde, ppmvd	1.4	4.7	1.4	2.498
Acrolein, ppmvd	2.7	3.7	3.5	3.303
Formaldehyde, ppmvd	9.0	9.4	9.6	9.336
Phenol, ppmvd	3.9	4.0	4.0	3.944
Propionaldehyde, ppmvd	3.3	2.0	2.4	2.575
Methanol, lbs/hour	1.949	1.070	1.129	1.383
Acetaldehyde, lbs/hour	0.138	0.473	0.147	0.253
Acrolein, lbs/hour	0.345	0.476	0.456	0.425
Formaldehyde, lbs/hour	0.622	0.647	0.662	0.644
Phenol, lbs/hour	0.0	0.0	0.0	0.000
Propionaldehyde, lbs/hour	0.445	0.262	0.322	0.343
Methanol, lbs/ODT	0.165	0.110	0.116	0.130
Acetaldehyde, lbs/ODT	0.012	0.049	0.015	0.025
Acrolein, lbs/ODT	0.029	0.049	0.047	0.042
Formaldehyde, lbs/ODT	0.053	0.067	0.068	0.062
Phenol, lbs/ODT	0.0	0.0	0.0	0.000
Propionaldehyde, lbs/ODT	0.038	0.027	0.033	0.033

1. Note: Shaded area indicates a calculated minimum detection limit. Emissions were calculated based on zero for non-detect values.

Table 3-6. Dry Hammermill 2[1] Emission Test Results

Parameter	Run 1	Run 2	Run 3	Average
Date	10/11/2013	10/11/2013	10/11/2013	N/A
Start	18:11	19:35	20:48	N/A
Stop	19:11	20:35	21:48	N/A
Throughput, tons/hour	11.18	11.22	11.12	11.2
Moisture Content Outlet, %wt.	10.2	10.3	10.2	10.2
Throughput, ODT/hour	10.04	10.06	9.99	10.0
ACFM	15,197	14,385	15,165	14,916
DSCFM	13,183	12,366	13,303	12,951
Stack Temperature, °F	122.4	128.4	116.4	122.4
O_2, %	20.9	20.9	20.9	20.9
% Moisture	4.25	4.18	4.18	4.20
VOC, ppmvd as Propane	26.3	31.0	25.5	27.6
VOC, ppmvd as C1	78.9	93	76.5	82.8
VOC, lbs/hour as C1	1.94	2.15	1.90	2.00
VOC, lbs/ODT	0.19	0.21	0.19	0.20
Methanol, ppmvd	0.20	0.22	0.21	0.21
Acetaldehyde, ppmvd	0.75	0.74	0.74	0.74
Acrolein, ppmvd	1.02	1.02	1.01	1.02
Formaldehyde, ppmvd	1.09	1.19	1.16	1.14
Phenol, ppmvd	1.13	1.13	1.13	1.13
Propionaldehyde, ppmvd	0.24	0.25	0.27	0.254
Methanol, lbs/hour	0.013	0.014	0.014	0.014
Acetaldehyde, lbs/hour	0.067	0.067	0.000	0.045
Acrolein, lbs/hour	0.118	0.118	0.000	0.078
Formaldehyde, lbs/hour	0.067	0.073	0.071	0.071
Phenol, lbs/hour	0.000	0.000	0.000	0.000
Propionaldehyde, lbs/hour	0.029	0.030	0.032	0.030
Methanol, lbs/ODT	0.001	0.001	0.001	0.0014
Acetaldehyde, lbs/ODT	0.007	0.007	0.000	0.0045
Acrolein, lbs/ODT	0.012	0.012	0.000	0.0078
Formaldehyde, lbs/ODT	0.007	0.007	0.007	0.0070
Phenol, lbs/ODT	0.000	0.000	0.000	0.0000
Propionaldehyde, lbs/ODT	0.003	0.003	0.003	0.0030

1. Note: Shaded area indicates a calculated minimum detection limit. Emissions were calculated based on zero for non-detect values.

Table 3-7. Pellet Cooler 2[1] Emission Test Results

Parameter	Run 1	Run 2	Run 3	Average
Date	10/11/2013	10/11/2013	10/11/2013	N/A
Start	13:43	15:08	16:39	N/A
Stop	14:43	16:08	17:39	N/A
Throughput, tons/hour	15.0	15.0	15.0	15.0
Moisture Content Outlet, %wt.	7.12	7.36	7.17	7.2
Throughput, ODT/hour	13.93	13.90	13.92	13.9
ACFM	13,252	12,718	12,831	12,934
DSCFM	10,938	10,543	10,488	10,656
Stack Temperature, °F	148.9	143.2	152.3	148.1
O_2, %	20.9	20.9	20.9	20.9
% Moisture	4.86	4.64	4.54	4.68
VOC, ppmvd as Propane	25.0	22.3	26.0	24.4
VOC, ppmvd as C1	75	66.9	78	73.3
VOC, lbs/hour as C1	1.53	1.32	1.53	1.46
VOC, lbs/ODT	0.11	0.09	0.11	0.10
Methanol, ppmvd	0.84	0.71	0.88	0.81
Acetaldehyde, ppmvd	0.90	0.87	0.83	0.87
Acrolein, ppmvd	1.36	1.27	1.39	1.34
Formaldehyde, ppmvd	1.12	0.69	1.93	1.25
Phenol, ppmvd	1.14	1.13	1.13	1.13
Propionaldehyde, ppmvd	0.26	0.26	0.38	0.30
Methanol, lbs/hour	0.046	0.039	0.048	0.044
Acetaldehyde, lbs/hour	0.068	0.065	0.062	0.065
Acrolein, lbs/hour	0.130	0.121	0.133	0.128
Formaldehyde, lbs/hour	0.058	0.035	0.099	0.064
Phenol, lbs/hour	0	0	0	0.000
Propionaldehyde, lbs/hour	0.026	0.000	0.037	0.021
Methanol, lbs/ODT	0.003	0.003	0.003	0.003
Acetaldehyde, lbs/ODT	0.005	0.005	0.004	0.005
Acrolein, lbs/ODT	0.009	0.009	0.010	0.009
Formaldehyde, lbs/ODT	0.004	0.003	0.007	0.005
Phenol, lbs/ODT	0.0	0.0	0.0	0.000
Propionaldehyde, lbs/ODT	0.002	0.000	0.003	0.002

1. Note: Shaded area indicates a calculated minimum detection limit. Emissions were calculated based on zero for non-detect values.

Table 3-8. Aspiration System[1] Emission Test Results				
Parameter	Run 1	Run 2	Run 3	Average
Date	10/12/2013	10/12/2013	10/12/2013	N/A
Start	15:09	16:36	18:00	N/A
Stop	16:09	17:36	19:00	N/A
Throughput, tons/hour	15	15	15	15.0
Moisture Content Outlet, %wt.	7.12	8.83	7.85	7.93
Throughput, ODT/hour	13.93	13.68	13.82	13.8
ACFM	1,756	1,692	1,624	1,691
DSCFM	1,079	1,016	985	1,027
Stack Temperature, °F	148.6	148.3	152.1	149.7
O_2, %	20.9	20.9	20.9	20.9
% Moisture	27.67	29.33	28.19	28.4
VOC, ppmvd as Propane	1485.8	1354.2	1671.1	1,503.7
VOC, ppmvd as C1	4457.4	4062.6	5013.3	4,511.1
VOC, lbs/hour as C1	8.99	7.71	9.23	8.64
VOC, lbs/ODT	0.65	0.56	0.67	0.63
Methanol, ppmvd	11.5	12.6	11.4	11.81
Acetaldehyde, ppmvd	6.4	5.5	5.2	5.73
Acrolein, ppmvd	4.4	4.4	3.1	3.97
Formaldehyde, ppmvd	1.5	2.2	1.5	1.72
Phenol, ppmvd	3.8	3.9	3.8	3.81
Propionaldehyde, ppmvd	4.1	4.2	4.2	4.19
Methanol, lbs/hour	0.062	0.068	0.061	0.064
Acetaldehyde, lbs/hour	0.048	0.041	0.039	0.042
Acrolein, lbs/hour	0.041	0.042	0.030	0.037
Formaldehyde, lbs/hour	0.000	0.011	0.007	0.006
Phenol, lbs/hour	0.000	0.000	0.000	0.000
Propionaldehyde, lbs/hour	0.000	0.000	0.000	0.000
Methanol, lbs/ODT	0.004	0.005	0.004	0.005
Acetaldehyde, lbs/ODT	0.003	0.003	0.003	0.003
Acrolein, lbs/ODT	0.003	0.003	0.002	0.003
Formaldehyde, lbs/ODT	0.000	0.001	0.001	0.000
Phenol, lbs/ODT	0.000	0.000	0.000	0.000
Propionaldehyde, lbs/ODT	0.000	0.000	0.000	0.000

1. Note: Shaded area indicates a calculated minimum detection limit. Emissions were calculated based on zero for non-detect values.

3.3 Emissions Data Evaluation

Method 25A VOC Concentrations

The VOC emissions from the various process units ranged from 0.10 to 1.79 pounds per ODT. VOC emissions were highest from the two dryers.

Dryer 1 had an emission rate of 1.79 pounds per ODT, and Dryer 2 had an emission rate of 1.03 pounds per ODT. This is equivalent to a 79% difference despite the fact that the dryers were handling similar hardwood/softwood blends and were generating wood with similar outlet moisture levels. The dryer outlet temperatures were also similar. These data clearly demonstrate that VOC emissions from the dryers are due to two factors: (1) the performance of the wood waste burner supplying the heat to the dryer, and (2) volatilization of VOCs from the wood in the dryer. Of these two sources, contributions of the burner are most important.

Due to the dominance of the burner in establishing the VOC emission rates from the combined burner/dryer source, the importance of the hardwood/softwood ratio is less important than previously thought. Changes in the hardwood/softwood ratio do not necessarily affect the VOC emissions from the burner.

The emissions of organic HAP compounds are not sensitive to the hardwood/softwood ratio. The data summarized in the Phase I report indicate that emissions of organic HAPs decreased slightly as the softwood content increased from 10% to 100%.

The data summarized in Tables 3-2 through 3-8 indicate that the total VOC emissions from the Wiggins Plant exceed 100 tons per year calculated as carbon. These tests confirm that the plant is a major source for VOCs.

The accuracy of the VOC data is demonstrated by a Method 25A response factor of approximately 1 for the group of compounds present in the gas stream. The Method 25A response is expressed in terms of a response factor that is defined as the observed Method 25A concentration divided by the true concentration. The Method 25A FID has a response factor close to 1.0 for a large set of organic compounds. Some high molecular weight organics have a response factor larger than 1, and in some cases, approaching 1.5. For these compounds, Method 25A is biased to higher-than-true concentrations. Some low molecular weight highly oxygenated organic compounds such as methanol and formaldehyde have very low response factors in the range of 0.1 to 0.4. For these compounds, Method 25A is biased to lower-than-true concentrations.

As part of the laboratory tests reported to MDEQ in Enviva's Phase I emission study dated July 31, 2013[4] (the "Phase I Study"). Air Control Techniques, P.C. has taken the following two independent approaches in assessing the Method 25A response factors: (1) direct measurement of the Method 25A response factor using an alpha-pinene gas standard, the dominant organic compound measured during the laboratory tests and (2) a comparison of the Method 25A concentration data with the summed concentrations of all of the specific organics measured simultaneously using NCASI Method 98.01 and EPA Method 18. The results of these response factor analyses are presented in Tables 3-9 and 3-10.

Table 3-9. Alpha-Pinene Method 25A Response Factor[1]	
Alpha-Pinene Gas Standard, as $C_{10}H_{16}$	259 ppm
Alpha-Pinene Gas Standard, as C_3	863 ppm
FID Response, as C_3	888 ppm
Response Factor as C_3	1.03

1. Note: This table was included in the Phase I Study report to MDEQ.

Table 3-10. Calculated Method 25A Response Factors in Phase I Laboratory Tests[1]

Run	Process Type	Softwood Content, %	Method 25A versus Combined NCASI 98.01 and Method 18	Dominant Compounds	Other Important Compounds
4	Dryer	10	0.72	α-and β-Pinene	Acetone, Methanol
5	Dryer	10	0.70	α-and β-Pinene	Acetone, Methanol
6	Dryer	10	0.75	α-and β-Pinene	Methanol, Formaldehyde
21	Dryer	10	1.23	α-and β-Pinene	Acetone, Methanol
22	Press	10	1.05	α-and β-Pinene	Acetone, Methanol
7	Dryer	70	0.85	α-and β-Pinene	Acetone
8	Dryer	70	0.90	α-and β-Pinene	Acetone
9	Dryer	70	1.02	α-and β-Pinene	Acetone
10	Dryer	70	0.91	α-and β-Pinene	Acetone
24	Press	70	1.51	α-and β-Pinene	Acetone, Methanol
11	Dryer	100	0.99	α-and β-Pinene	Acetone
12	Dryer	100	0.96	α-and β-Pinene	Acetone
13	Dryer	100	0.85	α-and β-Pinene	Acetone
14	Dryer	100	0.87	α-and β-Pinene	Acetone
16	Dryer	100	1.09	α-and β-Pinene	Methanol, Acetone
19	Dryer	100	1.21	α-and β-Pinene	Methanol, Acetone
20	Press	100	1.13	α-and β-Pinene	Methanol, Acetone
Test Program Average			0.98		

1. Note: This table was included in the Phase I Study report to MDEQ.

The excellent agreement between the Method 25A total concentration and the combined concentrations of all of the organics measured by NCASI 98.01 and EPA Method 18 demonstrate that Method 25A is an appropriate VOC measurement technique for wood pellet production facilities.

Method 320 HAP Concentrations

At the maximum permitted production limit of 185,550 ODT per year, five of the six organic HAP compounds measured by Method 320 were each emitted at a rate less than 10 tons per year. The methanol emission rate at this production level was 11.0 tons per year. The combined emission rate of all six organic HAPs was slightly over 31.1 tons per year at the maximum permitted production rate.

The list of HAPs specifically included in the test protocol included methanol, acetaldehyde, acrolein, formaldehyde, phenol, and propionaldehyde. This list was compiled based on (1) the organic compounds identified in laboratory analyses of pellet production facilities emissions, (2) previous emission tests conducted in the Pellet Manufacturing Industry, and (3) organic HAPs identified in studies of other wood products industries—specifically, MDF production.

The results of this test program indicate that this list of HAPs compounds needs to be amended. Phenol was detected at low concentration in only one of the tests of the seven process units. Furthermore, propionaldehyde was not detected in most of the tests.

The low to non-detectable phenol emissions data are consistent with the results of the Phase I Study. Phenol was not identified at detectable concentrations in any of the laboratory studies summarized in the Phase I Study report. The emission rates of phenol reported in the November 2012 Wiggins report [2] ranged from 0.0002 to 0.0018 pounds per hour—all insignificant emission rates. Phenol was also not listed in previous emission tests reviewed in preparation for this test program. Phenol was included in the test protocol primarily because other researchers such as Beauchemin and Tampier,[5] Milot, [6] and Milot and Mosher [7] listed phenol due to its inclusion in tests conducted at MDF and particleboard facilities. However, phenol emissions in MDF and particleboard production are due to the use of phenolic resins and similar binders. There is no reason to expect any appreciable phenol formation in pellet production considering (1) the lack of binders of any type in pellet production, (2) the higher moisture levels in pellet production as compared to MDF and particleboard processes, and (3) the lower material temperatures in pellet process equipment. Air Control Techniques, P.C. has assigned zero values to non-detected concentrations.

Acetaldehyde, propionaldehyde, and acrolein had very low concentrations in most of the emission tests summarized in this report. The IR absorption spectra of both water and the terpene compounds overlap the absorption spectra of acetaldehyde, propionaldehyde, and acrolein. Accordingly, the reported concentrations of these three compounds are biased to higher-than-true levels to the extent that this interference could not be avoided by Method 320 spectral absorption modeling. Zero values have been assigned when these concentrations were below detection limits of Method 320 due, in part, to the interference bias.

The use of zero values for non-detected compounds is an appropriate approach for any source, such as pellet production, where there are a few dominant compounds (i.e. methanol and formaldehyde) and a large number of possible compounds at extremely low levels such as phenol, acetaldehyde, and propionaldehyde. The use of non-detect or one-half non-detect concentrations in emission calculations for a large number of compounds potentially present at trace levels inherently makes any source "major" regardless of the actual emissions, size, or operations characteristics of the emission unit.

3.4 VOC and Organic HAP Emission Summary

Table 3-11 summaries annual emissions of VOC and organic HAP compounds. The annual emission rates are based on operation at the permit limited production rate of 185,550 ODT.

As discussed, the plant has never operated at the maximum permitted production limit of 185,550 ODT per year. The VOC and HAP emissions based on the newly proposed maximum production rate of 140,000 ODT/year are summarized in Table 3-12.

The VOC emissions at the lower production rate are well below the PSD threshold of 250 tons per year. The combined HAPs emissions are less than 25 tons per year, and none of the HAPs are emitted at more than 10 tons per year. Accordingly, at this production limit, the plant is not above the major source threshold for HAPs.

Table 3-11. Total Emissions at Plant Permit Limit of 185,550 ODT/Year

Analyte	Dryer 1	Dryer 2	Dry Hammermill 2	Green Hammermill	Pellet Cooler 1	Pellet Cooler 2	Aspirator	Dry Hammermill 1	Total
Total VOC	66.3	57.6	11.1	21.1	15.7	7.8	46.4	7.4	233.5
Organic HAPs									
Methanol	1.85	7.26	0.08	0.27	0.16	0.24	0.34	0.05	10.3
Acetaldehyde	0.00	1.40	0.25	0.61	0.39	0.35	0.23	0.17	2.0
Acrolein	1.03	2.32	0.43	1.24	0.77	0.68	0.20	0.29	7.0
Formaldehyde	2.01	3.48	0.39	0.37	0.49	0.34	0.03	0.26	7.4
Phenol	0.00	0.00	0.00	0.00	0.39	0.00	0.00	0.00	0.4
Propionaldehyde	1.06	1.82	0.17	0.09	0.16	0.11	0.00	0.11	3.5
Total HAPS	5.96	14.87	1.32	2.59	2.35	1.72	0.80	0.88	31.89

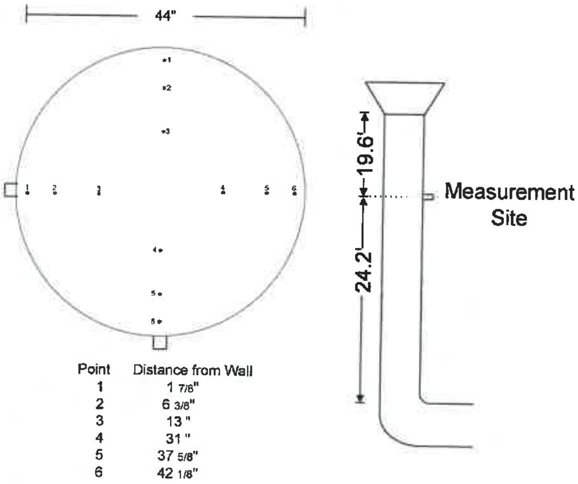
Table 3-12. Total Emissions at Plant Permit Limit of 140,000 ODT/Year

Analyte	Dryer 1	Dryer 2	Dry Hammermill 2	Green Hammermill	Pellet Cooler 1	Pellet Cooler 2	Aspirator	Dry Hammermill 1	Total
VOC Total	50.1	43.4	8.4	15.9	11.7	5.9	35.0	5.6	175.9
Organic HAPs									
Methanol	1.40	5.48	0.06	0.21	0.12	0.18	0.26	0.04	7.7
Acetaldehyde	0.00	1.06	0.19	0.46	0.29	0.26	0.17	0.12	2.6
Acrolein	0.78	1.75	0.33	0.93	0.58	0.51	0.15	0.22	5.3
Formaldehyde	1.52	2.62	0.30	0.28	0.37	0.26	0.03	0.20	5.6
Phenol	0.00	0.00	0.00	0.00	0.29	0.00	0.00	0.00	0.3
Propionaldehyde	0.80	1.37	0.13	0.07	0.12	0.08	0.00	0.08	2.7
Total HAPS	4.50	12.28	0.99	1.95	1.78	1.30	0.61	0.66	24.06

4. SAMPLING LOCATIONS

4.1 Dryer # 1 Stack Sampling Location

The Dryer 1 sampling location meets EPA Method 1 location requirements as indicated in Figure 4-1. Twelve sampling points were used to measure the gas flow rate.



Point	Distance from Wall
1	1 7/8"
2	6 3/8"
3	13 "
4	31 "
5	37 5/8"
6	42 1/8"

Figure 4-1 Dryer # 1 Stack Sampling Location

The downstream[1] flow disturbance is the stack discharge. The upstream flow disturbance is the duct from the fan entering the base of the stack.

During the sampling program, only the port facing south was used. The port facing east was blocked by the stack support equipment and the Dry Hammermill 1 ductwork. Test personnel reached all of the sampling ports by angling the probe inserted through the south port.

No cyclonic flow conditions were observed in the Dryer 1 stack. The point-by-point cyclonic flow checks indicated an average flow angle 3.1 degrees. This meets the requirements of Section 11.4 of Method 1. A photograph of the Dryer 1 stack is shown in Figure 4-2.

Figure 4-2. Photograph of the Dryer 1 Stack

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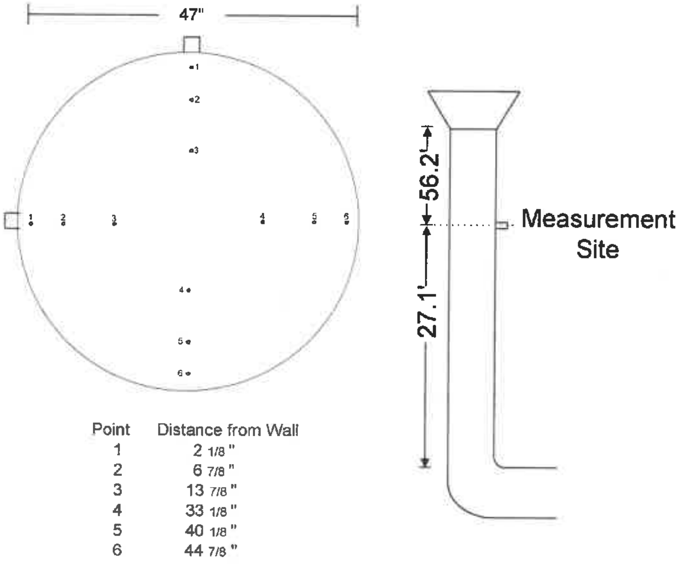
[1] "Upstream" and "downstream" are defined based on the sampling location as the reference point.

4.2 Dryer 2 Stack Sampling Location

The Dryer 2 sampling location meets EPA Method 1 location requirements as indicated in Figure 4-2. Twelve sampling points were used to measure the gas flow rate.



Point	Distance from Wall
1	2 1/8 "
2	6 7/8 "
3	13 7/8 "
4	33 1/8 "
5	40 1/8 "
6	44 7/8 "

Figure 4-3. Dryer # 2 Stack Sampling Location

The downstream flow disturbance is the stack discharge. The upstream flow disturbance is the duct from the fan entering the base of the stack.

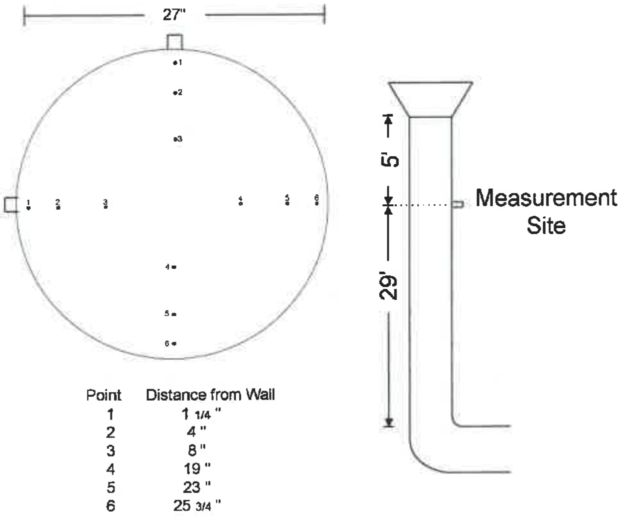
During the sampling program, only the port facing west was used in the test program. The port facing north could not be reached without potentially interrupting operation of the CEM sampling equipment. Test personnel reached all of the sampling ports by angling the probe inserted through the west port.

No cyclonic flow conditions were observed in the Dryer 2 stack. The point-by-point cyclonic flow checks indicated an average flow angle 2.4 degrees. This meets the requirements of Section 11.4 of Method 1. A photograph of the Dryer 2 stack is shown in Figure 4-4.

Figure 4-4. Photograph of the Dryer 2 Stack

4.3 Dry Hammermill 2 Cyclone Outlet Sampling Location

The Dry Hammermill 2 sampling location meets EPA Method 1 location requirements as indicated in Figure 4-5. Twelve sampling points were used to measure the gas flow rate.



Point	Distance from Wall
1	1 1/4 "
2	4 "
3	8 "
4	19 "
5	23 "
6	25 3/4 "

Figure 4-5. Dry Hammermill 2 Sampling Location

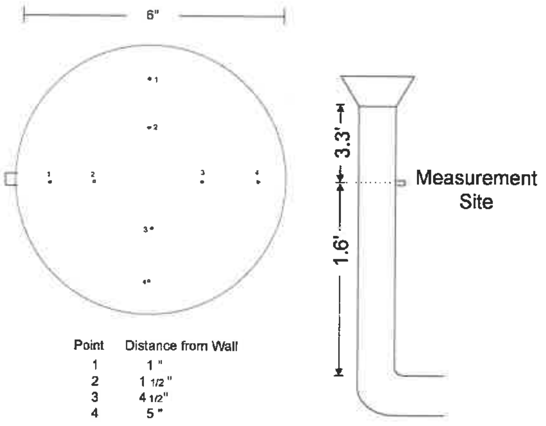
The downstream flow disturbance is an elbow in the fan outlet duct. The upstream flow disturbance is the fan discharge. During the sampling program both ports were accessible.

No cyclonic flow conditions were observed in the Dry Hammermill 2 stack. The point-by-point cyclonic flow checks indicated an average flow angle of 0.6 degrees. This meets the requirements of Section 11.4 of Method 1. A photograph of the Dry Hammermill 2 stack is shown in Figure 4-6.

Figure 4-6. Photograph of the Dry Hammermill 2 Sampling Location

4.4 Pellet Mill Aspiration System Sampling Location

The Pellet Mill Aspiration System has a six-inch diameter. Gas flow rate sampling was performed in general accordance with EPA Method 1A. The sampling port location met EPA Method 1 location requirements as indicated in Figure 4-7. A total of eight sampling points were used—four in a horizontal direction and four reached by an angled probe in the vertical direction. Due to the position of the duct and surrounding equipment, it was not possible to sample from any orientation except horizontal.



Point	Distance from Wall
1	1 "
2	1 1/2 "
3	4 1/2"
4	5 "

Figure 4-7. Pellet Mill Aspiration System Sampling Location

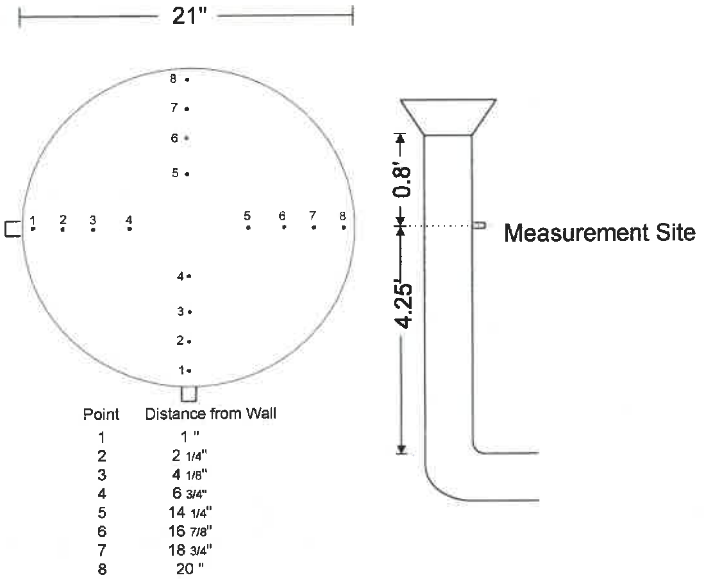
The upstream flow disturbance was an entry duct from Pellet Mill 6. The downstream flow disturbance was the fan inlet.

No cyclonic flow conditions were observed in the Pellet Mill Aspiration System outlet duct. The point-by-point cyclonic flow checks indicated an average flow angle of 0.75 degrees. This meets the requirements of Section 11.4 of Method 1. A photograph of the Pellet Mill Aspiration System sampling location is shown in Figure 4-8.

Figure 4-8. Photograph of the Pellet Mill Aspiration System Sampling Location

4.5 Pellet Mill 2 Cooler Stack Sampling Location

The Pellet Mill 2 Cooler stack sampling location meets the minimum requirements specified in Method 1, Section 11.1. As indicated in Figure 4-9, the downstream[2] disturbance (stack exit) is 0.6 stack diameters from the sampling location. The minimum allowed by Method 1 is 0.5 stack diameters. The upstream flow disturbance was the fan outlet duct. The distance to the upstream flow disturbance meets Method 1 requirements. Both sampling ports were used in the test program.



Point	Distance from Wall
1	1 "
2	2 1/4"
3	4 1/8"
4	6 3/4"
5	14 1/4"
6	16 7/8"
7	18 3/4"
8	20 "

Figure 4-9. Pellet Mill 2 Cooler Stack Sampling Location

No cyclonic flow conditions were observed in the Pellet Mill 2 Cooler stack. The point-by-point cyclonic flow checks indicated an average flow angle of 1.5 degrees. This meets the requirements of Section 11.4 of Method 1. A photograph of the Pellet Cooler 2 stack is shown in Figure 4-10

Figure 4-10. Photograph of the Pellet Cooler 2 Stack

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[2] The terms "upstream" and 'downstream" are defined based on the test location as the reference point. A recent change in a figure in EPA Method 1 has these terms incorrectly stated.

4.6 Pellet Mill 1 Cooler Stack

The Pellet Mill 1 Cooler stack sampling location meets the minimum requirements specified in Method 1, Section 11.1. As indicated in Figure 4-11, the downstream disturbance (stack exit) is 0.6 stack diameters from the sampling location. The minimum allowed is 0.5 stack diameters. The upstream flow disturbance is the fan outlet duct. The distance to the upstream flow disturbance meets Method 1 requirements. Four of the six sampling ports were used in the test program. The plugs in two of the ports could not be removed.

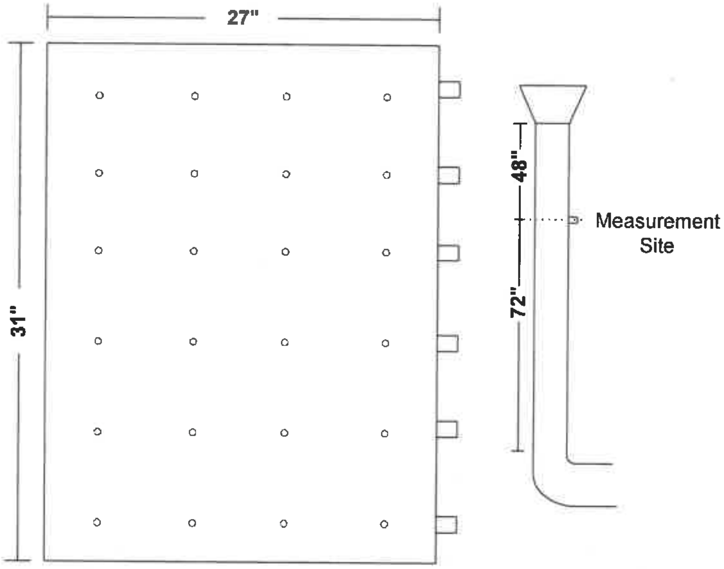


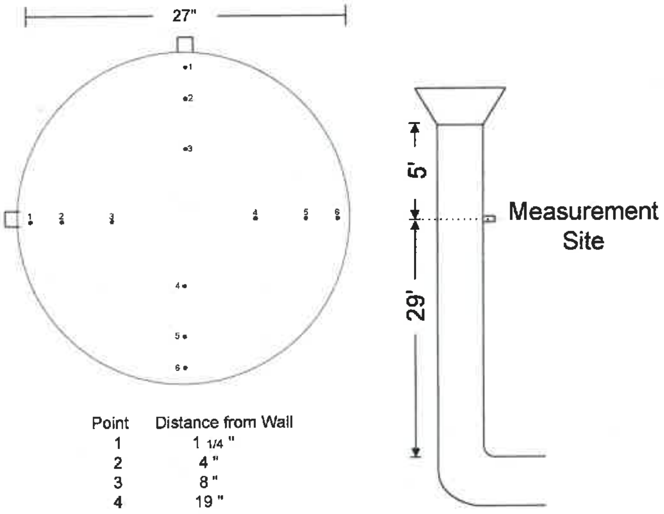
Figure 4-11. Pellet Mill 1 Cooler Stack Sampling Location

No cyclonic flow conditions were observed in the Pellet Mill 1 Cooler stack. The point-by-point cyclonic flow checks indicated an average flow angle of 2.0 degrees. This meets the requirements of Section 11.4 of Method 1. A photograph of the Pellet Mill 1 Cooler Stack is shown in Figure 4-12.

Figure 4-12. Photograph of the Pellet Mill 1 Cooler Stack

4.7 Green Hammermill Stack Sampling Location

The Green Hammermill stack sampling location shown in Figure 4-13 meets the minimum requirements for a downstream flow disturbance specified in Method 1, Section 11.1. The upstream flow disturbance is the fan outlet duct. The downstream flow disturbance is the stack discharge. The distance to the upstream flow disturbance meets Method 1 requirements. Only one sampling port could be reached safely. All of the sampling ports were reached by angling the Pitot tube inserted through the port facing south.



Point	Distance from Wall
1	1 1/4 "
2	4 "
3	8 "
4	19 "
5	23 "
6	25 3/4 "

Figure 4-13. Green Hammermill Stack Sampling Location

No cyclonic flow conditions were observed in the Green Hammermill stack. The point-by-point cyclonic flow checks indicated an average flow angle of 1.7 degrees. This meets the requirements of Section 11.4 of Method 1. A photograph of the Green Hammermill stack is shown in Figure 4-14.

Figure 4-14. Photograph of the Green Hammermill Fan Inlet

5. TESTING PROCEDURES

5.1 Flue Gas Velocity and Volumetric Flow Rate - EPA Method 2

The flue gas velocities and volumetric flow rates during all of the emission tests were determined according to the procedures outlined in U.S. EPA Reference Method 2. Velocity measurements were made using S-Type Pitot tubes conforming to the geometric specifications outlined in Method 2. Accordingly, each Pitot was assigned a coefficient of 0.84. Velocity pressures were measured with fluid manometers. Effluent gas temperatures were measured with chromel-alumel thermocouples attached to digital readouts.

5.2 Flue Gas Composition and Molecular Weight - EPA Method 3

Flue gas analyses and calculation of flue gas dry molecular weights were performed in accordance with EPA Method 3. A stainless steel probe was inserted into the gas stream to collect a representative sample of the flue gas during each test run. The samples were analyzed using a Fyrite gas analyzer. Moisture was removed from the sample gas by means of a knockout jar located prior to the sample pump.

5.3 Flue Gas Moisture Content - EPA Method 4

The flue gas moisture content was determined in conjunction with each test run according to the sampling and analytical procedures outlined in EPA Method 4. Wet impinger sampling trains were used to withdraw and analyze the stack gas. The impingers were connected in series and contained water in the first two impingers followed by an empty impinger and then a silica gel impinger. The impingers were contained in an ice bath to assure condensation of the flue gas stream moisture. Any moisture that was not condensed in the impingers was captured in the silica gel; therefore, all moisture was weighed and entered into moisture content calculations.

5.4 Total Hydrocarbons – EPA Method 25A

Continuous emissions monitoring was conducted for volatile organic compounds. The sampling and analytical procedures for VOCs were conducted in accordance with EPA 25A. The CEM system consisted of a sample acquisition system, the THC emission monitor, and a data acquisition system (DAS). A California Analytical Model 300 flame ionization detector was used for the Method 25A tests.

The sample acquisition system included an in-stack probe, a heated out-of-stack glass mat filter for particulate matter removal, a heat-traced Teflon® sample line, a Teflon® heated-head pump, and a gas manifold board. All components of the sample acquisition system that contacted the sampled gas were constructed of Type 316 stainless steel or Teflon®. The sample gas was continuously extracted from a central point within the duct at a constant rate (±10%) for the duration of each test run. The wet, filtered gas was transported to a heated-head pump located at the CEM laboratory. The sample gas was sent directly to the VOC analyzer. Care was taken to ensure that the sample gas was greater than 250°F during transport from the stack to the VOC monitor. All pretest and posttest calibration procedures were performed as outlined in the EPA Reference Method 25A.

Total organic hydrocarbon concentrations were measured on a wet basis using a California Analytical 300 FID continuous emission monitor. The THC concentrations were monitored on a propane (C_3) basis using a flame ionization detector (FID). The FID was fueled by a gas mixture consisting of 40% helium and 60% hydrogen to reduce the effect of oxygen synergism. The

THC analyzer was calibrated with a set of at least four gas standards. Calibration tests were performed prior to and following each test run.

Outputs from the individual emission monitors were connected to a computerized data acquisition system. Outputs from the analyzer were sent to a portable computer via a National Instruments^{TM} FieldPoint controller. The signals were downloaded to a STRATA$^{©}$ software program every two seconds. The two-second readings were averaged for the duration of the test run.

Total mass emissions of VOCs were determined based on the Method 25A total hydrocarbon concentration data. The mass emissions were expressed on a pounds mass of carbon per hour.

5.5 Organic HAP Compounds – EPA Method 320

Testing for wet-basis organic HAP concentrations was conducted by extractive Fourier transform infrared (FTIR) spectroscopy using EPA Method 320 (40CFR, Part 63, Appendix A). Sample gas was continuously passed through the sampling system, which included an in-stack probe, a heated out-of-stack glass mat filter for particulate matter removal, a Teflon® heat-traced sample line, a MIDAC Fourier Transform Infrared (FTIR) spectrometer, a Teflon® heated-head pump, and a gas manifold board as shown in Figure 5-1. All components of the sample acquisition system that contacted the sampled gas were Type 316 stainless steel or Teflon®. All components of the sampling system and the FTIR cell were maintained at or above 120° C. Air Control Techniques, P.C. took great care to ensure that the sampling system contained no "cold spots" to prevent organic HAP loss. The sampling rate was maintained at approximately 10 liters per minute.

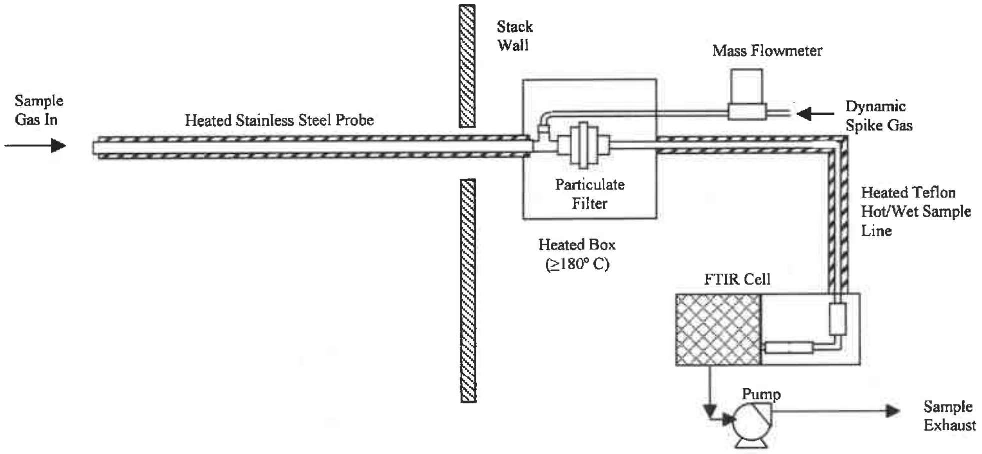


Figure 5-1. Method 320 Organic HAP Sampling System

The FTIR system included a MIDAC Corporation I-1301 spectrometer equipped with a heated, nominal 10-meter path absorption cell, a potassium bromide (KBr) beam splitter, zinc selenide (ZnSe) non-hygroscopic windows, and a liquid nitrogen-cooled Mercury Cadmium Telluride detector. Measurements were made using a MIDAC Model I-1301 high resolution Michelson interferometer with AutoQuant Pro software. Sample gas continuously passed through the sampling system, and sample spectra (based on 50 co-added interferograms) were recorded every minute. The system's nominal spectral resolution was 0.5 cm^{-1}. Samples and standards were analyzed at temperatures greater than 120°C and near ambient pressures.

The inside walls of the cells were polished stainless steel to minimize interaction of the sample with the cell walls, and the cell mirrors were of bare gold. The gas pressure in the FTIR sample cell was monitored with a pressure transducer connected directly to the sample cell. The heated sample cell was wrapped in an insulating thermal jacket, and the temperature was controlled with type J thermocouples. The absorption cell volume was approximately 2 liters.

The FTIR system was operated via a portable computer, and a data archive storage system (USB Mass Storage Drive) was used for data backup. All interferograms, single beams, absorbance spectra, and background single beams were stored and have been archived. The filename, time, pressure and temperature of the sample cell, scan rate, background identification and other pertinent information was recorded by hand during the test program.

Air Control Techniques used the program AutoquantPro™ Version 4.5.0.195, (©Midac Corporation, 2012) to collect and analyze all the infrared field data. The program allows the development and storage of analytical "methods" for analysis of spectral data (absorbance) files. The reference spectra used for these analyses were developed by MIDAC Corporation, EPA, and Enthalpy Analytical, Inc. One "model" was developed for determining the absorption path length and one additional "method" for determining the concentrations of the target compounds for each source.

The concentration uncertainty reported by AutoquantPro is called the Standard Error of the Estimated Concentration, or SEC; it is also known as the Marginal Standard Deviation. The uncertainties in the concentration are proportional to the square root of the sums of the squares of the residual. After the residual spectrum is obtained, which we will call R, the error variance for the case of a single reference spectrum is calculated as follows.

$$\sigma^2 = \frac{\sum_i R_i^2}{(n-1)}$$

Where n is the number of observations. The SEC is given by the following.

$$SEC = \frac{\sigma C}{\sqrt{\sum_i \mathrm{A}_i^2}}$$

Where **A** is the spectrum and **C** is the known concentration of the reference.

The 95% confidence interval is 1.96 times the SEC.

6. QUALITY ASSURANCE

6.1 Method 1 Quality Assurance

All S-type Pitot tubes used in this project conformed to EPA guidelines concerning construction and geometry. Pitot tubes were inspected prior to use. Information pertaining to S-type Pitot tubes is presented in detail in Section 3.1.1 of EPA Publication No. 600/4-77-027b. Only S-type Pitot tubes meeting the required EPA specifications were used in this project.

The thermocouples used in this project were calibrated using the procedures described in Section 3.4.2 of EPA Publication No. 600/4-77-027b. Each temperature sensor was calibrated at a minimum of three points over the anticipated range of use against NIST-traceable mercury in glass thermometer.

6.2 Method 4 Quality Assurance

Pretest and posttest leak checks were conducted on each Method 4 sampling train used. The observed leak rates for the sampling trains were below 0.02 actual cubic feet per minute as required by Method 4.

All dry gas meters were fully calibrated to determine the volume correction factor prior to field use. Post-tests calibration checks were performed as soon as possible after the equipment was returned to the laboratory. Pre-and post-test calibrations agreed within ±5 percent. The calibration procedure is documented in Section 3.3.2 of EPA Publication No. 600/4-77-237b.

The scales used at the test location to determine flue gas moisture content were calibrated using a standard set of weights.

6.3 Method 25A Quality Assurance

At the beginning of the test day, a linearity calibration test was performed on each analyzer. The continuous emission monitoring instrument response did not differ by more ±5 from the propane calibration standard. Linearity results for the test program are provided in Table 6-1 through 6-8.

Prior to and following each test run, a system calibration test was performed. The system test was performed to verify that the sampling system did not contain leaks (system bias) and to measure a change in analyzer response during the test program (system drift). The system bias was less than ±5% of full-scale, and system drift was less than ±3% of full scale. System calibration results for the test program are provided in Tables 6-1 through 6-8.

Table 6-1. Dryer 1 Quality Assurance Results,
Total Hydrocarbons, Method 25A

Linearity Tests				
Parameter	Allowable	Test Series		
Zero, %	±5	0.0		
Low, %	±5	0.4		
Mid, %	±5	2.2		
High, %	±5	0.0		
System Tests				
Parameter	Allowable	Run 1	Run 2	Run 3
Zero Bias (Pre), %	±5	0.0	0.8	0.1
Zero Bias (Post), %	±5	0.9	0.1	0.0
Up-scale Bias (Pre), %	±5	0.0	-0.2	-0.6
Up-scale Bias (Post), %	±5	0.1	-0.6	-1.0
Zero Drift, %	±3	0.9	-0.7	-0.2
Up-scale Drift, %	±3	0.1	-0.4	-0.4
Response Time, sec	N/A			

Table 6-2. Pellet Cooler 1 Quality Assurance Results,
Total Hydrocarbons, Method 25A

Linearity Tests				
Parameter	Allowable	Test Series		
Zero, %	±5	0.1		
Low, %	±5	0.4		
Mid, %	±5	0.8		
High, %	±5	0.0		
System Tests				
Parameter	Allowable	Run 1	Run 2	Run 3
Zero Bias (Pre), %	±5	0.0	0.3	0.2
Zero Bias (Post), %	±5	0.3		0.3
Up-scale Bias (Pre), %	±5	0.1	-0.1	-0.1
Up-scale Bias (Post), %	±5	-0.1		0.3
Zero Drift, %	±3	0.3	-0.1	0.1
Up-scale Drift, %	±3	-0.1	0.0	-0.1
Response Time, sec	N/A			

Table 6-3. Dryer 2 Quality Assurance Results,
Total Hydrocarbons, Method 25A, High Range

Linearity Tests				
Parameter	Allowable	Test Series		
Zero, %	±5	0.1		
Low, %	±5	0.3		
Mid, %	±5	-0.1		
High, %	±5	0.0		
System Tests				
Parameter	Allowable	Run 1	Run 2	Run 3
Zero Bias (Pre), %	±5	0.0	0.1	-0.1
Zero Bias (Post), %	±5	0.1	-0.1	-0.1
Up-scale Bias (Pre), %	±5	0.0	-0.3	-0.4
Up-scale Bias (Post), %	±5	-0.3	-0.4	-0.3
Zero Drift, %	±3	0.1	-0.1	0.0
Up-scale Drift, %	±3	-0.3	-0.1	0.1
Response Time, sec	N/A	28		

Table 6-4. Dryer 2 Quality Assurance Results,
Total Hydrocarbons, Method 25A, Low Range

Linearity Tests				
Parameter	Allowable	Test Series		
Zero, %	±8	1.0		
Low, %	±8	1.5		
Mid, %	±8	0.7		
High, %	±8	0.1		
System Tests				
Parameter	Allowable	Run 1	Run 2	Run 3
Zero Bias (Pre), %	±5	0.0	0.6	-0.6
Zero Bias (Post), %	±5	0.6	-0.6	-0.7
Up-scale Bias (Pre), %	±5	0.0	0.3	0.1
Up-scale Bias (Post), %	±5	0.3	0.1	-0.1
Zero Drift, %	±3	0.6	-1.2	-0.1
Up-scale Drift, %	±3	0.3	-0.2	-0.2
Response Time, sec	N/A	28		

Table 6-5. Dry Hammermill 2 Quality Assurance Results,
Total Hydrocarbons, Method 25A

Linearity Tests

Parameter	Allowable	Test Series
Zero, %	±5	0.0
Low, %	±5	0.4
Mid, %	±5	2.2
High, %	±5	0.0

System Tests

Parameter	Allowable	Run 1	Run 2	Run 3
Zero Bias (Pre), %	±5	0.2	0.0	0.2
Zero Bias (Post), %	±5	0.0	0.2	0.2
Up-scale Bias (Pre), %	±5	-1.3	-1.1	-1.3
Up-scale Bias (Post), %	±5	-1.1	-1.3	-1.2
Zero Drift, %	±3	-0.1	0.1	0.0
Up-scale Drift, %	±3	0.2	-0.1	0.0
Response Time, sec	N/A	28		

Table 6-6 Pellet Cooler 2 Quality Assurance Results,
Total Hydrocarbons, Method 25A

Linearity Tests

Parameter	Allowable	Test Series
Zero, %	±5	0
Low, %	±5	0.4
Mid, %	±5	2.2
High, %	±5	0.0

System Tests

Parameter	Allowable	Run 1	Run 2	Run 3
Zero Bias (Pre), %	±5	0.0	0.3	0.1
Zero Bias (Post), %	±5	0.3	0.1	0.2
Up-scale Bias (Pre), %	±5	-1.0	-0.9	-1.0
Up-scale Bias (Post), %	±5	-0.9	-1.0	-1.3
Zero Drift, %	±3	0.3	-0.2	0.0
Up-scale Drift, %	±3	0.1	-0.1	-0.3
Response Time, sec	N/A	28		

Table 6-7. Aspiration Quality Assurance Results,
Total Hydrocarbons, Method 25A

Linearity Tests				
Parameter	Allowable	Test Series		
Zero, %	±5	0.1		
Low, %	±5	0.7		
Mid, %	±5	0.0		
High, %	±5	0.1		
System Tests				
Parameter	Allowable	Run 1	Run 2	Run 3
Zero Bias (Pre), %	±5	0.0	0.1	0.0
Zero Bias (Post), %	±5	0.1	0.0	0.1
Up-scale Bias (Pre), %	±5	0.0	-0.1	-0.1
Up-scale Bias (Post), %	±5	-0.1	-0.1	-0.3
Zero Drift, %	±3	0.1	-0.1	0.1
Up-scale Drift, %	±3	-0.1	0.1	-0.3
Response Time, sec	N/A	28		

Table 6-8. Green Hammermill Quality Assurance Results,
Total Hydrocarbons, Method 25A

Linearity Tests				
Parameter	Allowable	Test Series		
Zero, %	±5	0.0		
Low, %	±5	1.1		
Mid, %	±5	1.6		
High, %	±5	0.4		
System Tests				
Parameter	Allowable	Run 1	Run 2	Run 3
Zero Bias (Pre), %	±5	0.0	0.1	0.1
Zero Bias (Post), %	±5	0.1	0.1	0.1
Up-scale Bias (Pre), %	±5	0.0	-0.1	-0.7
Up-scale Bias (Post), %	±5	-0.1	-0.7	-1.0
Zero Drift, %	±3	0.1	-0.1	0.1
Up-scale Drift, %	±3	-0.1	-0.5	-0.3
Response Time, sec	N/A	28		

6.4 Method 320 Quality Assurance

Air Control Techniques, P.C. performed daily quality assurance checks. Background scans and calibration transfer standard (CTS) spectra tests were performed prior to and following each test series. An analyte spike was performed using methanol.

The flow rate at the outlet of the pump was measured while the probe was plugged to verify that the sampling system was leaks. The flow rate was less than 200 ml/min.

The FTIR cell was tested for leaks by closing the value while the cell was at minimum absolute pressure.

Background Spectra

Sample spectra were divided point-by-point by a 128-scan background recorded using N_2. The single beam spectrum was constantly monitored, and a new background was generated approximately following each test series or when residual and absorbance spectra indicated component build-up on the optical surfaces or alignment-related baseline shifts.

Calibration Transfer Standards and Absorption Path Lengths

A cylinder of 100 ppm ethylene in nitrogen served as the CTS. A CTS gas was introduced to the FTIR and allowed to reach steady state. The CTS was used to determine effective cell path length based on comparisons of the "field" CTS spectra to a laboratory CTS spectrum recorded by MIDAC. As shown in Table 6-9, the maximum path length deviation was less than 5% of the average.

Table 6-9. CTS Results Summary

Date	Time	CTS Scan (pathlength)	SEC (ppm)	Cell Press. (psi)	Cell Temp (deg C)	Deviation from Previous	Deviation from Average
10-Oct	806	8.78	0.137	14.7	121	NA	-0.6%
	1927	8.68	0.120	14.89	121	1.1%	0.5%
11-Oct	1121	8.73	0.134	14.8	121	-0.6%	-0.1%
	1301	8.73	0.133	14.7	121	0.0%	-0.1%
	1755	8.75	0.133	14.6	121	-0.3%	-0.3%
	2204	8.72	0.133	14.8	121	0.4%	0.1%
12-Oct	0809	8.59	0.133	14.9	121	1.4%	1.5%
	1300	8.77	0.137	14.6	121	-2.1%	-0.5%
	1940	8.78	0.134	14.72	121	-0.1%	-0.6%
13-Oct	0810	8.71	0.134	14.82	121	0.7%	0.1%
	1435	8.73	0.135	14.85	121	-0.1%	0.0%
	Average	8.725	0.133				

Background Spectra

On-site test personnel performed matrix spiking using a certified calibration standard of methanol and SF_6. The methanol gas standard was introduced into the sampling system upstream of the particulate matter filter at an average dilution ratio of less than 10% of the total sample volume. Analyte spiking was performed to demonstrate the suitability of the sampling system. The dilution factor was calculated based on the ratio of the SF_6 tracer gas analyzed directly by the FTIR and the in-stack measured concentration.

$$\frac{SF_6\text{ during spike}}{SF_6\text{ direct}} = DF$$

The recovery was calculated using the mean concentration of the spiked analyte (S_m), the native concentration of the analyte in the stack (S_u), the dilution factor (DF), and the cylinder concentration (C_s).

$$\text{Recovery}(\%) = \frac{\text{Sm} - \text{Su}\ (1 - \text{DF})}{\text{DFxCs}}$$

As shown in Table 6-10, the percent recovery was 100±30% as required by Method 320.

Table 6-10. Spike Recovery Results Summary

Direct Cylinder Spike, ppm		System Spiked Gas, ppm		Native Concentration, ppm		Recovery, %
methanol	SF_6	methanol	SF_6	methanol	SF_6	
101.26	2.84	9.867	0.272	0.496	-0.00789	94.6

Minimum Detectable Concentration

EPA Method 320 and the equivalent ASTM Standard D6348-03 specify a number of analytical uncertainty parameters that the analyst may calculate to characterize the FTIR system performance.

QA Review

Before the test program began, an analysis of possible analytical interferents (e.g., H_2O, CO_2, CO, pinenes) based on previous stack test data. Analytical wavelengths were determined to minimize analytical uncertainty and detection limits using reference spectra and the FTIR instrument that was used for the field testing.

At the conclusion of the testing a quality assurance review of the test data was performed. This review included examination of the sample spectra and the quantitative analytical results. It also included spot-checking the analysis results by hand. These examinations included visual comparisons of the sample and reference spectra.

7. PROCESS DOCUMENTATION

Enviva Pellets Wiggins, LLC personnel logged the following process data during each test run of each process unit.

- Throughput in tons per hour (all process units)
- Inlet temperature (dryer)
- Outlet temperature (dryer)
- Cyclone static pressure drop (dryer, hammermill, presses)
- Wood feed % softwood content

8. REFERENCES

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6. Milota, M.R. "Emissions from Wood Drying" Forest Projects Journal, Volume 50, Number 6, Pages 10-19, June 2000.

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APPENDIX A

Moisture and Gas Flow Rate Data

Air Control Techniques, PC: Emissions Calculations
Job # 1911

Enviva	Wiggins	Green Hammermill	Green Hammermill	Green Hammermill	Dryer 1	Dryer 1	Dryer 1
PARAMETER	**NOMENCLATURE**	1	2	3	4	5	6
Sampling Location		Green Hammermill	Green Hammermill	Green Hammermill	Dryer 1	Dryer 1	Dryer 1
Date		10/10/2013	10/10/2013	10/10/2013	10/10/2013	10/11/2013	10/11/2013
Run Time	θ	60	60	60	60	60	60
Nozzle Diameter	inches	N/A	N/A	N/A	N/A	N/A	N/A
Stack Area	As - sq. ft.	3.98	3.98	3.98	10.56	10.56	10.56
Pitot Tube Coefficient	Cp	0.84	0.84	0.84	0.84	0.84	0.84
Meter Calibration Factor	Y	0.9828	0.9828	0.9828	0.9828	0.9828	0.9828
Barometric Pressure, inches Hg	Bp - in Hg	29.90	29.90	29.90	29.90	29.80	29.80
Static Pressure	Pg - in. H_2O	-20.8	-20.8	-20.8	-0.75	-0.71	-0.71
Stack Pressure	Ps	28.37	28.37	28.37	29.84	29.75	29.75
Meter Box Pressure Differential	Δ H - in. H_2O	1.00	1.00	1.00	1.00	1.00	1.00
Average Velocity Head	Δ p - in. H_2O	3.961	3.854	3.847	1.283	1.172	1.185
Volume of Gas Sampled	Vm - cu. ft.	33.868	33.981	33.156	33.201	33.221	32.565
Dry Gas Meter Temperature	Tm - °F	66.0	70.8	75.5	81.250	76.5	87.0
Stack Temperature	Ts - °F	70.8	70.6	70.9	146.3	150.1	147.3
Liquid Collected	grams	25.1	26.5	16.6	129.5	99.8	117.5
Carbon Dioxide	% CO_2	0	0	0	2	4	4
Oxygen	% O_2	20.9	20.9	20.9	19	17	17
Carbon Monoxide	% CO	0	0	0	0	0	0
Nitrogen	% N_2	79.1	79.1	79.1	79	79	79
Volume of Gas Sampled, Dry	Vmstd - cu. ft.	33.472	33.283	32.187	31.888	32.082	30.845
Volume of Water Vapor	Vwstd - cu. ft.	1.183	1.249	0.783	6.106	4.706	5.540
Moisture Content	% H_20	3.41	3.62	2.37	16.07	12.79	15.23
Saturation Moisture	% H_20	2.7	2.7	2.7	23.1	25.4	23.7
Dry Mole Fraction	Mfd	0.966	0.964	0.976	0.839	0.872	0.848
Fuel Factor	Fo	#DIV/0!	#DIV/0!	#DIV/0!	0.950	0.975	0.975
Gas Molecular Weight, Dry	Md	28.84	28.84	28.84	29.08	29.32	29.32
Gas Molecular Weight, Wet	Ms	28.47	28.44	28.58	27.30	27.87	27.60
Gas Velocity	vs - ft./sec.	115.87	114.32	113.97	70.16	66.68	67.23
Volumetric Air Flow, Actual	Qaw - ACFM	27,642	27,273	27,189	44,448	42,243	42,593
Volumetric Air Flow, Standard	Qsd - DSCFM	25,184	24,803	25,031	32,404	31,700	31,215

Air Control Techniques, PC: Emissions Calculations

Job # 1911

Enviva	Wiggins	Dry Hammermill 2	Dry Hammermill 2	Dry Hammermill 2	Pellet Mill 2 Aspiration	Pellet Mill 2 Aspiration	Pellet Mill 2 Aspiration
PARAMETER	**NOMENCLATURE**	10	11	12	16	17	18
Sampling Location		Dry Hammermill 2	Dry Hammermill 2	Dry Hammermill 2	Pellet Mill 2 Aspiration	Pellet Mill 2 Aspiration	Pellet Mill 2 Aspiration
Date		10/11/2013	10/11/2001	10/11/2013	10/12/2013	10/12/2013	10/12/2013
Run Time	θ	60	60	60	60	60	60
Nozzle Diameter	inches	N/A	N/A	N/A	N/A	N/A	N/A
Stack Area	As - sq. ft.	2.64	2.64	2.64	0.20	0.20	0.20
Pitot Tube Coefficient	Cp	0.84	0.84	0.84	0.84	0.84	0.84
Meter Calibration Factor	Y	0.9828	0.9828	0.9828	0.9828	0.9828	0.9828
Barometric Pressure, inches Hg	Bp - in Hg	29.80	29.80	29.80	29.85	29.85	29.85
Static Pressure	Pg - in. H_2O	1.4	1.4	1.4	-7.5	-7.5	-7.5
Stack Pressure	Ps	29.90	29.90	29.90	29.30	29.30	29.30
Meter Box Pressure Differential	Δ H - in. H_2O	1.00	1.00	1.00	1.00	1.00	1.00
Average Velocity Head	Δ p - in. H_2O	2.601	2.308	2.618	5.359	4.944	4.547
Volume of Gas Sampled	Vm - cu. ft.	33.419	33.679	33.876	33.241	32.149	34.408
Dry Gas Meter Temperature	Tm - °F	80.3	78.8	78.3	85.0	84.8	81.8
Stack Temperature	Ts - °F	122.4	128.2	116.4	148.6	148.3	152.1
Liquid Collected	grams	30.2	30	30.2	256.8	269.6	274.4
Carbon Dioxide	% CO_2	0	0	0	0	0	0
Oxygen	% O_2	20.9	20.9	20.9	20.9	20.9	20.9
Carbon Monoxide	% CO	0	0	0	0	0	0
Nitrogen	% N_2	79.1	79.1	79.1	79.1	79.1	79.1
Volume of Gas Sampled, Dry	Vmstd - cu. ft.	32.050	32.389	32.609	31.654	30.628	32.962
Volume of Water Vapor	Vwstd - cu. ft.	1.424	1.415	1.424	12.108	12.712	12.938
Moisture Content	% H_20	4.25	4.18	4.18	27.67	29.33	28.19
Saturation Moisture	% H_20	12.3	14.4	10.4	24.9	24.7	27.2
Dry Mole Fraction	Mfd	0.957	0.958	0.958	0.723	0.707	0.718
Fuel Factor	Fo	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!	#DIV/0!
Gas Molecular Weight, Dry	Md	28.84	28.84	28.84	28.84	28.84	28.84
Gas Molecular Weight, Wet	Ms	28.38	28.38	28.38	25.84	25.66	25.78
Gas Velocity	vs - ft./sec.	95.95	90.82	95.74	149.06	143.63	137.85
Volumetric Air Flow, Actual	Qaw - ACFM	15,197	14,385	15,165	1,756	1,692	1,624
Volumetric Air Flow, Standard	Qsd - DSCFM	13,183	12,366	13,303	1,079	1,016	985

Air Control Techniques, PC: Emissions Calculations
Job # 1911

Enviva	Wiggins	Dryer 2	Dryer 2	Dryer 2
PARAMETER	**NOMENCLATURE**	19	20	21
Sampling Location		Dryer 2	Dryer 2	Dryer 2
Date		10/13/2013	10/13/2013	10/13/2013
Run Time	θ	60	60	60
Nozzle Diameter	inches	N/A	N/A	N/A
Stack Area	As - sq. ft.	12.05	12.05	12.05
Pitot Tube Coefficient	Cp	0.84	0.84	0.84
Meter Calibration Factor	Y	0.9828	0.9828	0.9828
Barometric Pressure, inches Hg	Bp - in Hg	29.90	29.90	29.90
Static Pressure	Pg - in. H_2O	-0.33	-0.33	-0.33
Stack Pressure	Ps	29.88	29.88	29.88
Meter Box Pressure Differential	Δ H - in. H_2O	1.00	1.00	1.00
Average Velocity Head	Δ p - in. H_2O	0.285	0.300	0.291
Volume of Gas Sampled	Vm - cu. ft.	31.888	33.650	30.796
Dry Gas Meter Temperature	Tm - °F	77.5	89.5	90.3
Stack Temperature	Ts - °F	174.3	154.9	171.8
Liquid Collected	grams	267.7	287.5	260
Carbon Dioxide	% CO_2	4.5	4	4
Oxygen	% O_2	16.5	17	17
Carbon Monoxide	% CO	0	0	0
Nitrogen	% N_2	79	79	79
Volume of Gas Sampled, Dry	Vmstd - cu. ft.	30.841	31.834	29.094
Volume of Water Vapor	Vwstd - cu. ft.	12.622	13.556	12.259
Moisture Content	% H_20	29.04	29.86	29.64
Saturation Moisture	% H_20	44.9	28.5	42.4
Dry Mole Fraction	Mfd	0.710	0.701	0.704
Fuel Factor	Fo	0.978	0.975	0.975
Gas Molecular Weight, Dry	Md	29.38	29.32	29.32
Gas Molecular Weight, Wet	Ms	26.08	25.94	25.96
Gas Velocity	vs - ft./sec.	34.58	35.02	34.97
Volumetric Air Flow, Actual	Qaw - ACFM	24,998	25,318	25,278
Volumetric Air Flow, Standard	Qsd - DSCFM	14,745	15,224	14,842

Method 1 - Air Control Techniques, P.C.

Date 10/10/2013

Client	Enviva
Job #	1911
Plant Name	Wiggins
State	Mississippi
City	Wiggins
Sampling Location	Dryer 1

No. of Ports Available		2
No. of Ports Used		1
Port Inside Diameter, Inches		4
Distance From Far Wall To Outside Of Port, Inches		46
Nipple Length And/Or Wall Thickness, Inches		2
Depth Of Stack Or Duct, Inches		44
Stack Or Duct Width (if rectangular), Inches		
Equiv. Diameter = 2DW/(D+W), Inches		44
Stack/Duct Area, Square Feet (☐ x R^2 or L x W)		10.6
	Upstream	Downstream
Distance to Flow Disturbances, Inches	290.4	235.2
Diameters	6.60	5.35

2 diff nipples probe marked to inside of port

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	4.4	1 7/8	3 7/8
2	14.6	6 3/8	8 3/8
3	29.6	13	15
4	70.4	31	33
5	85.4	37 5/8	39 5/8
6	95.6	42 1/8	44 1/8
7			
8			
9			
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21			
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23			
24			
25			

0.0000 - 0.0625 - 0
0.0625 - 0.1875 - 1/8
0.1875 - 0.3125 - 1/4
0.3125 - 0.4375 - 3/8
0.4375 - 0.5625 - 1/2
0.5625 - 0.6875 - 5/8
0.6875 - 0.8125 - 3/4
0.8125 - 0.9375 - 7/8
0.9375 - 1.0000 - 1

Note: If more than 8 and 2 diamteters and if duct dia. is less than 24" use 8 or 9 points.

	Diameters		
Velocity	UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.5	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.5	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	38.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

Dryer 1 Run 1

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	4
Plant	Wiggins	Date	10/10/2013
City/State	Wiggins, MS	Gauge ID	909033
Location	Dryer 1	Pitot ID	6Pext
		Thermocouple ID	TC25

Averages	1.283	146.3	
Point No.	Delta P In Water	Temp Deg F	Angle
A-1	1.200	144	7
2	1.100	145	2
3	1.050	145	4
4	1.400	146	-3
B-1	1.400	147	0
2	1.500	147	-4
B-1	1.100	147	6
2	1.300	147	3
3	1.200	147	2
4	1.300	147	0
5	1.300	147	-4
6	1.600	147	-3
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Oxygen %	**19**
Carbon Dioxide %	**2**
Moisture %	**16.07**
Stack Area sq.in.	**1520.530867**
Pbar	**29.90**
Static Pressure	**-0.75**
Pitot Coef.	**0.84**
Start Time	**1732**
Stop Time	**1738**

Absolute Gas Pressure inches water	**Ps =**	**29.84**
Dry Mole Fraction of Gas	**Mfd =**	**0.83929**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**29.08**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**27.30**
Average Gas Velocity ft/sec	**vs =**	**70.16**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**32404**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**44448**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**2316527**

LKCH		
Pre	3-6	good
Post	5-4	good

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	5
Plant	Wiggins	Date	10/11/2013
City/State	Wiggins, MS	Gauge ID	909033
Location	Dryer 1	Pitot ID	6Pext
		Thermocouple ID	TC25

Averages	1.172	150.1
Point No.	Delta P In Water	Temp Deg F
A-1	0.900	145
2	0.990	147
3	1.000	148
4	1.400	150
B-1	1.400	151
2	0.820	150
B-1	1.200	151
2	1.300	151
3	1.300	152
4	1.300	152
5	1.350	152
6	1.200	152
0		
0		
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8		
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Oxygen %	17
Carbon Dioxide %	4
Moisture %	12.79
Stack Area sq.in.	1520.530867
Pbar	29.80
Static Pressure	-0.71
Pitot Coef.	0.84
Start Time	840
Stop Time	850

Absolute Gas Pressure inches water	**Ps =**	**29.75**
Dry Mole Fraction of Gas	**Mfd =**	**0.87209**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**29.32**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**27.87**
Average Gas Velocity ft/sec	**vs =**	**66.68**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**31700**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**42243**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**2180938**

LKCH		
Pre	3-4	good
Post	5-3	good

Dryer 1 Run 3

Air Control Techniques EPA Method 2 Data Sheet	
Client	Enviva
Plant	Wiggins
City/State	Wiggins, MS
Location	Dryer 1

ACT Job Number	1911
ACT Run Number	6
Date	10/11/2013
Gauge ID	909033
Pitot ID	6Pext
Thermocouple ID	TC25

Averages	1.185	147.3
Point No.	Delta P In Water	Temp Deg F
A-1	1.050	148
2	1.050	147
3	1.050	146
4	1.500	147
B-1	1.500	147
2	0.940	147
B-1	1.100	147
2	1.200	147
3	1.200	147
4	1.300	148
5	1.300	148
6	1.100	148
0		
0		
0		
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8		
0		
0		

Oxygen %	**17**
Carbon Dioxide %	**4**
Moisture %	**15.23**
Stack Area sq.in.	**1520.530867**
Pbar	**29.80**
Static Pressure	**-0.71**
Pitot Coef.	**0.84**
Start Time	**1112**
Stop Time	**1115**

Absolute Gas Pressure inches water	**Ps =**	**29.75**
Dry Mole Fraction of Gas	**Mfd =**	**0.84774**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**29.32**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**27.60**
Average Gas Velocity ft/sec	**vs =**	**67.23**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**31215**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**42593**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**2209261**

LKCH		
Pre	3-4	good
Post	5-3	good

Method 1 - Air Control Techniques, P.C.

Date 10/13/2013

Client	Enviva
Job #	1911
Plant Name	Wiggins
State	Mississippi
City	Wiggins
Sampling Location	Dryer 2

No. of Ports Available	2
No. of Ports Used	1
Port Inside Diameter, Inches	4
Distance From Far Wall To Outside Of Port, Inches	55.5
Nipple Length And/Or Wall Thickness, Inches	8.5
Depth Of Stack Or Duct, Inches	47
Stack Or Duct Width (if rectangular), Inches	
Equiv. Diameter = 2DW/(D+W), Inches	47
Stack/Duct Area, Square Feet	12.05
(☐ x R^2 or L x W)	

	Upstream	Downstream
Distance to Flow Disturbances, Inches	325.2	674.4
Diameters	6.92	14.35

2 diff nipples probe marked to inside of port

Point Location Data

	% of Duct	Distance From	Distance From
Point	Depth	Inside Wall	Outside of Port
1	4.4	2 1/8	10 5/8
2	14.6	6 7/8	15 3/8
3	29.6	13 7/8	22 3/8
4	70.4	33 1/8	41 5/8
5	85.4	40 1/8	48 5/8
6	95.6	44 7/8	53 3/8
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

0.0000 - 0.0625 - 0
0.0625 - 0.1875 - 1/8
0.1875 - 0.3125 - 1/4
0.3125 - 0.4375 - 3/8
0.4375 - 0.5625 - 1/2
0.5625 - 0.6875 - 5/8
0.6875 - 0.8125 - 3/4
0.8125 - 0.9375 - 7/8
0.9375 - 1.0000 - 1

Note: If more than 8 and 2 diameters and if duct dia is less than 24" use 8 or 9 points

	Diameters		
Velocity	UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	**8**	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	**6.3**	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	**18.8**	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	**31.3**	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	**43.8**	38.9	35.0	31.8	29.2
5				90.0	75	64.3	**56.3**	50	45.0	40.9	37.5
6					91.7	78.6	**68.8**	61.1	55.0	50	45.8
7						92.9	**81.3**	72.2	65.0	59.1	54.2
8							**93.8**	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

Dryer 2 Run 1

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	19
Plant	Wiggins	Date	10/13/2013
City/State	Wiggins, MS	Gauge ID	909033
Location	Dryer 2	Pitot ID	6Pext
		Thermocouple ID	TC25

Averages	**0.285**	**174.3**	
	Delta P	**Temp**	
Point No.	**In Water**	**Deg F**	**Angle**
A-1	0.200	168	5
2	0.280	173	2
3	0.330	175	0
4	0.330	175	5
5	0.300	174	0
6	0.230	170	0
B-1	0.210	174	6
2	0.360	176	3
3	0.350	177	0
4	0.330	177	0
5	0.300	177	-4
6	0.230	175	4
0			
0			
0			
0			
0			
2			
3			
4			
5			
6			
7			
8			
D-1			
2			
3			
4			
5			
6			
7			
8			
E-1			
2			
3			
4			
5			
6			
7			
8			

Oxygen %	**16.5**
Carbon Dioxide %	**4.5**
Moisture %	**29.04**
Stack Area sq.in.	**1734.94**
Pbar	**29.90**
Static Pressure	**-0.33**
Pitot Coef.	**0.84**
Start Time	**843**
Stop Time	**859**

Absolute Gas Pressure inches water	**Ps =**	**29.88**
Dry Mole Fraction of Gas	**Mfd =**	**0.70959**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**29.38**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**26.08**
Average Gas Velocity ft/sec	**vs =**	**34.58**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**14745**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**24998**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**1246788**

LKCH		
Pre	6-5	good
Post	5-3	good

Dryer 2 Run 2

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	20
Plant	Wiggins	Date	10/13/13
City/State	Wiggins, MS	Gauge ID	909033
Location	Dryer 2	Pitot ID	6Pext
		Thermocouple ID	TC25

Averages	**0.300**	**154.9**
Point No.	**Delta P In Water**	**Temp Deg F**
A-1	0.200	167
2	0.800	167
3	0.310	167
4	0.330	168
5	0.340	169
6	0.200	167
B-1	0.220	170
2	0.310	170
3	0.310	2
4	0.290	170
5	0.260	171
6	0.190	171
0		
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4		
5		
6		
7		
8		
D-1		
2		
2		
4		
5		
6		
7		
8		
E-1		
2		
3		
4		
5		
6		
7		
8		

Oxygen %	**17**
Carbon Dioxide %	**4**
Moisture %	**29.86**
Stack Area sq.in.	**1734.94**
Pbar	**29.90**
Static Pressure	**-0.33**
Pitot Coef.	**0.84**
Start Time	**1047**
Stop Time	**1051**

Absolute Gas Pressure inches water	**Ps =**	**29.88**
Dry Mole Fraction of Gas	**Mfd =**	**0.70135**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**29.32**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**25.94**
Average Gas Velocity ft/sec	**vs =**	**35.02**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**15224**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**25318**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**1302430**

LKCH		
Pre	6-5	good
Post	5-3	good

Dryer 2 Run 3

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	21
Plant	Wiggins	Date	10/13/13
City/State	Wiggins, MS	Gauge ID	909033
Location	Dryer 2	Pitot ID	6Pext
		Thermocouple ID	TC25

Averages	**0.291**	**171.8**
	Delta P	**Temp**
Point No.	**In Water**	**Deg F**
A-1	0.220	169
2	0.250	172
3	0.320	173
4	0.320	174
5	0.330	174
6	0.260	168
B-1	0.240	168
2	0.310	171
3	0.340	172
4	0.330	172
5	0.310	173
6	0.280	175
0		
0		
0		
0		
0		
2		
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4		
5		
6		
7		
8		
D-1		
2		
2		
4		
5		
6		
7		
8		
E-1		
2		
3		
4		
5		
6		
7		
8		

Oxygen %	**17**
Carbon Dioxide %	**4**
Moisture %	**29.64**
Stack Area sq.in.	**1734.94**
Pbar	**29.90**
Static Pressure	**-0.33**
Pitot Coef.	**0.84**
Start Time	**1208**
Stop Time	**1215**

Absolute Gas Pressure inches water	**Ps =**	**29.88**
Dry Mole Fraction of Gas	**Mfd =**	**0.70356**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**29.32**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**25.96**
Average Gas Velocity ft/sec	**vs =**	**34.97**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**14842**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**25278**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**1265741**

LKCH		
Pre	3-4	good
Post	5-3	good

Method 1 - Air Control Techniques, P.C.

Date 10/10/2013

Client	Enviva
Job #	1911
Plant Name	Wiggins
State	Mississippi
City	Wiggins
Sampling Location	Green Hammermill

No. of Ports Available		2
No. of Ports Used		1
Port Inside Diameter, Inches		3
Distance From Far Wall To Outside Of Port, Inches		30
Nipple Length And/Or Wall Thickness, Inches		3
Depth Of Stack Or Duct, Inches		27
Stack Or Duct Width (if rectangular), Inches		
Equiv. Diameter = 2DW/(D+W), Inches		27
Stack/Duct Area, Square Feet		3.9761
(□ x R^2 or L x W)		
	Upstream	Downstream
Distance to Flow Disturbances, Inches	348	60
Diameters	12.89	2.22

2 diff nipples probe marked to inside of port

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	4.4	1 2/8	4 2/8
2	14.6	4	7
3	29.6	8	11
4	70.4	19	22
5	85.4	23	26
6	95.6	25 6/8	28 6/8
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19			
20			
21			
22			
23			
24			
25			

Note: If more than 8 and 2 diamteters and if duct dia. is less than 24" use 8 or 9 points

Diameters			
Velocity	UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	75.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	38.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

0.0000 - 0.0625 - 0
0.0625 - 0.1875 - 1/8
0.1875 - 0.3125 - 1/4
0.3125 - 0.4375 - 3/8
0.4375 - 0.5625 - 1/2
0.5625 - 0.6875 - 5/8
0.6875 - 0.8125 - 3/4
0.8125 - 0.9375 - 7/8
0.9375 - 1.0000 - 1

Air Control Techniques EPA Method 2 Data Sheet	
Client	Enviva
Plant	Wiggins
City/State	Wiggins, MS
Location	Green Hammermill

ACT Job Number	1911
ACT Run Number	1
Date	10/10/2013
Gauge ID	909033
Pitot ID	4Pext
Thermocouple ID	TC25

Averages	**3.961**	**70.8**	
	Delta P	**Temp**	
Point No.	**In Water**	**Deg F**	**Angle**
A-1	2.800	71	0
2	3.900	71	1
3	4.400	71	1
4	3.800	71	2
5	3.800	70	4
6	3.000	70	3
B-1	4.200	72	0
2	4.500	71	0
3	4.600	71	0
4	4.600	70	2
5	4.400	71	4
6	3.800	70	3
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2			
3			
4			
5			
6			
7			
8			
D-1			
2			
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4			
5			
6			
7			
8			
E-1			
2			
3			
4			
5			
6			
7			
8			
0			
0			

Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**3.41**
Stack Area sq.in.	**572.5552696**
Pbar	**29.90**
Static Pressure	**-20.8**
Pitot Coef.	**0.84**
Start Time	**855**
Stop Time	**908**

Absolute Gas Pressure inches water	**Ps =**	**28.37**
Dry Mole Fraction of Gas	**Mfd =**	**0.96585**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**28.47**
Average Gas Velocity ft/sec	**vs =**	**115.87**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**25184**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**27642**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**1564487**

LKCH		
Pre	3-4	good
Post	5-3	good

GHM Run 2

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	2
Plant	Wiggins	Date	10/10/2013
City/State	Wiggins, MS	Gauge ID	909033
Location	Green Hammermill	Pitot ID	4Pext
		Thermocouple ID	TC25

Averages	**3.854**	**70.6**
	Delta P In Water	**Temp Deg F**
Point No.		
A-1	2.700	71
2	3.800	71
3	4.400	71
4	3.800	70
5	3.300	70
6	3.100	68
B-1	3.900	72
2	4.200	70
3	4.400	70
4	4.400	70
5	4.300	71
6	4.200	73
0		
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0		
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2		
3		
4		
5		
6		
7		
8		
D-1		
2		
3		
4		
5		
6		
7		
8		
E-1		
2		
3		
4		
5		
6		
7		
8		
0		
0		

Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**3.62**
Stack Area sq.in.	**572.5552696**
Pbar	**29.90**
Static Pressure	**-20.8**
Pitot Coef.	**0.84**
Start Time	**1026**
Stop Time	**1030**

Absolute Gas Pressure inches water	**Ps =**	**28.37**
Dry Mole Fraction of Gas	**Mfd =**	**0.96382**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**28.44**
Average Gas Velocity ft/sec	**vs =**	**114.32**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**24803**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**27273**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**1544072**

LKCH		
Pre	3-4	good
Post	5-3	good

GHM Run 3

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	3
Plant	Wiggins	Date	10/10/2013
City/State	Wiggins, MS	Gauge ID	909033
Location	Green Hammermill	Pitot ID	4Pext
		Thermocouple ID	TC25

Averages	**3.847**	**70.9**
	Delta P	**Temp**
Point No.	**In Water**	**Deg F**
A-1	2.700	71
2	3.600	71
3	4.400	71
4	3.700	71
5	3.200	71
6	3.300	69
B-1	4.000	72
2	4.300	71
3	4.300	71
4	4.300	71
5	4.300	71
6	4.300	71
0		
0		
0		
0		
0		
2		
3		
4		
5		
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7		
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D-1		
2		
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4		
5		
6		
7		
8		
E-1		
2		
3		
4		
5		
6		
7		
8		
0		
0		

Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**2.37**
Stack Area sq.in.	**572.5552696**
Pbar	**29.90**
Static Pressure	**-20.8**
Pitot Coef.	**0.84**
Start Time	**1141**
Stop Time	**1144**

Absolute Gas Pressure inches water	**Ps =**	**28.37**
Dry Mole Fraction of Gas	**Mfd =**	**0.97626**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**28.58**
Average Gas Velocity ft/sec	**vs =**	**113.97**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**25031**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**27189**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**1538379**

LKCH		
Pre	3-4	good
Post	6-4	good

Method 1 - Air Control Techniques, P.C.

Date 10/12/2013

Client	Enviva
Job #	1911
Plant Name	Wiggins
State	Mississippi
City	Wiggins
Sampling Location	Pellet Mill 2 Aspiration

No. of Ports Available		1
No. of Ports Used		1
Port Inside Diameter, Inches		1
Distance From Far Wall To Outside Of Port, Inches		6
Nipple Length And/Or Wall Thickness, Inches		0
Depth Of Stack Or Duct, Inches		6
Stack Or Duct Width (if rectangular), Inches		
Equiv. Diameter = 2DW/(D+W), Inches		6
Stack/Duct Area, Square Feet (☐ x R^2 or L x W)		0.20
	Upstream	Downstream
Distance to Flow Disturbances, Inches	19	39
Diameters	3.17	6.50

Note: If more than 8 and 2 diameters and if duct dia is less than 24" use 8 or 9 points.

Diameters			
Velocity	UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	6.7	3/8	1
2	25.0	1 4/8	1 4/8
3	75.0	4 4/8	4 4/8
4	93.3	5 5/8	5
5			
6			
7			
8			
9			
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12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

Used 8 points becaus
of diameter otherwise
first 3 points are
at 1" from wall

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	51.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	30	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

0.0000 - 0.0625 - 0 0.5625 - 0.6875 - 5/8
0.0625 - 0.1875 - 1/8 0.6875 - 0.8125 - 3/4
0.1875 - 0.3125 - 1/4 0.8125 - 0.9375 - 7/8
0.3125 - 0.4375 - 3/8 0.9375 - 1.0000 - 1
0.4375 - 0.5625 - 1/2

PMA Run 1

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	16
Plant	Wiggins	Date	10/12/2013
City/State	Wiggins, MS	Gauge ID	909033
Location	Pellet Mill 2 Aspiration	Pitot ID	4Pext
		Thermocouple ID	TC25

Averages	**5.359**	**148.6**	
	Delta P	**Temp**	
Point No.	**In Water**	**Deg F**	**Angle**
A-1	5.400	149	0
2	5.700	148	0
3	5.100	149	2
4	5.000	149	1
B-1	5.700	149	0
2	5.600	148	1
3	5.400	149	2
4	5.000	148	0
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Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**27.67**
Stack Area sq.in.	**28.2743343**
Pbar	**29.85**
Static Pressure	**-7.5**
Pitot Coef.	**0.84**
Start Time	**1445**
Stop Time	**1448**

Absolute Gas Pressure inches water	**Ps =**	**29.30**
Dry Mole Fraction of Gas	**Mfd =**	**0.72332**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**25.84**
Average Gas Velocity ft/sec	**vs =**	**149.06**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**1079**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**1756**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**89506.7**

LKCH		
Pre	4-3	good
Post	5-5	good

PMA Run 2

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	17
Plant	Wiggins	Date	10/12/13
City/State	Wiggins, MS	Gauge ID	909033
Location	Pellet Mill 2 Aspiration	Pitot ID	4Pext
		Thermocouple ID	TC25

Averages	4.944	148.3
	Delta P	Temp
Point No.	In Water	Deg F
A-1	3.700	147
2	5.500	149
3	5.400	148
4	5.200	148
B-1	5.600	148
2	4.800	148
3	4.900	149
4	4.600	149
0		
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0		
8		

Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**29.33**
Stack Area sq.in.	**28.2743**
Pbar	**29.85**
Static Pressure	**-7.5**
Pitot Coef.	**0.84**
Start Time	**1611**
Stop Time	**1615**

Absolute Gas Pressure inches water	**Ps =**	**29.30**
Dry Mole Fraction of Gas	**Mfd =**	**0.7067**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**25.66**
Average Gas Velocity ft/sec	**vs =**	**143.63**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**1016**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**1692**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**86302.3**

LKCH		
Pre	4-3	good
Post	5-5	good

PMA Run 3

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	18
Plant	Wiggins	Date	10/12/13
City/State	Wiggins, MS	Gauge ID	909033
Location	Pellet Mill 2 Aspiration	Pitot ID	4Pext
		Thermocouple ID	TC25

Averages	**4.547**	**152.1**
	Delta P	**Temp**
Point No.	**In Water**	**Deg F**
A-1	4.400	152
2	4.600	153
3	4.600	152
4	4.300	152
B-1	4.800	152
2	5.000	152
3	4.400	153
4	4.300	151
0		
0		
0		
0		
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0		
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0		
0		
8		

Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**28.19**
Stack Area sq.in.	**28.2743**
Pbar	**29.85**
Static Pressure	**-7.5**
Pitot Coef.	**0.84**
Start Time	**1739**
Stop Time	**1742**

Absolute Gas Pressure inches water	**Ps =**	**29.30**
Dry Mole Fraction of Gas	**Mfd =**	**0.71813**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**25.78**
Average Gas Velocity ft/sec	**vs =**	**137.85**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**985**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**1624**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**82302.1**

LKCH		
Pre	4-3	good
Post	5-5	good

Method 1 - Air Control Techniques, P.C.

Date 10/11/2013

Client	Enviva
Job #	1911
Plant Name	Wiggins
State	Mississippi
City	Wiggins
Sampling Location	Dry Hammermill 2

No. of Ports Available	2
No. of Ports Used	2
Port Inside Diameter, Inches	0
Distance From Far Wall To Outside Of Port, Inches	22
Nipple Length And/Or Wall Thickness, Inches	0
Depth Of Stack Or Duct, Inches	22
Stack Or Duct Width (if rectangular), Inches	
Equiv. Diameter = 2DW/(D+W), Inches	22
Stack/Duct Area, Square Feet (☐ x R^2 or L x W)	2.6

	Upstream	Downstream
Distance to Flow Disturbances, inches	52	8
Diameters	2.36	0.36

2 diff nipples probe marked to inside of port

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port	
1	3.2	6/8	6/8	1
2	10.6	2 3/8	2 3/8	
3	19.4	4 2/8	4 2/8	
4	32.3	7 1/8	7 1/8	
5	67.7	14 7/8	14 7/8	
6	80.6	17 6/8	17 6/8	
7	89.5	19 6/8	19 6/8	
8	96.8	21 2/8	21 2/8	21
9				
10				
11				
12				
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				

0.0000 - 0.0625 - 0 0.5625 - 0.6875 - 5/8
0.0625 - 0.1875 - 1/8 0.6875 - 0.8125 - 3/4
0.1875 - 0.3125 - 1/4 0.8125 - 0.9375 - 7/8
0.3125 - 0.4375 - 3/8 0.9375 - 1.0000 - 1
0.4375 - 0.5625 - 1/2

Note: If more than 8 and 2 diameters and if duct dia. is less than 24" use 8 or 9 points.

	Diameters		
Velocity	UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	10
Plant	Wiggins	Date	10/11/2013
City/State	Wiggins, MS	Gauge ID	909033
Location	Dry Hammermill 2	Pitot ID	4Pext
		Thermocouple ID	TC25

Averages	**2.601**	**122.4**	
	Delta P	**Temp**	
Point No.	**In Water**	**Deg F**	**Angle**
A-1	2.400	121	0
2	2.600	122	1
3	2.550	122	0
4	2.400	123	0
5	2.600	123	2
6	3.000	122	0
7	3.000	121	0
8	3.300	120	0
B-1	2.200	122	2
2	2.200	122	0
3	2.300	123	1
4	2.300	123	0
5	2.800	123	2
6	2.700	123	0
7	2.800	125	1
8	2.600	124	1
0			
2			
3			
4			
5			
6			
7			
8			
D-1			
2			
3			
4			
5			
6			
7			
8			
E-1			
2			
3			
4			
5			
6			
7			
8			
0			
0			

Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**4.25**
Stack Area sq.in.	**380.13272**
Pbar	**29.80**
Static Pressure	**1.4**
Pitot Coef.	**0.84**
Start Time	**1745**
Stop Time	**1758**

Absolute Gas Pressure inches water	**Ps =**	**29.90**
Dry Mole Fraction of Gas	**Mfd =**	**0.95746**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**28.38**
Average Gas Velocity ft/sec	**vs =**	**95.95**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**13183**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**15197**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**826137**

LKCH		
Pre	4-3	good
Post	5-5	good

DHM2 Run 2

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	11
Plant	Wiggins	Date	10/11/2001
City/State	Wiggins, MS	Gauge ID	909033
Location	Dry Hammermill 2	Pitot ID	4Pext
		Thermocouple ID	TC25

Averages	**2.308**	**128.2**
	Delta P	**Temp**
Point No.	**In Water**	**Deg F**
A-1	2.200	124
2	2.150	127
3	2.000	129
4	2.100	129
5	2.000	129
6	2.600	130
7	2.600	130
8	2.600	129
B-1	1.800	129
2	2.200	127
3	2.200	128
4	2.300	128
5	2.600	128
6	2.500	128
7	2.600	128
8	2.600	128
0		
2		
3		
4		
5		
6		
7		
8		
D-1		
2		
3		
4		
5		
6		
7		
8		
E-1		
2		
3		
4		
5		
6		
7		
8		
0		
0		

Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**4.18**
Stack Area sq.in.	**380.132717**
Pbar	**29.80**
Static Pressure	**1.4**
Pitot Coef.	**0.84**
Start Time	**1917**
Stop Time	**1923**

Absolute Gas Pressure inches water	**Ps =**	**29.90**
Dry Mole Fraction of Gas	**Mfd =**	**0.95816**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**28.38**
Average Gas Velocity ft/sec	**vs =**	**90.82**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**12366**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**14385**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**774351**

LKCH		
Pre	4-3	good
Post	5-5	good

DHM2 Run 3

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	12
Plant	Wiggins	Date	10/11/2013
City/State	Wiggins, MS	Gauge ID	909033
Location	Dry Hammermill 2	Pitot ID	4Pext
		Thermocouple ID	TC25

Averages	**2.618**	**116.4**
Point No.	**Delta P In Water**	**Temp Deg F**
A-1	2.700	114
2	2.700	116
3	2.700	116
4	2.500	117
5	2.800	117
6	2.800	118
7	3.000	117
8	2.900	116
B-1	3.000	117
2	2.900	116
3	2.600	117
4	2.500	116
5	2.300	116
6	2.300	116
7	2.100	116
8	2.200	117
0		
2		
3		
4		
5		
6		
7		
8		
D-1		
2		
3		
4		
5		
6		
7		
8		
E-1		
2		
3		
4		
5		
6		
7		
8		
0		
0		

Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**4.18**
Stack Area sq.in.	**380.1327167**
Pbar	**29.80**
Static Pressure	**1.4**
Pitot Coef.	**0.84**
Start Time	**2038**
Stop Time	**2043**

Absolute Gas Pressure inches water	**Ps =**	**29.90**
Dry Mole Fraction of Gas	**Mfd =**	**0.95816**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**28.38**
Average Gas Velocity ft/sec	**vs =**	**95.74**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**13303**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**15165**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**833051**

LKCH		
Pre	4-3	good
Post	5-5	good

Air Control Techniques, PC: Emissions Calculations

Enviva, Wiggins, MS	Job 1911	Pellet Mill 2 Cooler 7	Pellet Mill 2 Cooler 8	Pellet Mill 2 Cooler 9	Pellet Mill 1 Cooler 13	Pellet Mill 1 Cooler 14	Pellet Mill 1 Cooler 15
PARAMETER	**NOMENCLATURE**						
Sampling Location		Pellet Mill 2 Cooler	Pellet Mill 2 Cooler	Pellet Mill 2 Cooler	Pellet Mill 1 Cooler	Pellet Mill 1 Cooler	Pellet Mill 1 Cooler
Date		10/11/2013	10/11/2013	10/11/2013	10/12/2013	10/12/2013	10/12/2013
Run Time	θ	60	60	60	60	60	60
Nozzle Diameter	inches	N/A	N/A	N/A	N/A	N/A	N/A
Stack Area	As - sq. ft.	2.4	2.4	2.4	5.81	5.8	5.8
Pitot Tube Coefficient	Cp	0.84	0.84	0.84	0.84	0.84	0.84
Meter Calibration Factor	Y	0.9828	0.9828	0.9828	0.9828	0.9828	0.9828
Barometric Pressure, inches Hg	Bp - in Hg	29.80	29.80	29.80	29.90	29.90	29.90
Static Pressure	Pg - in. H_2O	-1.2	-1.2	-1.2	-0.4	-0.4	-0.4
Stack Pressure	Ps	29.71	29.71	29.71	29.87	29.87	29.87
Meter Box Pressure Differential	Δ H - in. H_2O	1.00	1.00	1	1.00	1.00	1.00
Average Velocity Head	Δ p - in. H_2O	2.293	2.102	2.108	0.654	0.644	0.634
Volume of Gas Sampled	Vm - cu. ft.	34.310	34.423	33.681	33.818	35.845	34.567
Dry Gas Meter Temperature	Tm - °F	87.3	89.3	83.8	71.8	82.5	89.0
Stack Temperature	Ts - °F	148.9	143.2	152.3	82.3	94.8	97.7
Liquid Collected	Grams	35.2	33.5	32.4	24.3	27.8	19.9
Carbon Dioxide	% CO_2	0	0	0	0	0	0
Oxygen	% O_2	20.9	20.9	20.9	20.9	20.9	20.9
Carbon Monoxide	% CO	0	0	0	0	0	0
Nitrogen	% N_2	79.1	79.1	79.1	79.1	79.1	79.1
Volume of Gas Sampled, Dry	Vmstd - cu. ft.	32.483	32.472	32.093	33.061	34.348	32.731
Volume of Water Vapor	Vwstd - cu. ft.	1.660	1.580	1.528	1.146	1.311	0.938
Moisture Content	% H_20	4.86	4.64	4.54	3.35	3.68	2.79
Saturation Moisture	% H_20	24.8	21.4	26.9	3.7	5.5	6.0
Dry Mole Fraction	Mfd	0.951	0.954	0.955	0.967	0.963	0.972
Gas Molecular Weight, Dry	Md	28.84	28.84	28.84	28.84	28.84	28.84
Gas Molecular Weight, Wet	Ms	28.31	28.33	28.34	28.47	28.44	28.53
Gas Velocity	vs - ft./sec.	92.52	88.13	88.91	46.36	46.58	46.26
Volumetric Air Flow, Actual	Qaw - ACFM	13,352	12,718	12,831	16,168	16,246	16,134
Volumetric Air Flow, Standard	Qsd - DSCFM	10,938	10,543	10,488	15,189	14,870	14,825

Method 1 - Air Control Techniques, P.C.

Date 10/12/2013

Client	Enviva
Job #	1911
Plant Name	Wiggins
State	Mississippi
City	Wiggins
Sampling Location	Pellet Mill 1 Cooler

No. of Ports Available		6
No. of Ports Used		4
Port Inside Diameter, Inches		3
Distance From Far Wall To Outside Of Port, Inches		30.5
Nipple Length And/Or Wall Thickness, Inches		3.5
Depth Of Stack Or Duct, Inches		27
Stack Or Duct Width (if rectangular), Inches		31
Equiv. Diameter = 2DW/(D+W), Inches		28.86207
Stack/Duct Area, Square Feet (☐ x R^2 or L x W)		5.8
	Upstream	Downstream
Distance to Flow Disturbances, Inches	72	48
Diameters	2.49	1.66

2 diff nipples probe marked to inside of port

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	12.5	3 3/8	6 7/8
2	37.5	10 1/8	13 5/8
3	62.5	16 7/8	20 3/8
4	87.5	23 5/8	27 1/8
5			
6			
7			
8			
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

0.0000 - 0.0625 - 0 0.5625 - 0.6875 - 5/8
0.0625 - 0.1875 - 1/8 0.6875 - 0.8125 - 3/4
0.1875 - 0.3125 - 1/4 0.8125 - 0.9375 - 7/8
0.3125 - 0.4375 - 3/8 0.9375 - 1.0000 - 1
0.4375 - 0.5625 - 1/2

Note: If more than 8 and 2 diameters and if duct dia. is less than 24" use 8 or 9 points

Diameters

Velocity	UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Location of Points in Circular Stacks or Ducts

2
2

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

Pellet Mill 1 Run 1

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	13
Plant	Wiggins	Date	10/12/2013
City/State	Mississippi	Gauge ID	909033
Location	Pellet Mill 1 Cooler	Pitot ID	4Pext
		Thermocouple ID	4Pext

Averages	0.654	82.3	
	Delta P	Temp	
Point No.	In Water	Deg F	Angle
A-1	0.380	78	0
2	0.340	79	0
3	0.330	79	0
4	0.340	77	2
B-1	0.680	82	8
2	0.650	81	2
3	0.540	82	-5
4	0.570	82	3
C-1	0.680	84	-2
2	0.700	84	-3
3	0.690	84	0
4	0.710	84	3
D-1	1.050	85	0
2	1.050	85	-2
3	1.050	85	-1
4	1.100	86	2
0			
0			
0			
0			
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Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**3.35**
Stack Area sq.in.	**837**
Pbar	**29.90**
Static Pressure	**-0.4**
Pitot Coef.	**0.84**
Start Time	**830**
Stop Time	**847**

Absolute Gas Pressure inches water	**Ps =**	**29.87**
Dry Mole Fraction of Gas	**Mfd =**	**0.96651**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**28.47**
Average Gas Velocity ft/sec	**vs =**	**46.36**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**15189**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**16168**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**942901**

LKCH		
Pre	3-4	good
Post	5-3	good

Pellet Mill 1 Run 2

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	14
Plant	Wiggins	Date	10/12/2013
City/State	Mississippi	Gauge ID	909033
Location	Pellet Mill 1 Cooler	Pitot ID	4PEXT
		Thermocouple ID	4PEXT

Averages	**0.644**	**94.8**
	Delta P	**Temp**
Point No.	**In Water**	**Deg F**
A-1	0.380	92
2	0.400	93
3	0.380	93
4	0.370	93
B-1	0.530	94
2	0.550	95
3	0.480	95
4	0.500	95
C-1	0.670	95
2	0.690	95
3	0.660	96
4	0.680	96
D-1	1.300	96
2	1.050	96
3	1.050	96
4	1.050	96
0		
0		
0		
0		
0		
0		
0		
0		
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Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**3.68**
Stack Area sq.in.	**837**
Pbar	**29.90**
Static Pressure	**-0.4**
Pitot Coef.	**0.84**
Start Time	**1009**
Stop Time	**1015**

Absolute Gas Pressure inches water	**Ps =**	**29.87**
Dry Mole Fraction of Gas	**Mfd =**	**0.96324**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**28.44**
Average Gas Velocity ft/sec	**vs =**	**46.58**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**14870**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**16246**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**926248**

LKCH		
Pre	3-4	good
Post	5-3	good

Pellet Mill 1 Run 3

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	15
Plant	Wiggins	Date	10/12/2013
City/State	Mississippi	Gauge ID	909033
Location	Pellet Mill 1 Cooler	Pitot ID	4Pext
		Thermocouple ID	4Pext

Averages	0.634	97.7
Point No.	Delta P In Water	Temp Deg F
A-1	0.340	94
2	0.290	96
3	0.280	97
4	0.330	97
B-1	0.530	98
2	0.540	98
3	0.500	98
4	0.480	98
C-1	0.730	98
2	0.740	98
3	0.670	98
4	0.670	99
D-1	1.400	98
2	1.050	99
3	1.000	99
4	1.200	98
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Oxygen %	20.9
Carbon Dioxide %	0
Moisture %	2.79
Stack Area sq.in.	837
Pbar	29.90
Static Pressure	-0.4
Pitot Coef.	0.84
Start Time	1125
Stop Time	'1134

Absolute Gas Pressure inches water	Ps =	29.87
Dry Mole Fraction of Gas	Mfd =	0.97213
Dry Molecular Weight of Gas lb/lb Mole	Md =	28.84
Wet Molecular Weight of Gas lb/lb Mole	Ms =	28.53
Average Gas Velocity ft/sec	vs =	46.26
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	Qsd =	14825
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	Qaw =	16134
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	WSCFH =	915021

LKCH		
Pre	3-4	good
Post	5-3	good

Method 1 - Air Control Techniques, P.C.

Date 10/11/2013

Client	Enviva
Job #	1911
Plant Name	Wiggins
State	Mississippi
City	Wiggins
Sampling Location	Pellet Mill 2 Cooler

No. of Ports Available		2
No. of Ports Used		2
Port Inside Diameter, Inches		3
Distance From Far Wall To Outside Of Port, Inches		21
Nipple Length And/Or Wall Thickness, Inches		0
Depth Of Stack Or Duct, Inches		21
Stack Or Duct Width (if rectangular), Inches		
Equiv. Diameter = 2DW/(D+W), Inches		21
Stack/Duct Area, Square Feet		2.4
(□ x R^2 or L x W)		
	Upstream	Downstream
Distance to Flow Disturbances, inches	51	9.5
Diameters	2.43	0.45

2 diff nipples probe marked to inside of port

Point Location Data

Point	% of Duct Depth	Distance From Inside Wall	Distance From Outside of Port
1	3.2	0.672	1
2	10.6	2.226	2 1/4
3	19.4	4.074	4 1/8
4	32.3	6.783	6 3/4
5	67.7	14.217	14 1/4
6	80.6	16.926	16 7/8
7	89.5	18.795	18 3/4
8	96.8	20.328	20
9			
10			
11			
12			
13			
14			
15			
16			
17			
18			
19			
20			
21			
22			
23			
24			
25			

0.0000 - 0.0625 - 0 0.5625 - 0.6875 - 5/8
0.0625 - 0.1875 - 1/8 0.6875 - 0.8125 - 3/4
0.1875 - 0.3125 - 1/4 0.8125 - 0.9375 - 7/8
0.3125 - 0.4375 - 3/8 0.9375 - 1.0000 - 1
0.4375 - 0.5625 - 1/2

Note: If more than 8 and 2 diamteters and if duct dia. is less than 24" use 8 or 9 points

Diameters			
Velocity	UP	Down	Particulate
12	8	2	12
12	7	1.75	12
12	6	1.5	16
16	5	1.25	20
16	2	0.5	24 or 25

Location of Points in Circular Stacks or Ducts

	4	6	8	10	12	14	16	18	20	22	24
1	6.7	4.4	3.2	2.6	2.1	1.8	1.6	1.4	1.3	1.1	1.1
2	25.0	14.6	10.6	8.2	6.7	5.7	4.9	4.4	3.9	3.5	3.2
3	75.0	29.6	19.4	14.6	11.8	9.9	8.5	7.5	6.7	6.0	5.5
4	93.3	70.4	32.3	22.6	17.7	14.6	12.5	10.9	9.7	8.7	7.9
5		85.4	67.7	34.2	25.0	20.1	16.9	14.6	12.9	11.6	10.5
6		95.6	80.6	65.8	35.6	26.9	22.0	18.8	16.5	14.6	13.2
7			89.5	77.4	64.4	36.6	28.3	23.6	20.4	18.0	16.1
8			96.8	85.4	75.0	63.4	37.5	29.6	25.0	21.8	19.4
9				91.8	82.3	73.1	62.5	38.2	30.6	26.2	23.0
10				97.4	88.2	79.9	71.7	61.8	38.8	31.5	27.2
11					93.3	85.4	78.0	70.4	61.2	39.3	32.3
12					97.9	90.1	83.1	76.4	69.4	60.7	39.8
13						94.3	87.6	81.2	75.0	68.5	60.2
14						98.2	91.5	85.4	79.6	73.8	67.7
15							95.1	89.1	83.5	78.2	72.8
16							98.4	92.5	87.1	82.0	77.0
17								95.6	90.3	85.4	80.6
18								98.6	93.3	88.4	83.9
19									96.1	91.3	86.8
20									98.7	94.0	89.5
21										96.5	92.1
22										98.9	94.5
23											96.8
24											98.9

Location of Points in Rectangular Stacks or Ducts

	2	3	4	5	6	7	8	9	10	11	12
1	25	16.7	12.5	10.0	8.3	7.1	6.3	5.6	5.0	4.5	4.2
2	75	50	37.5	30.0	25	21.4	18.8	16.7	15.0	13.6	12.5
3		83.3	62.5	50.0	41.7	35.7	31.3	27.8	25.0	22.7	20.8
4			87.5	70.0	58.3	50	43.8	28.9	35.0	31.8	29.2
5				90.0	75	64.3	56.3	50	45.0	40.9	37.5
6					91.7	78.6	68.8	61.1	55.0	50	45.8
7						92.9	81.3	72.2	65.0	59.1	54.2
8							93.8	83.3	75.0	68.2	62.5
9								94.4	85.0	77.3	70.8
10									95.0	86.4	79.2
11										95.5	87.5
12											95.8

Pellet Mill 2 Cooler Run 1

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	7
Plant	Wiggins	Date	10/11/2013
City/State	Mississippi	Gauge ID	909033
Location	Pellet Mill 2 Cooler	Pitot ID	4PEXT
		Thermocouple ID	4PEXT

Averages	**2.293**	**148.9**	
	Delta P	**Temp**	
Point No.	**In Water**	**Deg F**	**Angle**
A-1	1.800	150	-2
2	2.400	153	-5
3	2.800	150	-8
4	2.900	150	-4
5	2.800	150	6
6	2.500	150	5
7	2.300	149	-2
8	1.900	144	-2
B-1	2.300	142	8
2	2.300	147	6
3	2.500	149	7
4	2.500	149	6
5	2.200	150	-5
6	2.100	150	-4
7	1.900	150	-2
8	1.700	150	-7
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Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**4.86**
Stack Area sq.in.	**346.360595**
Pbar	**29.80**
Static Pressure	**-1.2**
Pitot Coef.	**0.84**
Start Time	**1315**
Stop Time	**1335**

Absolute Gas Pressure inches water	**Ps =**	**29.71**
Dry Mole Fraction of Gas	**Mfd =**	**0.95139**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**28.31**
Average Gas Velocity ft/sec	**vs =**	**92.52**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**10938**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**13352**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**689797**

LKCH		
Pre	3-4	good
Post	5-3	good

Pellet Mill 2 Cooler Run 2

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	8
Plant	Wiggins	Date	10/11/2013
City/State	Mississippi	Gauge ID	909033
Location	Pellet Mill 2 Cooler	Pitot ID	4PEXT
		Thermocouple ID	4PEXT

Averages	**2.102**	**143.2**
Point No.	**Delta P In Water**	**Temp Deg F**
A-1	2.400	147
2	2.300	143
3	2.200	144
4	2.000	144
5	1.800	142
6	1.800	139
7	1.800	140
8	1.700	140
B-1	1.800	142
2	2.050	144
3	2.250	143
4	2.200	144
5	2.300	144
6	2.350	145
7	2.400	145
8	2.400	145
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Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**4.64**
Stack Area sq.in.	**346.360595**
Pbar	**29.80**
Static Pressure	**-1.2**
Pitot Coef.	**0.84**
Start Time	**1450**
Stop Time	**1458**

Absolute Gas Pressure inches water	**Ps =**	**29.71**
Dry Mole Fraction of Gas	**Mfd =**	**0.95361**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**28.33**
Average Gas Velocity ft/sec	**vs =**	**88.13**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**10543**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**12718**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**663328**

LKCH		
Pre	3-4	good
Post	5-3	good

Pellet Mill 2 Cooler Run 3

Air Control Techniques EPA Method 2 Data Sheet		ACT Job Number	1911
Client	Enviva	ACT Run Number	9
Plant	Wiggins	Date	10/11/2013
City/State	Mississippi	Gauge ID	909033
Location	Pellet Mill 2 Cooler	Pitot ID	4PEXT
		Thermocouple ID	4PEXT

Averages	**2.108**	**152.3**
	Delta P	**Temp**
Point No.	**In Water**	**Deg F**
A-1	1.900	150
2	2.300	151
3	2.300	154
4	2.200	152
5	2.150	152
6	2.200	152
7	2.000	152
8	2.100	146
B-1	1.900	151
2	2.000	154
3	2.050	154
4	2.200	154
5	2.100	154
6	2.200	154
7	2.050	154
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Oxygen %	**20.9**
Carbon Dioxide %	**0**
Moisture %	**4.54**
Stack Area sq.in.	**346.360595**
Pbar	**29.80**
Static Pressure	**-1.2**
Pitot Coef.	**0.84**
Start Time	**1614**
Stop Time	**1621**

Absolute Gas Pressure inches water	**Ps =**	**29.71**
Dry Mole Fraction of Gas	**Mfd =**	**0.95456**
Dry Molecular Weight of Gas lb/lb Mole	**Md =**	**28.84**
Wet Molecular Weight of Gas lb/lb Mole	**Ms =**	**28.34**
Average Gas Velocity ft/sec	**vs =**	**88.91**
Dry Volumetric Gas Flow Rate at Standard Conditions SCFM	**Qsd =**	**10488**
Wet Volumetric Flue Gas Flow Rate at Stack Conditions ACFM	**Qaw =**	**12831**
Wet Volumetric Gas Flow Rate at Standard Conditions WSCFH	**WSCFH =**	**659261**

LKCH		
Pre	3-4	good
Post	5-3	good

Air Control Techniques, P.C.
Moisture Sampling Train Field Data Sheet

10/10/13
Date [illegible]

SOURCE IDENTIFICATION		EQUIPMENT IDENTIFICATION	
Facility	ENVIVA	Umbilical ID	200
City, State	Wiggins, MS	Meterbox ID	909033
Test Location	Green Hammer mill	ΔH@	1.917
Personnel	TTB JBG	Gamma (y)	0.9828

Run Identification M4 1

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	10
Post Leak Check	0.000	< 0.02 or 4%	10

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
917	0	470.600	65	1.0	N/A	N/A	55	5
932	15	479.71	66	1.0	↓	↓	55	5
947	30	487.5	66	1.0			56	5
10:02	45	496.2	67	1.0			60	6
10:17	60	504.468						

Run Identification 2

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	10
Post Leak Check	0.000	< 0.02 or 4%	9

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1036	0	504.700	68	1.0	N/A	N/A	60	5
1051	15	513.10	70	↓	↓	↓	55	5
1106	30	521.4	72				55	5
1121	45	530.0	73				57	5
1136	60	538.681						

Run Identification 3

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	11
Post Leak Check	0.000	< 0.02 or 4%	9

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1150	0	538.900	74	1.0	N/A	N/A	59	5
1205	15	549.0	75	↓	↓	↓	50	5
1220	30	557.8	76				51	5
1235	45	563.4	77				53	5
1250	60	572.056						

Method 4 - Air Control Techniques, P.C.

Date 10/12/13

Identification Information

Client ENVIVA
Plant Name Wiggins
City Wiggins
Job 1911
Process ~~[illegible]~~ Green Hammer Mill
State MS

Sampling Information

Run Number			
Sampling Date			
Recovery Date			
Personnel	TTB JBG		

Balance Number W00
Balance Type Electronic
Balance Level EVI-1000
Recovery Area ✓

Location Moisture Data

Run Number	M4-1	M4-2	M4-3
Impinger 1			
Final Weight, grams/mls	809.3	743.0	822.7
Initial Weight, grams/mls	735.6	724.5	809.3
Condensed Water, grams	~~[illegible]~~ 73.7	18.5	13.4
Impinger 2			
Final Weight, grams/mls	661.1	729.5	661.5
Initial Weight, grams/mls	719.0	728.8	661.1
Condensed Water, grams	-57.9	0.7	0.4
Impinger 3			
Final Weight, grams/mls	595.9	597.0	596.1
Initial Weight, grams/mls	594.4	595.6	595.9
Condensed Water, grams	1.5	1.4	0.2
Condensed Water, grams	17.3	20.6	
Silica Gel			
Final Weight, grams	815.3	797.7	817.9
Initial Weight, grams	807.5	791.1	815.3
Adsorbed Water, grams	7.8	5.9	2.6
Adsorbed Water, grams	—	—	—
Total Water, grams	25.1	26.5	16.6

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04707) * (volume of water collected (mls))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

*0

Air Control Techniques, P.C.
Moisture Sampling Train Field Data Sheet

Date ~~8/19/13~~ 10/10/13

SOURCE IDENTIFICATION		EQUIPMENT IDENTIFICATION	
Facility	ENVIVA	Umbilical ID	200
City, State	Wiggins, MS	Meterbox ID	909033
Test Location	DRYER #1	ΔH@	1.917
Personnel	JTB, JBG	Gamma (γ)	0.9828

Run Identification M-4

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	10
Post Leak Check	0.000	< 0.02 or 4%	9

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1738	0	572.300	80	1.0	N/A	N/A	58	3
1753	15	580.90	81	↓	↓	↓	54	3
1808	30	589.10	82	↓	↓	↓	56	3
1823	45	597.2	82	↓	↓	↓	57	3
1838	60	605.501		↓	↓	↓		

10/11/13

Run Identification 5

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	10
Post Leak Check	0.000	< 0.02 or 4%	10

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1000	0	605.700	70	1.0	N/A	N/A	59	3
1015	15	614.00	74	↓	↓	↓	63	3
1030	30	622.24	79	↓	↓	↓	66	3
1045	45	630.61	83	↓	↓	↓	67	3
1100	60	638.921		↓	↓	↓		

10/11/13

Run Identification 6

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	10
Post Leak Check	0.000	< 0.02 or 4%	10

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1137	0	639.100	86	1.0	N/A	N/A	56	3
1152	15	647.5	87	↓	↓	↓	58	3
1207	30	655.17	87	↓	↓	↓	59	3
1222	45	663.24	88	↓	↓	↓	61	3
1237	60	671.665		↓	↓	↓		

Method 4 - Air Control Techniques, P.C.

Date 10/10/2017

Identification Information

Client Enviva
Plant Name Wiggins
City Wiggins
Job 1911
Process DRYER #1
State MS

Sampling Information

Run Number			
Sampling Date			
Recovery Date			
Personnel	MB JBB		

Balance Number V1200
Balance Type Electric
Balance Level ✓
Recovery Area ✓

Location Moisture Data

Run Number	4	5	6
Impinger 1			
Final Weight, grams/mls	858.1	943.8	826.7
Initial Weight, grams/mls	743.0	822.7	722.7
Condensed Water, grams	115.1	121.1	104.0
Impinger 2			
Final Weight, grams/mls	736.5	630.7	744.4
Initial Weight, grams/mls	729.5	661.5	736.5
Condensed Water, grams	7.0	-30.8	7.9
Impinger 3			
Final Weight, grams/mls	597.1	599.5	597.8
Initial Weight, grams/mls	597.0	596.1	597.1
Condensed Water, grams	0.1	3.4	0.7
Condensed Water, grams			
Silica Gel			
Final Weight, grams	805.0	824.0	809.9
Initial Weight, grams	797.7	817.9	805.0
Adsorbed Water, grams	7.3	6.1	4.9
Adsorbed Water, grams	129.5	99.8	—
	↓	↓	
Total Water, grams			117.5

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04707) * (volume of water collected (mls))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

Air Control Techniques, P.C.
Moisture Sampling Train Field Data Sheet

Date 10/11/13

SOURCE IDENTIFICATION		EQUIPMENT IDENTIFICATION	
Facility	ENVIVA	Umbilical ID	200
City, State	Wiggins MS	Meterbox ID	909033
Test Location	Pellet Mill Coolers #2	ΔH@	1.917
Personnel	TTB JBB	Gamma (γ)	0.9828

Run Identification M4-7

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	10
Post Leak Check	0.000	< 0.02 or 4%	8

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1343	0	672.000	85	1.0	N/A	N/A	57	3
1358	15	680.60	86	↓	↓	↓	61	3
1413	30	689.23	89				61	3
1428	45	698.1	89				60	3
1443	60	706.310						

Run Identification M4-8

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	10
Post Leak Check	0.000	< 0.02 or 4%	4

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1508	0	706.600	89	1.0	N/A	N/A	58	3
1523	15	715.19	89	↓	↓	↓	59	3
1538	30	723.95	89				59	3
1553	45	732.97	90				61	3
1608	60	741.023						

Run Identification M4-9

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	12
Post Leak Check	0.000	< 0.02 or 4%	9

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
0	1629	741.300	85	1.0	N/A	N/A	57	3
15	1644	749.90	84	↓	↓	↓	60	3
30	1659	758.29	83				59	3
45	1714	766.65	83				60	3
60	1729	774.981						

Method 4 - Air Control Techniques, P.C.

Date

Identification Information

Client	ENVIVA	Job	1911
Plant Name	Wiggins, MS	Process	Pellet Mill #2 Coolers
City	Wiggins, MS	State	MS

Sampling Information

Run Number			
Sampling Date			
Recovery Date			
Personnel	TTB JBG		

Balance Number	1200
Balance Type	Electronic
Balance Level	✓
Recovery Area	✓

Location Moisture Data

Run Number	7	8	9
Impinger 1			
Final Weight, grams/mls	719.2	852.1	746.3
Initial Weight, grams/mls	695.2	826.7	719.2
Condensed Water, grams	24.0	25.4	27.1
Impinger 2			
Final Weight, grams/mls	715.4	747.4	717.5
Initial Weight, grams/mls	712.2	744.4	715.4
Condensed Water, grams	3.2	3.0	2.1
Impinger 3			
Final Weight, grams/mls	603.6	598.2	603.8
Initial Weight, grams/mls	599.5	597.8	603.6
Condensed Water, grams	4.1	0.4	0.2
Condensed Water, grams			
Silica Gel			
Final Weight, grams	827.9	814.6	830.9
Initial Weight, grams	824.0	809.9	827.9
Adsorbed Water, grams	3.9	4.7	3.0
Adsorbed Water, grams	—	—	—
Total Water, grams	35.2	33.5	32.4

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (∆ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04707) * (volume of water collected (mls))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

Air Control Techniques, P.C.
Moisture Sampling Train Field Data Sheet

Date 10/11/13

SOURCE IDENTIFICATION		EQUIPMENT IDENTIFICATION	
Facility	ENVIVA	Umbilical ID	200
City, State	WIGGINS, MS	Meterbox ID	909033
Test Location	DRY Hammermill #2	ΔH@	1.917
Personnel	TDS JBB	Gamma (γ)	0.9828

Run Identification M4-10

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	10
Post Leak Check	0.000	< 0.02 or 4%	10

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1811	0	775.300	80	1.0	N/A	N/A	55	3
1826	15	784.200	80	↓	↓	↓	54	3
1841	30	795,100	80				54	3
1856 ~~1846~~	45	800.71	81				55	3
1911 ~~1861~~	60	808.79						

Run Identification M4-11

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	10
Post Leak Check	0.000	< 0.02 or 4%	10

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1935	0 0	809.400	79	1.0	N/A	N/A	57	3
1950	15 15	817.9	78	↓	↓	↓	55	3
2005	30 30	826.5	79				56	3
2020	45 45	835.3	79				56	3
2035	60 60	843.079						

Run Identification M4-12

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	12
Post Leak Check	0.000	< 0.02 or 4%	9

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
2048	0	843.500	78	1.0	N/A	N/A	57	3
2103	15	852.17	78	↓	↓	↓	57	3
2118	30	860.25	79				57	3
2133	45	868.82	78				56	3
2148	60	877.176						

32.4
33.5

Method 4 - Air Control Techniques, P.C.

Date

Identification Information

Client	ENVIVA	Job	1911
Plant Name	Wiggins	Process	DRY Hammermill #2
City	Wiggins	State	MS

Sampling Information

Run Number				Balance Number	V1200
Sampling Date				Balance Type	Electronic
Recovery Date				Balance Level	✓
Personnel	TJB JBG			Recovery Area	✓

Location Moisture Data

Run Number	10	11	12
Impinger 1			
Final Weight, grams/mls	875.7	770.2	898.8
Initial Weight, grams/mls	852.1	746.3	875.7
Condensed Water, grams	23.6	23.9	23.1
Impinger 2			
Final Weight, grams/mls	749.9	720.5	752.8
Initial Weight, grams/mls	747.4	717.5	749.9
Condensed Water, grams	2.5	3.0	2.9
Impinger 3			
Final Weight, grams/mls	598.4	604.4	598.8
Initial Weight, grams/mls	598.2	603.8	598.4
Condensed Water, grams	0.2	0.6	0.4
Condensed Water, grams			
Silica Gel			
Final Weight, grams	818.5	833.4	822.3
Initial Weight, grams	814.6	830.9	818.5
Adsorbed Water, grams	3.9	2.5	3.8
Adsorbed Water, grams	—	—	—
Total Water, grams	30.2	30.0	30.2

Vm(std) = Volume of gas sampled at standard conditions (dscf)

Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)

Vwc(std) = volume of water vapor at standard conditions (scf)

Vwc(std) = (0.04707) * (volume of water collected (mls))

Bws = Mole fraction of water vapor

Bws = Vwc(std) / (Vm(std) + Vwc(std))

Percent Moisture = 100 * Bws

Air Control Techniques, P.C.
Moisture Sampling Train Field Data Sheet

Date 10/12/13

SOURCE IDENTIFICATION		EQUIPMENT IDENTIFICATION	
Facility	ENVIVA	Umbilical ID	200
City, State	Wiggins MS	Meterbox ID	909033
Test Location	Pellet Mill #1 Cooler	ΔH@	1.917
Personnel	TIB JBG	Gamma (γ)	0,9808

Run Identification M4-13

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	12
Post Leak Check	0.000	< 0.02 or 4%	8

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
858	0	877.400	67	1.0	N/A	N/A	52	3
913	15	886.03	70	↓	↓	↓	55	3
928	30	895.1	73				56	3
943	45	903.1	77				58	3
958	60	911.368						

Run Identification M4-14

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	10
Post Leak Check	0.000	< 0.02 or 4%	10

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1022	0	911.500	74	1.0	N/A	N/A	59	3
1037	15	920.39	82	↓	↓	↓	60	3
10:52	30	929.10	86				54	3
11:07	45	938.32	88				55	3
11:22	60	947.345						

Run Identification M4-15

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	11
Post Leak Check	0.000	< 0.02 or 4%	9

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1141	0	947.600	89	1.0	N/A	N/A	56	3
1156	15	956.32	89	↓	↓	↓	60	3
1211	30	964.92	89				60	3
1226	45	973.55	89				61	3
1241	60	982.167						

Method 4 - Air Control Techniques, P.C.

Date

Identification Information

Client Enviva

Plant Name Wiggins

City Wiggins

Job 1911

Process Pellet Cooler #1

State MS

Sampling Information

Run Number			
Sampling Date			
Recovery Date			
Personnel	TTB JBG		

Balance Number

Balance Type

Balance Level

Recovery Area

Location Moisture Data

Run Number	13	14	15
Impinger 1			
Final Weight, grams/mls	748.2	787.3	765.0
Initial Weight, grams/mls	728.1	763.4	748.2
Condensed Water, grams	20.1	23.9	16.8
Impinger 2			
Final Weight, grams/mls	722.1	754.0	722.9
Initial Weight, grams/mls	720.5	752.8	722.1
Condensed Water, grams	1.6	1.2	0.8
Impinger 3			
Final Weight, grams/mls	604.4	598.6	604.9
Initial Weight, grams/mls	604.4	598.8	604.4
Condensed Water, grams	0.0	-0.2	0.5
Condensed Water, grams			
Silica Gel			
Final Weight, grams	836.0	825.2	837.9
Initial Weight, grams	833.4	822.3	836.0
Adsorbed Water, grams	2.6	2.9	1.9
Adsorbed Water, grams	—	—	—
Total Water, grams	24.3	27.8	19.9

Vm(std) = Volume of gas sampled at standard conditions (dscf)

Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)

Vwc(std) = volume of water vapor at standard conditions (scf)

Vwc(std) = (0.04707) * (volume of water collected (mls))

Bws = Mole fraction of water vapor

Bws = Vwc(std) / (Vm(std) + Vwc(std))

Percent Moisture = 100 * Bws

Method 4 - Air Control Techniques, P.C.

Date

Identification Information

Client ENVIVA
Plant Name Wiggins
City Wiggins
Job 1911
Process ASPIRATOR
State MS

Sampling Information

Run Number			
Sampling Date			
Recovery Date			
Personnel	TB JBG		

Balance Number
Balance Type
Balance Level
Recovery Area

Location Moisture Data

Run Number	16	17	18
Impinger 1			
Final Weight, grams/mls	914.9	958.8	946.7
Initial Weight, grams/mls	787.3	760.0	743.8
Condensed Water, grams	127.6	198.8	202.9
Impinger 2			
Final Weight, grams/mls	877.1	790.3	814.9
Initial Weight, grams/mls	754.0	722.9	746.0
Condensed Water, grams	123.1	67.4	68.9
Impinger 3			
Final Weight, grams/mls	599.7	605.0	600.3
Initial Weight, grams/mls	598.6	604.9	599.7
Condensed Water, grams	1.1	0.1	0.6
Condensed Water, grams			
Silica Gel			
Final Weight, grams	830.2	841.2	832.2
Initial Weight, grams	825.2	837.9	830.2
Adsorbed Water, grams	5.0	3.3	2.0
Adsorbed Water, grams	—	—	—
Total Water, grams	256.8	269.6	274.4

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04707) * (volume of water collected (mls))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

24.7
1016

Air Control Techniques, P.C.
Moisture Sampling Train Field Data Sheet

Date 10/12/13

SOURCE IDENTIFICATION		**EQUIPMENT IDENTIFICATION**	
Facility	ENVIVA	Umbilical ID	30
City, State	Wiggins, MS	Meterbox ID	98033
Test Location	Pellet Mill Aspirator	ΔH@	1.917
Personnel	TTB JBG	Gamma (γ)	0.9828

Run Identification M4-16

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	12
Post Leak Check	0.000	< 0.02 or 4%	9

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1509	0	982.400	83	1.0	N/A	N/A	54	3
1524	15	989.81	85				60	3
1539	30	998.62	86				62	3
1554	45	1007.31	86				65	3
1609	60	1015.641		↓	↓	↓		

Run Identification M4-17

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	10
Post Leak Check	0.000	< 0.02 or 4%	11

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1636	0	16.000	85	1.0	N/A	N/A	56	3
1651	15	24.21	84				65	3
1706	30	32.27	85				59	3
1721	45	40.18	85				61	3
1736	60	48.149		↓	↓	↓		

Run Identification M4-18

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	12
Post Leak Check	0.000	< 0.02 or 4%	8

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1800	0	48.300	84	1.0	N/A	N/A	57	3
1815	15	57.41	82				51	3
1830	30	66.20	81				52	3
1845	45	74.55	80				52	3
1900	60	82.708		↓	↓	↓		

Air Control Techniques, P.C.
Moisture Sampling Train Field Data Sheet

Date 10/13/13

SOURCE IDENTIFICATION		**EQUIPMENT IDENTIFICATION**	
Facility	ENVIVA	Umbilical ID	200
City, State	Wiggins, MS	Meterbox ID	989033
Test Location	DRYER #2	ΔH@	1.917
Personnel	JJB JBG	Gamma (γ)	0.98208

Run Identification M4-19

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	15
Post Leak Check	0.000	< 0.02 or 4%	10

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp (°F)	Filter Temp. (°F)	Impinger Temp (°F)	Vacuum (in. Hg)
921	0	82.900	72	1.0	N/A	N/A	56	3
936	15	90.93	76	↓	↓	↓	58	3
951	30	99.15	79				59	3
1006	45	106.85	83				60	3
1021	60	114.788						

Run Identification M4-20

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	2
Post Leak Check	0.000	< 0.02 or 4%	12

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1104	0	115.000	88	1.0	N/A	N/A	57	3
1119	15	123.65	89	↓	↓	↓	61	3
1134	30	131.96	90				61	3
1149	45	140.32	91				56	3
1204	60	148.650						

Run Identification M4-21

	Actual	Req'd	Vac
Pre Leak Check	0.000	< 0.02 or 4%	10
Post Leak Check		< 0.02 or 4%	

Clock Time	Elapsed Time (min)	Volume Metered (ft³)	Meter Temp. (°F)	ΔH (in. W.C.)	Probe Temp. (°F)	Filter Temp. (°F)	Impinger Temp. (°F)	Vacuum (in. Hg)
1231	0	149.200	89	1.0	N/A	N/A	51	3
1301	15	157.72	90	↓	↓	↓	58	4
1316	30	166.39	91				60	7
[illegible]	45	172.82	91				59	10
1346	60	179.996						

1346

off 1238 upset condition
ON 1252

29.86
15229

Method 4 - Air Control Techniques, P.C.

Date 10/13/13

Identification Information

Client ENVIVA
Plant Name Wiggins
City Wiggins
Job 1911
Process DRYER #2
State MS

Sampling Information

Run Number			
Sampling Date			
Recovery Date			
Personnel			

Balance Number V1260
Balance Type Electonic
Balance Level ✓
Recovery Area ✓

Location Moisture Data

Run Number	19	20	21
Impinger 1			
Final Weight, grams/mls	970.0	908.2	922.2
Initial Weight, grams/mls	749.2	748.2	681.2
Condensed Water, grams	220.8	160	241.0
Impinger 2			
Final Weight, grams/mls	829.0	800.3	687.8
Initial Weight, grams/mls	790.3	680.0	674.0
Condensed Water, grams	38.7	120.3	13.8
Impinger 3			
Final Weight, grams/mls	609.3	603.1 ~~[illegible]~~	612.5
Initial Weight, grams/mls	605.0	600.4	609.3
Condensed Water, grams	4.3	2.7	3.2
Condensed Water, grams			
Silica Gel			
Final Weight, grams	845.1	835.7	847.1
Initial Weight, grams	841.2	832.2	845.1
Adsorbed Water, grams	3.9	3.5	2.0
Adsorbed Water, grams			
Total Water, grams	267.7	286.5	260.0

Vm(std) = Volume of gas sampled at standard conditions (dscf)
Vm(std) = ((Gamma * 17.64 * Vm * (Pbar + (Δ H / 13.6))) / (Tm + 460)
Vwc(std) = volume of water vapor at standard conditions (scf)
Vwc(std) = (0.04707) * (volume of water collected (mls))
Bws = Mole fraction of water vapor
Bws = Vwc(std) / (Vm(std) + Vwc(std))
Percent Moisture = 100 * Bws

APPENDIX B

Method 25A Data

Test Run 1 Begin. STRATA Version 3.2
Operator: DGG
Plant Name: Enviva Wiggins

Start Averaging

		THC ppm
10/10/2013	10:17:27	29.2
10/10/2013	10:18:26	29.1
10/10/2013	10:19:26	29.4
10/10/2013	10:20:26	28.5
10/10/2013	10:21:26	29.2
10/10/2013	10:22:27	29.8
10/10/2013	10:23:27	30.5
10/10/2013	10:24:27	31.5
10/10/2013	10:25:27	30.8
10/10/2013	10:26:26	29.3
10/10/2013	10:27:26	29.3
10/10/2013	10:28:26	28.9
10/10/2013	10:29:27	29.5
10/10/2013	10:30:27	31.4
10/10/2013	10:31:27	31.1
10/10/2013	10:32:26	31.3
10/10/2013	10:33:26	31.2
10/10/2013	10:34:26	30.4
10/10/2013	10:35:27	30.4
10/10/2013	10:36:27	30.1
10/10/2013	10:37:27	29.7
10/10/2013	10:38:27	30.2
10/10/2013	10:39:26	29.2
10/10/2013	10:40:26	30.1
10/10/2013	10:41:26	30.3
10/10/2013	10:42:26	29.1
10/10/2013	10:43:27	29.5
10/10/2013	10:44:27	30.6
10/10/2013	10:45:27	29.7
10/10/2013	10:46:25	31
10/10/2013	10:47:26	30.1
10/10/2013	10:48:26	30.7
10/10/2013	10:49:26	31.6
10/10/2013	10:50:27	31.6
10/10/2013	10:51:27	32.3
10/10/2013	10:52:27	31.4
10/10/2013	10:53:27	30.4
10/10/2013	10:54:26	31.9
10/10/2013	10:55:26	31.8
10/10/2013	10:56:26	33.1
10/10/2013	10:57:26	32.8
10/10/2013	10:58:27	31.8
10/10/2013	10:59:27	32.5
10/10/2013	11:00:27	32.8
10/10/2013	11:01:26	30.2

10/10/2013	11:02:26	31.2
10/10/2013	11:03:26	30.7
10/10/2013	11:04:26	31.2
10/10/2013	11:05:27	32.7
10/10/2013	11:06:27	31.6
10/10/2013	11:07:27	31.2
10/10/2013	11:08:25	32.5
10/10/2013	11:09:26	31
10/10/2013	11:10:26	30.8
10/10/2013	11:11:26	28.9
10/10/2013	11:12:26	30.9
10/10/2013	11:13:27	31.9
10/10/2013	11:14:27	32.1
10/10/2013	11:15:27	32.6
10/10/2013	11:16:26	34
Average	1807 samp	30.8
Test Run 1 End		

Test Run 2 Begin. STRATA Version 3.2
Operator: DGG
Plant Name: Enviva Wiggins

Start Averaging

		THC ppm
10/10/2013	10:37:12	33.22
10/10/2013	10:38:13	32.73
10/10/2013	10:39:13	33.22
10/10/2013	10:40:13	33.21
10/10/2013	10:41:13	31.78
10/10/2013	10:42:14	29.83
10/10/2013	10:43:14	31.37
10/10/2013	10:44:12	31.5
10/10/2013	10:45:13	33.24
10/10/2013	10:46:13	32.96
10/10/2013	10:47:13	32.52
10/10/2013	10:48:13	32.17
10/10/2013	10:49:14	31.8
10/10/2013	10:50:14	30.68
10/10/2013	10:51:12	29.76
10/10/2013	10:52:12	31.03
10/10/2013	10:53:13	31.9
10/10/2013	10:54:13	32.57
10/10/2013	10:55:13	32.4
10/10/2013	10:56:14	32.68
10/10/2013	10:57:14	33.18
10/10/2013	10:58:12	33.26
10/10/2013	10:59:12	32.76
10/10/2013	11:00:13	31.1
10/10/2013	11:01:12	30.85
10/10/2013	11:02:14	30.84
10/10/2013	11:03:13	30.27
10/10/2013	11:04:12	30.6
10/10/2013	11:05:14	32.18
10/10/2013	11:06:13	30.96
10/10/2013	11:07:12	31.41
10/10/2013	11:08:12	30.82
10/10/2013	11:09:13	31.24
10/10/2013	11:10:13	31.94
10/10/2013	11:11:14	31.25
10/10/2013	11:12:13	30.81
10/10/2013	11:13:12	32.84
10/10/2013	11:14:12	32.11
10/10/2013	11:15:14	32.71
10/10/2013	11:16:13	32.57
10/10/2013	11:17:12	33.7
10/10/2013	11:18:14	33.87
10/10/2013	11:19:13	32.8
10/10/2013	11:20:13	31.93
10/10/2013	11:21:14	33.89

10/10/2013	11:22:13	33.12
10/10/2013	11:23:13	32.56
10/10/2013	11:24:14	32.31
10/10/2013	11:25:13	33.49
10/10/2013	11:26:12	34.83
10/10/2013	11:27:14	34.8
10/10/2013	11:28:13	33.96
10/10/2013	11:29:13	33.5
10/10/2013	11:30:14	34.21
10/10/2013	11:31:13	32.7
10/10/2013	11:32:13	31.67
10/10/2013	11:33:12	31.32
10/10/2013	11:34:13	31.95
10/10/2013	11:35:13	31.59
10/10/2013	11:36:14	31.24
10/10/2013	11:37:13	32.88

```
Test Run 3  Begin.  STRATA Version 3.2
Operator:      DGG
Plant Name:   Enviva Wiggins
                                    THC
                                    ppm
Start Averaging
  10/10/2013    11:51:37        27.47
  10/10/2013    11:52:37        25.81
  10/10/2013    11:53:37        25.62
  10/10/2013    11:54:38        26.13
  10/10/2013    11:55:36        27.21
  10/10/2013    11:56:36        27.54
  10/10/2013    11:57:36        27.06
  10/10/2013    11:58:37        27.89
  10/10/2013    11:59:37        27.66
  10/10/2013    12:00:37        26.76
  10/10/2013    12:01:38        26.92
  10/10/2013    12:02:38        26.42
  10/10/2013    12:03:36        25.01
  10/10/2013    12:04:36        25.47
  10/10/2013    12:05:37        25.98
  10/10/2013    12:06:37        26.95
  10/10/2013    12:07:37        27.79
  10/10/2013    12:08:37        26.71
  10/10/2013    12:09:38        27.38
  10/10/2013    12:10:38        27.84
  10/10/2013    12:11:36        25.99
  10/10/2013    12:12:36         25.7
  10/10/2013    12:13:37        24.64
  10/10/2013    12:14:37         25.2
  10/10/2013    12:15:37        25.22
  10/10/2013    12:16:37        24.65
  10/10/2013    12:17:38        24.05
  10/10/2013    12:18:36         23.8
  10/10/2013    12:19:36        22.94
  10/10/2013    12:20:36        23.17
  10/10/2013    12:21:37         24.1
  10/10/2013    12:22:37        25.63
  10/10/2013    12:23:37        26.37
  10/10/2013    12:24:37        26.85
  10/10/2013    12:25:38        26.02
  10/10/2013    12:26:36        25.65
  10/10/2013    12:27:36        25.72
  10/10/2013    12:28:37        27.03
  10/10/2013    12:29:37        26.23
  10/10/2013    12:30:37        25.87
  10/10/2013    12:31:37        25.97
  10/10/2013    12:32:38        25.53
  10/10/2013    12:33:38        25.25
  10/10/2013    12:34:36        26.76
  10/10/2013    12:35:36        27.16
```

10/10/2013	12:36:37	27.29
10/10/2013	12:37:37	27.02
10/10/2013	12:38:37	27.31
10/10/2013	12:39:37	28.11
10/10/2013	12:40:38	28.86
10/10/2013	12:41:36	28.19
10/10/2013	12:42:36	27.22
10/10/2013	12:43:37	27.74
10/10/2013	12:44:37	28.08
10/10/2013	12:45:37	26.91
10/10/2013	12:46:38	26.97
10/10/2013	12:47:38	27.99
10/10/2013	12:48:36	27.63
10/10/2013	12:49:36	26.3
10/10/2013	12:50:37	25.95
Average	1802 samp	26.38

Test Run 3 End

```
Test Run 4  Begin.  STRATA Version 3.2
Operator:        DGG
Plant Name:      Enviva Wiggins
                                THC
                                ppm
Start Averaging
   10/10/2013    17:39:30        73.6
   10/10/2013    17:40:31        73.7
   10/10/2013    17:41:31        74.2
   10/10/2013    17:42:31        74.3
   10/10/2013    17:43:31        74.4
   10/10/2013    17:44:32        74.6
   10/10/2013    17:45:32        75.3
   10/10/2013    17:46:32        75.7
   10/10/2013    17:47:30        75.7
   10/10/2013    17:48:31        75.6
   10/10/2013    17:49:31          75
   10/10/2013    17:50:31        74.2
   10/10/2013    17:51:31        72.5
   10/10/2013    17:52:32        71.5
   10/10/2013    17:53:32        70.7
   10/10/2013    17:54:30          70
   10/10/2013    17:55:30        69.3
   10/10/2013    17:56:31        68.6
   10/10/2013    17:57:31          68
   10/10/2013    17:58:31        67.7
   10/10/2013    17:59:32        67.1
   10/10/2013    18:00:32        66.8
   10/10/2013    18:01:30        66.4
   10/10/2013    18:02:30          66
   10/10/2013    18:03:31          65
   10/10/2013    18:04:31        64.5
   10/10/2013    18:05:31        64.3
   10/10/2013    18:06:31        64.1
   10/10/2013    18:07:32        64.8
   10/10/2013    18:08:32        65.5
   10/10/2013    18:09:30        65.6
   10/10/2013    18:10:31        65.7
   10/10/2013    18:11:31        65.8
   10/10/2013    18:12:31        65.8
   10/10/2013    18:13:31        66.6
   10/10/2013    18:14:32        66.7
   10/10/2013    18:15:32          67
   10/10/2013    18:16:30          67
   10/10/2013    18:17:30        66.2
   10/10/2013    18:18:31        65.5
   10/10/2013    18:19:31          65
   10/10/2013    18:20:31        64.5
   10/10/2013    18:21:32        63.4
   10/10/2013    18:22:32        62.8
   10/10/2013    18:23:30        62.2
```

10/10/2013	18:24:30	62
10/10/2013	18:25:31	62.2
10/10/2013	18:26:31	62.2
10/10/2013	18:27:31	62.6
10/10/2013	18:28:31	62.4
10/10/2013	18:29:32	61.7
10/10/2013	18:30:32	61.8
10/10/2013	18:31:30	61.4
10/10/2013	18:32:30	61.5
10/10/2013	18:33:31	61.3
10/10/2013	18:34:31	61.3
10/10/2013	18:35:31	61.1
10/10/2013	18:36:31	61.3
10/10/2013	18:37:32	60.8
10/10/2013	18:38:30	60.2
10/10/2013	18:39:30	60.4
Average	1837 samp	66.7

Test Run 4 End

Test Run 5 Begin. STRATA Version 3.2
Operator: DGG
Plant Name: Enviva Wiggins

Start Averaging

		THC ppm
10/11/2013	10:00:39	59.48
10/11/2013	10:01:40	59.35
10/11/2013	10:02:40	59.64
10/11/2013	10:03:40	59.19
10/11/2013	10:04:40	59.7
10/11/2013	10:05:41	60.45
10/11/2013	10:06:41	60.54
10/11/2013	10:07:41	60.86
10/11/2013	10:08:40	61.28
10/11/2013	10:09:40	62.22
10/11/2013	10:10:40	62.62
10/11/2013	10:11:40	62.46
10/11/2013	10:12:40	62.22
10/11/2013	10:13:41	61.96
10/11/2013	10:14:41	61.71
10/11/2013	10:15:39	61.79
10/11/2013	10:16:40	61.65
10/11/2013	10:17:40	61.76
10/11/2013	10:18:40	61.82
10/11/2013	10:19:40	61.41
10/11/2013	10:20:41	60.91
10/11/2013	10:21:41	60.34
10/11/2013	10:22:41	60.35
10/11/2013	10:23:39	60.17
10/11/2013	10:24:40	60.48
10/11/2013	10:25:40	60.31
10/11/2013	10:26:40	60.03
10/11/2013	10:27:40	60.26
10/11/2013	10:28:41	60.17
10/11/2013	10:29:41	59.83
10/11/2013	10:30:41	59.58
10/11/2013	10:31:40	60.56
10/11/2013	10:32:40	60.96
10/11/2013	10:33:40	60.79
10/11/2013	10:34:40	61.26
10/11/2013	10:35:41	61.22
10/11/2013	10:36:41	61.09
10/11/2013	10:37:41	61.12
10/11/2013	10:38:39	61.86
10/11/2013	10:39:40	62.32
10/11/2013	10:40:40	62.49
10/11/2013	10:41:40	62.15
10/11/2013	10:42:41	62.22
10/11/2013	10:43:41	62.04
10/11/2013	10:44:41	61.73

10/11/2013	10:45:41	60.99
10/11/2013	10:46:40	61.3
10/11/2013	10:47:40	61.17
10/11/2013	10:48:40	62.35
10/11/2013	10:49:40	63.58
10/11/2013	10:50:41	63.57
10/11/2013	10:51:41	65.12
10/11/2013	10:52:41	67.32
10/11/2013	10:53:39	67.58
10/11/2013	10:54:40	67.4
10/11/2013	10:55:40	66.77
10/11/2013	10:56:40	66
10/11/2013	10:57:40	65.74
10/11/2013	10:58:41	64.85
10/11/2013	10:59:41	64.09
Average	1810 samp	61.92

Test Run 5 End

Test Run 6 Begin. STRATA Version 3.2
Operator: DGG
Plant Name: Enviva Wiggins

		THC ppm
Start Averaging		
10/11/2013	11:37:39	62.85
10/11/2013	11:38:39	63.21
10/11/2013	11:39:40	63.49
10/11/2013	11:40:38	63.72
10/11/2013	11:41:38	64.5
10/11/2013	11:42:38	65.32
10/11/2013	11:43:39	66.16
10/11/2013	11:44:39	66.6
10/11/2013	11:45:39	66.81
10/11/2013	11:46:40	66.6
10/11/2013	11:47:38	64.85
10/11/2013	11:48:38	62.59
10/11/2013	11:49:38	60.21
10/11/2013	11:50:38	58.27
10/11/2013	11:51:39	56.95
10/11/2013	11:52:39	55.02
10/11/2013	11:53:39	53.86
10/11/2013	11:54:39	52.91
10/11/2013	11:55:40	52.4
10/11/2013	11:56:38	52.38
10/11/2013	11:57:38	52.86
10/11/2013	11:58:39	53.87
10/11/2013	11:59:39	54.56
10/11/2013	12:00:39	53.55
10/11/2013	12:01:39	52.72
10/11/2013	12:02:39	52.05
10/11/2013	12:03:40	51.53
10/11/2013	12:04:38	51.4
10/11/2013	12:05:38	52.07
10/11/2013	12:06:38	52.86
10/11/2013	12:07:39	53.12
10/11/2013	12:08:39	53.31
10/11/2013	12:09:39	52.77
10/11/2013	12:10:40	51.76
10/11/2013	12:11:40	51.02
10/11/2013	12:12:38	51.05
10/11/2013	12:13:38	52.13
10/11/2013	12:14:39	52.93
10/11/2013	12:15:39	53.34
10/11/2013	12:16:39	53.7
10/11/2013	12:17:39	53.91
10/11/2013	12:18:40	54.85
10/11/2013	12:19:38	55.39
10/11/2013	12:20:38	55.82
10/11/2013	12:21:38	55.66

10/11/2013	12:22:39	55.8
10/11/2013	12:23:39	56.58
10/11/2013	12:24:39	57.45
10/11/2013	12:25:40	58.57
10/11/2013	12:26:40	59.56
10/11/2013	12:27:38	60.26
10/11/2013	12:28:38	60.52
10/11/2013	12:29:39	60.23
10/11/2013	12:30:39	59.97
10/11/2013	12:31:39	59.98
10/11/2013	12:32:39	58.38
10/11/2013	12:33:40	57.52
10/11/2013	12:34:38	58.26
10/11/2013	12:35:38	59.53
10/11/2013	12:36:38	60.41
Average	1796 samp	57.17
Test Run 6 End		

```
Test Run 7  Begin.  STRATA Version 3.2
Operator:        DGG
Plant Name:      Enviva Wiggins
                               THC
                               ppm
Start Averaging
    10/11/2013   13:43:41     29.28
    10/11/2013   13:44:42     27.18
    10/11/2013   13:45:42     25.85
    10/11/2013   13:46:40     24.55
    10/11/2013   13:47:40     23.31
    10/11/2013   13:48:41     22.64
    10/11/2013   13:49:41     22.37
    10/11/2013   13:50:41     22.49
    10/11/2013   13:51:42     22.37
    10/11/2013   13:52:42     22.04
    10/11/2013   13:53:40     22.25
    10/11/2013   13:54:40     22.98
    10/11/2013   13:55:41      22.9
    10/11/2013   13:56:41     22.72
    10/11/2013   13:57:41     23.05
    10/11/2013   13:58:42     23.38
    10/11/2013   13:59:42     23.44
    10/11/2013   14:00:40      24.2
    10/11/2013   14:01:40     24.19
    10/11/2013   14:02:41     23.32
    10/11/2013   14:03:41     22.78
    10/11/2013   14:04:41      22.4
    10/11/2013   14:05:41     22.24
    10/11/2013   14:06:42     22.53
    10/11/2013   14:07:40     22.54
    10/11/2013   14:08:40        22
    10/11/2013   14:09:40     21.36
    10/11/2013   14:10:41     20.81
    10/11/2013   14:11:41      20.6
    10/11/2013   14:12:41     20.52
    10/11/2013   14:13:41     20.67
    10/11/2013   14:14:42     21.18
    10/11/2013   14:15:40     22.48
    10/11/2013   14:16:40     23.46
    10/11/2013   14:17:41      23.6
    10/11/2013   14:18:41     24.02
    10/11/2013   14:19:41     24.31
    10/11/2013   14:20:41     24.25
    10/11/2013   14:21:42     24.44
    10/11/2013   14:22:42     24.59
    10/11/2013   14:23:40     24.59
    10/11/2013   14:24:40     25.03
    10/11/2013   14:25:40     25.21
    10/11/2013   14:26:41     25.16
    10/11/2013   14:27:41     25.61
```

10/11/2013	14:28:41	25.91
10/11/2013	14:29:42	24.74
10/11/2013	14:30:42	24.82
10/11/2013	14:31:40	24.18
10/11/2013	14:32:40	23.94
10/11/2013	14:33:41	24.63
10/11/2013	14:34:41	25.19
10/11/2013	14:35:41	25.92
10/11/2013	14:36:41	26.43
10/11/2013	14:37:42	25.26
10/11/2013	14:38:42	24.93
10/11/2013	14:39:40	25.61
10/11/2013	14:40:40	25.25
10/11/2013	14:41:41	24.92
10/11/2013	14:42:41	24.81
Average	1795 samp	23.8
Test Run 7 End		

Test Run 8 Begin. STRATA Version 3.2
Operator: DGG
Plant Name: Enviva Wiggins

Start Averaging

		THC ppm
10/11/2013	15:08:58	20.89
10/11/2013	15:09:58	21.18
10/11/2013	15:10:56	21.36
10/11/2013	15:11:57	21.39
10/11/2013	15:12:57	21.49
10/11/2013	15:13:57	21.51
10/11/2013	15:14:58	21.66
10/11/2013	15:15:58	21.02
10/11/2013	15:16:58	20.12
10/11/2013	15:17:56	19.71
10/11/2013	15:18:57	19.67
10/11/2013	15:19:57	19.07
10/11/2013	15:20:57	19.24
10/11/2013	15:21:57	19.85
10/11/2013	15:22:58	20.21
10/11/2013	15:23:58	20.9
10/11/2013	15:24:56	21.72
10/11/2013	15:25:57	22.45
10/11/2013	15:26:57	23.3
10/11/2013	15:27:57	23.07
10/11/2013	15:28:57	22.47
10/11/2013	15:29:58	22.24
10/11/2013	15:30:58	22.14
10/11/2013	15:31:58	21.87
10/11/2013	15:32:56	22.09
10/11/2013	15:33:57	22.17
10/11/2013	15:34:57	22.55
10/11/2013	15:35:57	22.32
10/11/2013	15:36:57	21.72
10/11/2013	15:37:58	21.14
10/11/2013	15:38:58	21.1
10/11/2013	15:39:58	21.29
10/11/2013	15:40:56	21.44
10/11/2013	15:41:57	21.58
10/11/2013	15:42:57	22.64
10/11/2013	15:43:57	22.48
10/11/2013	15:44:57	22.65
10/11/2013	15:45:58	22.37
10/11/2013	15:46:58	22.73
10/11/2013	15:47:56	22.8
10/11/2013	15:48:57	22.34
10/11/2013	15:49:57	21.76
10/11/2013	15:50:57	21.83
10/11/2013	15:51:57	22.04
10/11/2013	15:52:58	22.15

10/11/2013	15:53:58	22.07
10/11/2013	15:54:58	22.66
10/11/2013	15:55:58	22.99
10/11/2013	15:56:57	22.84
10/11/2013	15:57:57	22.83
10/11/2013	15:58:57	22.2
10/11/2013	15:59:58	21.03
10/11/2013	16:00:58	19.77
10/11/2013	16:01:58	18.88
10/11/2013	16:02:56	18.32
10/11/2013	16:03:57	17.86
10/11/2013	16:04:57	18.62
10/11/2013	16:05:57	18.41
10/11/2013	16:06:57	18.6
10/11/2013	16:07:58	19.1
Average	1796 samp	21.29

Test Run 8 End

```
Test Run 9  Begin.  STRATA Version 3.2
Operator:       DGG
Plant Name:   Enviva Wiggins
                                      THC
                                      ppm
Start Averaging
  10/11/2013    16:29:59       22.84
  10/11/2013    16:30:59       21.54
  10/11/2013    16:31:59       21.11
  10/11/2013    16:33:00         21.4
  10/11/2013    16:34:00       21.21
  10/11/2013    16:35:00       21.39
  10/11/2013    16:36:00       21.79
  10/11/2013    16:36:59       23.24
  10/11/2013    16:37:59       23.79
  10/11/2013    16:38:59         24.8
  10/11/2013    16:39:59       25.11
  10/11/2013    16:41:00       26.01
  10/11/2013    16:42:00       28.05
  10/11/2013    16:43:00       29.59
  10/11/2013    16:44:00       29.65
  10/11/2013    16:44:59       29.74
  10/11/2013    16:45:59       29.86
  10/11/2013    16:46:59       33.48
  10/11/2013    16:48:00       32.59
  10/11/2013    16:49:00       28.94
  10/11/2013    16:49:59       26.37
  10/11/2013    16:50:59         25.7
  10/11/2013    16:51:59       24.69
  10/11/2013    16:53:00       24.55
  10/11/2013    16:54:00       24.78
  10/11/2013    16:55:00       25.37
  10/11/2013    16:55:59         26.6
  10/11/2013    16:56:59       27.42
  10/11/2013    16:57:59       26.35
  10/11/2013    16:58:59         25.6
  10/11/2013    17:00:00       25.52
  10/11/2013    17:01:00       25.32
  10/11/2013    17:02:00       24.67
  10/11/2013    17:03:00       24.39
  10/11/2013    17:04:01         24.2
  10/11/2013    17:04:59       23.43
  10/11/2013    17:05:59       22.29
  10/11/2013    17:06:59       21.55
  10/11/2013    17:08:00       21.18
  10/11/2013    17:09:00       21.33
  10/11/2013    17:10:00       21.67
  10/11/2013    17:10:59       21.91
  10/11/2013    17:11:59       22.59
  10/11/2013    17:12:59       22.87
  10/11/2013    17:14:00       23.27
```

10/11/2013	17:15:00	23.85
10/11/2013	17:16:00	23.83
10/11/2013	17:17:00	23.05
10/11/2013	17:17:59	23.11
10/11/2013	17:18:59	23.12
10/11/2013	17:19:59	24.45
10/11/2013	17:21:00	24.59
10/11/2013	17:22:00	24.41
10/11/2013	17:23:00	24.36
10/11/2013	17:24:00	25.25
10/11/2013	17:24:59	25.58
10/11/2013	17:25:59	26.03
10/11/2013	17:26:59	26.29
10/11/2013	17:27:59	26.55
10/11/2013	17:29:00	26.07
10/11/2013	17:30:00	25.36
10/11/2013	17:31:00	24.68
10/11/2013	17:32:00	24.5
10/11/2013	17:32:59	24.26
10/11/2013	17:33:59	24.15
Average	1951 samp	24.82
Test Run 9 End		

Test Run 10 Begin. STRATA Version 3.2
Operator: DGG
Plant Name: Enviva Wiggins

Start Averaging

		THC ppm
10/11/2013	18:11:17	29.88
10/11/2013	18:12:18	33.18
10/11/2013	18:13:18	31
10/11/2013	18:14:18	22.29
10/11/2013	18:15:18	19.06
10/11/2013	18:16:19	19
10/11/2013	18:17:19	21.06
10/11/2013	18:18:19	23.21
10/11/2013	18:19:17	22.71
10/11/2013	18:20:18	23.92
10/11/2013	18:21:18	23.38
10/11/2013	18:22:18	22.46
10/11/2013	18:23:19	23.73
10/11/2013	18:24:19	27.16
10/11/2013	18:25:19	28.89
10/11/2013	18:26:17	27.17
10/11/2013	18:27:18	22.65
10/11/2013	18:28:18	22.36
10/11/2013	18:29:18	23.07
10/11/2013	18:30:18	23.39
10/11/2013	18:31:19	21.74
10/11/2013	18:32:19	21
10/11/2013	18:33:19	21.29
10/11/2013	18:34:17	20.98
10/11/2013	18:35:18	18.39
10/11/2013	18:36:18	18.16
10/11/2013	18:37:18	18.91
10/11/2013	18:38:19	19.32
10/11/2013	18:39:19	21.57
10/11/2013	18:40:19	25.3
10/11/2013	18:41:17	31.9
10/11/2013	18:42:18	38.29
10/11/2013	18:43:18	33.17
10/11/2013	18:44:18	31.99
10/11/2013	18:45:19	25.13
10/11/2013	18:46:19	21.93
10/11/2013	18:47:19	19.45
10/11/2013	18:48:19	19.52
10/11/2013	18:49:18	18.88
10/11/2013	18:50:18	20.12
10/11/2013	18:51:18	20.89
10/11/2013	18:52:18	21.09
10/11/2013	18:53:19	21.01
10/11/2013	18:54:19	19.4
10/11/2013	18:55:17	19.85

10/11/2013	18:56:18	24.65
10/11/2013	18:57:18	24.98
10/11/2013	18:58:18	22.99
10/11/2013	18:59:18	23.31
10/11/2013	19:00:19	25.22
10/11/2013	19:01:19	25.84
10/11/2013	19:02:19	27.93
10/11/2013	19:03:17	30.86
10/11/2013	19:04:18	37.73
10/11/2013	19:05:18	41.49
10/11/2013	19:06:18	33.42
10/11/2013	19:07:19	28.12
10/11/2013	19:08:19	24.42
10/11/2013	19:09:19	28.47
10/11/2013	19:10:17	32.11
10/11/2013	19:11:18	35.91
10/11/2013	19:12:18	31.9
Average	1881 samp	25.19
Test Run 10 End		

Test Run 11 Begin. STRATA Version 3.2
Operator: DGG
Plant Name: Enviva Wiggins

Start Averaging

		THC ppm
10/11/2013	19:35:45	16.3
10/11/2013	19:36:45	16.9
10/11/2013	19:37:45	19.2
10/11/2013	19:38:46	19.43
10/11/2013	19:39:46	20.92
10/11/2013	19:40:46	21.44
10/11/2013	19:41:45	23.07
10/11/2013	19:42:45	23.32
10/11/2013	19:43:45	24.41
10/11/2013	19:44:46	25.71
10/11/2013	19:45:46	30.06
10/11/2013	19:46:46	36.61
10/11/2013	19:47:46	35.99
10/11/2013	19:48:46	29.55
10/11/2013	19:49:45	23.62
10/11/2013	19:50:45	23.25
10/11/2013	19:51:45	22.61
10/11/2013	19:52:45	23.8
10/11/2013	19:53:46	21.47
10/11/2013	19:54:46	20.75
10/11/2013	19:55:46	21.14
10/11/2013	19:56:46	22.12
10/11/2013	19:57:45	23.08
10/11/2013	19:58:45	22.57
10/11/2013	19:59:46	25.43
10/11/2013	20:00:46	26.18
10/11/2013	20:01:46	27.36
10/11/2013	20:02:46	26.43
10/11/2013	20:03:45	32.28
10/11/2013	20:04:45	29.23
10/11/2013	20:05:45	34.45
10/11/2013	20:06:45	34.13
10/11/2013	20:07:46	30.96
10/11/2013	20:08:46	30.2
10/11/2013	20:09:46	32.75
10/11/2013	20:10:47	36.19
10/11/2013	20:11:45	38.78
10/11/2013	20:12:45	37.58
10/11/2013	20:13:45	34.83
10/11/2013	20:14:46	30.77
10/11/2013	20:15:46	30.88
10/11/2013	20:16:46	31.74
10/11/2013	20:17:46	34.53
10/11/2013	20:18:45	42.51
10/11/2013	20:19:45	44.65

10/11/2013	20:20:45	35.45
10/11/2013	20:21:46	25.21
10/11/2013	20:22:46	23.77
10/11/2013	20:23:46	28.87
10/11/2013	20:24:46	36.75
10/11/2013	20:25:45	45.05
10/11/2013	20:26:45	45.64
10/11/2013	20:27:45	41.52
10/11/2013	20:28:45	35.53
10/11/2013	20:29:46	33.91
10/11/2013	20:30:46	34.59
10/11/2013	20:31:46	29.84
10/11/2013	20:32:46	31.48
10/11/2013	20:33:45	39.63
10/11/2013	20:34:45	36.38
Average	1794 samp	29.72
Test Run 11 End		

```
Test Run 12  Begin.  STRATA Version 3.2
Operator:       DGG
Plant Name:   Enviva Wiggins
                                  THC
                                  ppm
Start Averaging
   10/11/2013    20:49:06        22.17
   10/11/2013    20:50:04        21.67
   10/11/2013    20:51:04         23.4
   10/11/2013    20:52:05        24.29
   10/11/2013    20:53:05        25.04
   10/11/2013    20:54:05        26.33
   10/11/2013    20:55:05        26.92
   10/11/2013    20:56:06        25.87
   10/11/2013    20:57:06        25.72
   10/11/2013    20:58:04        25.14
   10/11/2013    20:59:04        25.52
   10/11/2013    21:00:05        25.37
   10/11/2013    21:01:05        25.64
   10/11/2013    21:02:05        26.15
   10/11/2013    21:03:05        26.08
   10/11/2013    21:04:06        24.52
   10/11/2013    21:05:04        25.79
   10/11/2013    21:06:04        26.55
   10/11/2013    21:07:04        27.79
   10/11/2013    21:08:05        28.72
   10/11/2013    21:09:05        27.24
   10/11/2013    21:10:05        30.06
   10/11/2013    21:11:05        33.03
   10/11/2013    21:12:06        28.99
   10/11/2013    21:13:04        20.95
   10/11/2013    21:14:04        19.34
   10/11/2013    21:15:05        19.67
   10/11/2013    21:16:05        21.55
   10/11/2013    21:17:05        26.17
   10/11/2013    21:18:05        34.11
   10/11/2013    21:19:06        29.02
   10/11/2013    21:20:06        23.47
   10/11/2013    21:21:04        18.29
   10/11/2013    21:22:04        20.47
   10/11/2013    21:23:05        20.63
   10/11/2013    21:24:05        18.82
   10/11/2013    21:25:05        18.74
   10/11/2013    21:26:06        17.07
   10/11/2013    21:27:04         17.1
   10/11/2013    21:28:04        18.57
   10/11/2013    21:29:05        22.44
   10/11/2013    21:30:05        23.51
   10/11/2013    21:31:05         23.1
   10/11/2013    21:32:05        23.66
   10/11/2013    21:33:05        26.36
```

```
   10/11/2013    21:34:06        29.16
   10/11/2013    21:35:04        30.42
   10/11/2013    21:36:04        24.58
   10/11/2013    21:37:05        22.02
   10/11/2013    21:38:05        21.27
   10/11/2013    21:39:05        22.01
   10/11/2013    21:40:05         21.7
   10/11/2013    21:41:06        25.89
   10/11/2013    21:42:06        27.16
   10/11/2013    21:43:04        26.97
   10/11/2013    21:44:04        27.62
   10/11/2013    21:45:04        25.38
   10/11/2013    21:46:05        22.73
   10/11/2013    21:47:05        22.71
   10/11/2013    21:48:05        24.06
Average         1802 samp       24.43
Test Run  12  End
```

Test Run 13 Begin. STRATA Version 3.2
Operator: DGG
Plant Name: Enviva Wiggins

Start Averaging

		THC ppm
10/12/2013	8:58:20	33.01
10/12/2013	8:59:20	33.09
10/12/2013	9:00:21	33.69
10/12/2013	9:01:21	33.38
10/12/2013	9:02:19	34.58
10/12/2013	9:03:19	34.24
10/12/2013	9:04:20	32.82
10/12/2013	9:05:20	31.76
10/12/2013	9:06:20	31.56
10/12/2013	9:07:20	32.43
10/12/2013	9:08:21	32.07
10/12/2013	9:09:21	33.62
10/12/2013	9:10:21	35.22
10/12/2013	9:11:19	35.73
10/12/2013	9:12:20	36.7
10/12/2013	9:13:20	38.36
10/12/2013	9:14:20	39.65
10/12/2013	9:15:20	36.74
10/12/2013	9:16:21	34.73
10/12/2013	9:17:21	37.06
10/12/2013	9:18:19	39.31
10/12/2013	9:19:19	40.7
10/12/2013	9:20:20	41.32
10/12/2013	9:21:20	42.72
10/12/2013	9:22:20	44.45
10/12/2013	9:23:21	41.77
10/12/2013	9:24:21	41.75
10/12/2013	9:25:19	40.84
10/12/2013	9:26:19	40.01
10/12/2013	9:27:20	39.81
10/12/2013	9:28:20	38.16
10/12/2013	9:29:20	36.14
10/12/2013	9:30:20	33.8
10/12/2013	9:31:21	42.88
10/12/2013	9:32:21	44.68
10/12/2013	9:33:19	48.06
10/12/2013	9:34:19	48.98
10/12/2013	9:35:20	49.89
10/12/2013	9:36:20	50.59
10/12/2013	9:37:20	48.17
10/12/2013	9:38:20	42.62
10/12/2013	9:39:21	41.05
10/12/2013	9:40:21	40.93
10/12/2013	9:41:19	38.08
10/12/2013	9:42:19	36.88

10/12/2013	9:43:20	38.28
10/12/2013	9:44:20	37.83
10/12/2013	9:45:20	38.96
10/12/2013	9:46:20	39.74
10/12/2013	9:47:21	39.65
10/12/2013	9:48:21	38.16
10/12/2013	9:49:19	36.49
10/12/2013	9:50:19	37.79
10/12/2013	9:51:20	38.86
10/12/2013	9:52:20	38.2
10/12/2013	9:53:20	39.36
10/12/2013	9:54:21	42.28
10/12/2013	9:55:21	42.37
10/12/2013	9:56:19	42.48
10/12/2013	9:57:19	42.15
10/12/2013	9:58:20	42.58
Average	1843 samp	39.05

Test Run 13 End

Test Run 14 Begin. STRATA Version 3.2
Operator: DGG
Plant Name: Enviva Wiggins

Start Averaging

		THC ppm
10/12/2013	10:23:19	38.78
10/12/2013	10:24:19	38.95
10/12/2013	10:25:20	37.38
10/12/2013	10:26:20	35.26
10/12/2013	10:27:20	33.47
10/12/2013	10:28:21	33.54
10/12/2013	10:29:21	35.1
10/12/2013	10:30:19	36.39
10/12/2013	10:31:19	38.16
10/12/2013	10:32:20	37.83
10/12/2013	10:33:20	38.5
10/12/2013	10:34:20	39.8
10/12/2013	10:35:20	41.11
10/12/2013	10:36:20	43.31
10/12/2013	10:37:21	43.12
10/12/2013	10:38:19	41.6
10/12/2013	10:39:19	40.09
10/12/2013	10:40:20	41.76
10/12/2013	10:41:20	37.42
10/12/2013	10:42:20	35.32
10/12/2013	10:43:20	36.85
10/12/2013	10:44:21	37.03
10/12/2013	10:45:21	37.63
10/12/2013	10:46:19	37.23
10/12/2013	10:47:19	36.6
10/12/2013	10:48:20	36.58
10/12/2013	10:49:20	34.3
10/12/2013	10:50:20	32.95
10/12/2013	10:51:20	35.86
10/12/2013	10:52:21	40.36
10/12/2013	10:53:21	41.13
10/12/2013	10:54:19	40.92
10/12/2013	10:55:19	38.94
10/12/2013	10:56:20	35.9
10/12/2013	10:57:20	34.71
10/12/2013	10:58:20	35.12
10/12/2013	10:59:20	38.4
10/12/2013	11:00:21	38.46
10/12/2013	11:01:19	38.96
10/12/2013	11:02:19	39.11
10/12/2013	11:03:20	39.66
10/12/2013	11:04:20	37.43
10/12/2013	11:05:20	32.13
10/12/2013	11:06:20	25.88
10/12/2013	11:07:21	22.76

10/12/2013	11:08:19	20.44
10/12/2013	11:09:19	21.39
10/12/2013	11:10:20	19.1
10/12/2013	11:11:20	20.05
10/12/2013	11:12:20	19.67
10/12/2013	11:13:20	20.48
10/12/2013	11:14:21	23.27
10/12/2013	11:15:21	23.34
10/12/2013	11:16:19	22.56
10/12/2013	11:17:19	20.89
10/12/2013	11:18:20	21.23
10/12/2013	11:19:20	22.61
10/12/2013	11:20:20	24.32
10/12/2013	11:21:20	25.83
10/12/2013	11:22:21	25.38
Average	1802 samp	33.29
Test Run 14 End		

```
Test Run 15  Begin.  STRATA Version 3.2
Operator:     DGG
Plant Name:  Enviva Wiggins
                              THC
                              ppm
Start Averaging
  10/12/2013    11:41:41      42.04
  10/12/2013    11:42:42      38.71
  10/12/2013    11:43:42      37.78
  10/12/2013    11:44:42      33.87
  10/12/2013    11:45:42      33.86
  10/12/2013    11:46:43      38.57
  10/12/2013    11:47:43      38.29
  10/12/2013    11:48:41      37.43
  10/12/2013    11:49:41      35.42
  10/12/2013    11:50:42      35.35
  10/12/2013    11:51:42      36.29
  10/12/2013    11:52:42      36.18
  10/12/2013    11:53:42      39.17
  10/12/2013    11:54:43      41.21
  10/12/2013    11:55:43      45.09
  10/12/2013    11:56:41      44.99
  10/12/2013    11:57:42      42.66
  10/12/2013    11:58:42      41.22
  10/12/2013    11:59:42      40.64
  10/12/2013    12:00:42      41.76
  10/12/2013    12:01:43      41.25
  10/12/2013    12:02:43      40.48
  10/12/2013    12:03:41       40.5
  10/12/2013    12:04:41      35.92
  10/12/2013    12:05:42      39.32
  10/12/2013    12:06:42      39.55
  10/12/2013    12:07:42      37.98
  10/12/2013    12:08:42      37.41
  10/12/2013    12:09:43      34.56
  10/12/2013    12:10:43      32.14
  10/12/2013    12:11:41      30.17
  10/12/2013    12:12:42       29.4
  10/12/2013    12:13:42      31.84
  10/12/2013    12:14:42      31.63
  10/12/2013    12:15:42      30.68
  10/12/2013    12:16:43      30.88
  10/12/2013    12:17:43      31.21
  10/12/2013    12:18:41      33.29
  10/12/2013    12:19:41      35.08
  10/12/2013    12:20:42      36.57
  10/12/2013    12:21:42      34.06
  10/12/2013    12:22:42      32.44
  10/12/2013    12:23:43      31.77
  10/12/2013    12:24:43      31.01
  10/12/2013    12:25:41      31.56
```

10/12/2013	12:26:41	32.83
10/12/2013	12:27:42	31.92
10/12/2013	12:28:42	33.46
10/12/2013	12:29:42	33.76
10/12/2013	12:30:43	33.98
10/12/2013	12:31:43	33.51
10/12/2013	12:32:41	33.07
10/12/2013	12:33:41	32.11
10/12/2013	12:34:41	34.32
10/12/2013	12:35:42	32.87
10/12/2013	12:36:42	33.76
10/12/2013	12:37:42	35.71
10/12/2013	12:38:42	32.83
10/12/2013	12:39:43	31.48
10/12/2013	12:40:43	32.15
Average	1794 samp	35.65
Test Run 15 End		

```
Test Run 1  Begin.  STRATA Version 3.2
Operator:       DGG
Plant Name:   Enviva Wiggins
                                    THC
                                    ppm
Start Averaging
  10/12/2013   15:09:26    1001.1
  10/12/2013   15:10:26    1022.4
  10/12/2013   15:11:26    1009.4
  10/12/2013   15:12:26    1027.4
  10/12/2013   15:13:27    1045.1
  10/12/2013   15:14:27    1073.3
  10/12/2013   15:15:26    1039.6
  10/12/2013   15:16:26    1038.3
  10/12/2013   15:17:26    1049.6
  10/12/2013   15:18:26    1074.6
  10/12/2013   15:19:27    1072.1
  10/12/2013   15:20:27    1010.8
  10/12/2013   15:21:27     962.7
  10/12/2013   15:22:25     922.6
  10/12/2013   15:23:26     912.5
  10/12/2013   15:24:26     885.5
  10/12/2013   15:25:26       971
  10/12/2013   15:26:27      1016
  10/12/2013   15:27:27    1059.8
  10/12/2013   15:28:27    1099.5
  10/12/2013   15:29:25    1128.8
  10/12/2013   15:30:26    1126.8
  10/12/2013   15:31:26    1103.4
  10/12/2013   15:32:26    1069.6
  10/12/2013   15:33:27    1011.3
  10/12/2013   15:34:27    1040.7
  10/12/2013   15:35:27    1079.2
  10/12/2013   15:36:25      1094
  10/12/2013   15:37:26    1082.4
  10/12/2013   15:38:26    1112.7
  10/12/2013   15:39:26    1120.2
  10/12/2013   15:40:26    1154.1
  10/12/2013   15:41:27    1168.4
  10/12/2013   15:42:27    1163.2
  10/12/2013   15:43:27    1133.2
  10/12/2013   15:44:26    1049.9
  10/12/2013   15:45:26    1053.5
  10/12/2013   15:46:26      1027
  10/12/2013   15:47:26    1020.1
  10/12/2013   15:48:27    1022.4
  10/12/2013   15:49:27      1050
  10/12/2013   15:50:27    1065.4
  10/12/2013   15:51:25    1040.1
  10/12/2013   15:52:26    1079.5
  10/12/2013   15:53:26    1113.1
```

10/12/2013	15:54:26	1144
10/12/2013	15:55:26	1128.2
10/12/2013	15:56:27	1054
10/12/2013	15:57:27	993.8
10/12/2013	15:58:27	1039.7
10/12/2013	15:59:25	1073
10/12/2013	16:00:26	1061.5
10/12/2013	16:01:26	1101.2
10/12/2013	16:02:26	1085.7
10/12/2013	16:03:26	1125.9
10/12/2013	16:04:27	1169.1
10/12/2013	16:05:27	1190.6
10/12/2013	16:06:27	1218.4
10/12/2013	16:07:26	1252.7
10/12/2013	16:08:26	1293.9
Average	1811 samp	1074.7

Test Run 1 End

Test Run 2 Begin. STRATA Version 3.2
Operator: DGG
Plant Name: Enviva Wiggins

Start Averaging

		THC ppm
10/12/2013	16:36:23	989.3
10/12/2013	16:37:21	1058.5
10/12/2013	16:38:22	1059.2
10/12/2013	16:39:22	1090.3
10/12/2013	16:40:22	1113.4
10/12/2013	16:41:23	1157.2
10/12/2013	16:42:23	1148.6
10/12/2013	16:43:23	1105.5
10/12/2013	16:44:21	1046.7
10/12/2013	16:45:22	1012.7
10/12/2013	16:46:22	968.8
10/12/2013	16:47:22	963.1
10/12/2013	16:48:22	949.2
10/12/2013	16:49:23	960.6
10/12/2013	16:50:23	959
10/12/2013	16:51:21	942.5
10/12/2013	16:52:22	962.3
10/12/2013	16:53:22	925.5
10/12/2013	16:54:22	960.7
10/12/2013	16:55:23	971.3
10/12/2013	16:56:23	990.3
10/12/2013	16:57:23	949.2
10/12/2013	16:58:21	891.5
10/12/2013	16:59:22	905.3
10/12/2013	17:00:22	914.1
10/12/2013	17:01:22	914.2
10/12/2013	17:02:23	926.1
10/12/2013	17:03:23	930.9
10/12/2013	17:04:23	895.7
10/12/2013	17:05:21	943.1
10/12/2013	17:06:22	943.9
10/12/2013	17:07:22	978.3
10/12/2013	17:08:22	940.6
10/12/2013	17:09:23	993.2
10/12/2013	17:10:23	996.5
10/12/2013	17:11:23	986.9
10/12/2013	17:12:21	952
10/12/2013	17:13:22	875.5
10/12/2013	17:14:22	916.5
10/12/2013	17:15:22	939.4
10/12/2013	17:16:23	930.8
10/12/2013	17:17:23	919.8
10/12/2013	17:18:23	938.6
10/12/2013	17:19:21	999.3
10/12/2013	17:20:22	986.2

10/12/2013	17:21:22	963
10/12/2013	17:22:22	910.9
10/12/2013	17:23:23	886.5
10/12/2013	17:24:23	873.2
10/12/2013	17:25:21	870.2
10/12/2013	17:26:21	876.3
10/12/2013	17:27:22	925.8
10/12/2013	17:28:22	911.6
10/12/2013	17:29:22	865.7
10/12/2013	17:30:22	850
10/12/2013	17:31:23	893.9
10/12/2013	17:32:23	913.1
10/12/2013	17:33:21	915.1
10/12/2013	17:34:21	918.1
10/12/2013	17:35:22	960.6
10/12/2013	17:36:22	942.2
Average	1824 samp	957

Test Run 2 End

Test Run 3 Begin. STRATA Version 3.2
Operator: DGG
Plant Name: Enviva Wiggins

		THC ppm
Start Averaging		
10/12/2013	18:00:49	1126.2
10/12/2013	18:01:49	1091.3
10/12/2013	18:02:49	1034.6
10/12/2013	18:03:49	996.3
10/12/2013	18:04:50	1063.4
10/12/2013	18:05:50	1027.2
10/12/2013	18:06:50	995.6
10/12/2013	18:07:48	1085.5
10/12/2013	18:08:49	1133.7
10/12/2013	18:09:49	1177.7
10/12/2013	18:10:49	1174.3
10/12/2013	18:11:50	1169.6
10/12/2013	18:12:50	1112.9
10/12/2013	18:13:50	1135.7
10/12/2013	18:14:50	1102.2
10/12/2013	18:15:49	1176.6
10/12/2013	18:16:49	1201.9
10/12/2013	18:17:49	1217
10/12/2013	18:18:49	1248
10/12/2013	18:19:50	1297.6
10/12/2013	18:20:50	1351.7
10/12/2013	18:21:50	1412.8
10/12/2013	18:22:49	1417.9
10/12/2013	18:23:49	1368.5
10/12/2013	18:24:49	1287.4
10/12/2013	18:25:49	1173.7
10/12/2013	18:26:50	1198.4
10/12/2013	18:27:50	1205.2
10/12/2013	18:28:50	1198.8
10/12/2013	18:29:50	1194.9
10/12/2013	18:30:49	1174.8
10/12/2013	18:31:49	1184.2
10/12/2013	18:32:49	1161.6
10/12/2013	18:33:50	1200.8
10/12/2013	18:34:50	1239.5
10/12/2013	18:35:50	1260.8
10/12/2013	18:36:50	1242.4
10/12/2013	18:37:49	1230.9
10/12/2013	18:38:49	1200.6
10/12/2013	18:39:49	1159
10/12/2013	18:40:49	1156.6
10/12/2013	18:41:50	1183.6
10/12/2013	18:42:50	1112.7
10/12/2013	18:43:50	1146.3
10/12/2013	18:44:48	1178.5

10/12/2013	18:45:49	1184.8
10/12/2013	18:46:49	1190.2
10/12/2013	18:47:49	1236.3
10/12/2013	18:48:50	1229.3
10/12/2013	18:49:50	1299.9
10/12/2013	18:50:50	1314.9
10/12/2013	18:51:48	1303.2
10/12/2013	18:52:49	1305.8
10/12/2013	18:53:49	1308.6
10/12/2013	18:54:49	1314
10/12/2013	18:55:50	1277
10/12/2013	18:56:50	1203.3
10/12/2013	18:57:50	1144.9
10/12/2013	18:58:48	1242.6
10/12/2013	18:59:49	1242.4
Average	1796 samp	1200

Test Run 3 End

Test Run 9 Begin. STRATA Version 3.2
Operator: DGG
Plant Name: Enviva Wiggins

		THC ppm
Start Averaging		
10/13/2013	9:22:03	71.7
10/13/2013	9:23:03	73.9
10/13/2013	9:24:04	76.1
10/13/2013	9:25:04	78.7
10/13/2013	9:26:04	80.4
10/13/2013	9:27:04	82.1
10/13/2013	9:28:05	83.8
10/13/2013	9:29:03	85.1
10/13/2013	9:30:03	85.8
10/13/2013	9:31:03	86.3
10/13/2013	9:32:04	86.9
10/13/2013	9:33:04	87.8
10/13/2013	9:34:04	88
10/13/2013	9:35:05	89.5
10/13/2013	9:36:03	87.7
10/13/2013	9:37:03	87
10/13/2013	9:38:03	86.1
10/13/2013	9:39:04	85.2
10/13/2013	9:40:04	84.8
10/13/2013	9:41:04	85.1
10/13/2013	9:42:04	85.9
10/13/2013	9:43:05	87.4
10/13/2013	9:44:03	88.9
10/13/2013	9:45:03	89.8
10/13/2013	9:46:03	90.7
10/13/2013	9:47:04	90.6
10/13/2013	9:48:04	90.8
10/13/2013	9:49:04	92.2
10/13/2013	9:50:05	93.7
10/13/2013	9:51:03	93.8
10/13/2013	9:52:03	94.6
10/13/2013	9:53:03	95.6
10/13/2013	9:54:04	96
10/13/2013	9:55:04	96.3
10/13/2013	9:56:04	97
10/13/2013	9:57:04	97.5
10/13/2013	9:58:05	98
10/13/2013	9:59:03	98.3
10/13/2013	10:00:03	99.7
10/13/2013	10:01:03	100.8
10/13/2013	10:02:04	101.7
10/13/2013	10:03:04	102.4
10/13/2013	10:04:04	103
10/13/2013	10:05:05	102.3
10/13/2013	10:06:03	101.1

10/13/2013	10:07:03	100
10/13/2013	10:08:03	98.6
10/13/2013	10:09:04	98.2
10/13/2013	10:10:04	98.4
10/13/2013	10:11:04	98.1
10/13/2013	10:12:04	97.6
10/13/2013	10:13:05	96.8
10/13/2013	10:14:03	95.4
10/13/2013	10:15:03	92.2
10/13/2013	10:16:03	91.5
10/13/2013	10:17:04	93.1
10/13/2013	10:18:04	94.6
10/13/2013	10:19:04	97.1
10/13/2013	10:20:04	97.7
10/13/2013	10:21:05	97.5
Average	1797 samp	91.8

Test Run 9 End

```
Test Run 10  Begin.  STRATA Version 3.2
Operator:      DGG
Plant Name:  Enviva Wiggins
                                      THC
                                      ppm
Start Averaging
  10/13/2013    11:04:49       77.08
  10/13/2013    11:05:50       78.11
  10/13/2013    11:06:50       78.19
  10/13/2013    11:07:50       77.63
  10/13/2013    11:08:50       77.56
  10/13/2013    11:09:51       77.71
  10/13/2013    11:10:51       77.97
  10/13/2013    11:11:49       77.89
  10/13/2013    11:12:49       78.97
  10/13/2013    11:13:50       79.14
  10/13/2013    11:14:50       77.97
  10/13/2013    11:15:51       76.86
  10/13/2013    11:16:49       76.19
  10/13/2013    11:17:49       76.58
  10/13/2013    11:18:50       76.82
  10/13/2013    11:19:50       77.53
  10/13/2013    11:20:50       78.27
  10/13/2013    11:21:50       79.01
  10/13/2013    11:22:51       79.04
  10/13/2013    11:23:51       78.95
  10/13/2013    11:24:49       78.85
  10/13/2013    11:25:50       78.45
  10/13/2013    11:26:50        78.1
  10/13/2013    11:27:50       78.55
  10/13/2013    11:28:50       78.58
  10/13/2013    11:29:51       78.39
  10/13/2013    11:30:51       78.37
  10/13/2013    11:31:49       79.42
  10/13/2013    11:32:49       81.98
  10/13/2013    11:33:50       84.04
  10/13/2013    11:34:50       83.84
  10/13/2013    11:35:50       83.55
  10/13/2013    11:36:50       83.19
  10/13/2013    11:37:51       82.62
  10/13/2013    11:38:51       82.45
  10/13/2013    11:39:49       82.09
  10/13/2013    11:40:49       81.91
  10/13/2013    11:41:50       81.54
  10/13/2013    11:42:50       81.56
  10/13/2013    11:43:50       82.21
  10/13/2013    11:44:51       82.55
  10/13/2013    11:45:51        82.6
  10/13/2013    11:46:49       82.99
  10/13/2013    11:47:49       83.33
  10/13/2013    11:48:50       83.22
```

10/13/2013	11:49:50	83.17
10/13/2013	11:50:50	84.26
10/13/2013	11:51:50	86.33
10/13/2013	11:52:51	87.37
10/13/2013	11:53:51	85.99
10/13/2013	11:54:49	85.29
10/13/2013	11:55:49	85.22
10/13/2013	11:56:50	86.39
10/13/2013	11:57:50	86.43
10/13/2013	11:58:50	85.81
10/13/2013	11:59:50	86.1
10/13/2013	12:00:51	86.23
10/13/2013	12:01:51	84.93
10/13/2013	12:02:49	82.97
10/13/2013	12:03:50	82.23
10/13/2013	12:04:50	84.21
Average	1825 samp	81.24

Test Run 10 End

```
Test Run 11  Begin.  STRATA Version 3.2
Operator:      DGG
Plant Name:    Enviva Wiggins
                              THC
                              ppm
Start Averaging
   10/13/2013   12:31:14    107.99
   10/13/2013   12:32:14     108.6
   10/13/2013   12:33:15    109.57
   10/13/2013   12:34:15    112.47
   10/13/2013   12:35:15    115.91
Pause
   10/13/2013   12:36:15    115.09
   10/13/2013   12:37:14    112.39
   10/13/2013   12:38:14    111.26
   10/13/2013   12:39:14    112.42
   10/13/2013   12:40:14    113.56
   10/13/2013   12:41:15    114.42
   10/13/2013   12:42:15    113.98
   10/13/2013   12:43:15    112.12
   10/13/2013   12:44:15     110.5
   10/13/2013   12:45:14     109.3
   10/13/2013   12:46:14    108.63
   10/13/2013   12:47:14    110.13
   10/13/2013   12:48:14    112.11
   10/13/2013   12:49:15     112.2
   10/13/2013   12:50:15    111.62
   10/13/2013   12:51:15    111.91
End Pause
   10/13/2013   12:52:15    111.76
   10/13/2013   12:53:14    110.85
   10/13/2013   12:54:14    109.25
   10/13/2013   12:55:14    107.32
   10/13/2013   12:56:15     105.6
   10/13/2013   12:57:15    105.51
   10/13/2013   12:58:15    105.13
   10/13/2013   12:59:15    103.83
   10/13/2013   13:00:15    101.32
   10/13/2013   13:01:14    100.13
   10/13/2013   13:02:14      99.2
   10/13/2013   13:03:14        99
   10/13/2013   13:04:14      99.6
   10/13/2013   13:05:15    100.72
   10/13/2013   13:06:15    100.21
   10/13/2013   13:07:15     99.39
   10/13/2013   13:08:15        99
   10/13/2013   13:09:14     98.91
   10/13/2013   13:10:14     98.55
   10/13/2013   13:11:14     99.06
   10/13/2013   13:12:15     99.18
   10/13/2013   13:13:15     99.24
```

10/13/2013	13:14:15	100.67
10/13/2013	13:15:15	101.29
10/13/2013	13:16:14	100.86
10/13/2013	13:17:14	100.04
10/13/2013	13:18:14	99.03
10/13/2013	13:19:14	99.26
10/13/2013	13:20:15	100.68
10/13/2013	13:21:15	100.36
10/13/2013	13:22:15	99.65
10/13/2013	13:23:15	98.28
10/13/2013	13:24:14	96.42
10/13/2013	13:25:14	96.23
10/13/2013	13:26:14	96.14
10/13/2013	13:27:14	94.87
10/13/2013	13:28:15	95.34
10/13/2013	13:29:15	94.94
10/13/2013	13:30:15	94.01
10/13/2013	13:31:14	92.64
10/13/2013	13:32:14	91.56
10/13/2013	13:33:14	89.78
10/13/2013	13:34:14	87.93
10/13/2013	13:35:15	86.12
10/13/2013	13:36:15	85.57
10/13/2013	13:37:15	85.8
10/13/2013	13:38:14	85.88
10/13/2013	13:39:14	85.76
10/13/2013	13:40:14	85.56
10/13/2013	13:41:14	85.49
10/13/2013	13:42:15	84.8
10/13/2013	13:43:15	84.44
10/13/2013	13:44:15	83.05
10/13/2013	13:45:15	81.96
10/13/2013	13:46:14	81
10/13/2013	13:47:14	81.22
Average	1833 samp	97.19
Test Run 11 End		

Enviva - Wiggins
Run 1

Date: 10-Oct
Run Time: 0917-1017
(CEM Run Time Eastern)

Parameter	Symbol	Green Hammermill	
		THC (as C_3H_8)	
		ppm$_w$	
Analyzer Calibration Error - Calibration Standards			
Zero Gas	$C_{v,\ zero}$	0.0	
Low-Level Gas	$C_{v,\ low}$	27.99	
Mid-Level Gas	$C_{v,\ mid}$	50	
High-Level Gas	$C_{v,\ high}$	86.13	
Calibration Span	CS	100	
Analyzer Calibration Error - Instrument Response			
Zero Gas	$C_{Dir,\ zero}$	0.0	0900
Low-Level Gas	$C_{Dir,\ low}$	28.3	
Mid-Level Gas	$C_{Dir,\ mid}$	50.8	
High-Level Gas	$C_{Dir,\ high}$	86.5	
Analyzer Calibration Error - Results (Percent of Span)			
Zero Gas	ACE_{zero}	0.0	
Low-Level Gas	ACE_{low}	1.1	
Mid-Level Gas	ACE_{mid}	1.6	
High-Level Gas	ACE_{high}	0.4	
Specification	ACE_{spec}	±5	
System Calibrations - Instrument Response			
Initial Zero	$C_{s,\ zero\ (pre)}$	0	
Final Zero	$C_{s,\ zero\ (post)}$	0.11	
Upscale Gas Standard	C_{MA}	50.0	
Initial Upscale	$C_{v,\ up\ (pre)}$	50.8	
Final Upscale	$C_{v,\ up\ (post)}$	50.65	
System Bias - Results (Percent)			
Zero (pre)	$SB_{i\ (zero)}$	0.0	
Zero (post)	$SB_{final\ (zero)}$	0.1	
Upscale (pre)	$SB_{i\ (upscale)}$	0.0	
Upscale (post)	$SB_{final\ (upscale)}$	-0.1	
Specification	SB_{spec}	NA	
System Drift - Results (Percent)			
Zero	D_{zero}	0.1	
Upscale	$D_{upscale}$	-0.1	
Specification	D_{spec}	±3	
Response Test - Results (seconds)			
Upscale Test		NA	
Zero Test		NA	
Response Time		28	
Calibration Correction			
Raw Average	C_{ave}	30.8	
Bias Average - Zero	C_0	N/A	
Bias Average - Upscale	C_M	N/A	
Corrected Run Average	C_{Gas}	**30.8**	

Enviva - Wiggins
Run 2

Date: 10-Oct
Run Time: 1036-1136

Parameter	Symbol	Green Hammermill
		THC (as C_3H_8)
		ppm_w
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	0.0
Low-Level Gas	$C_{Dir,\ low}$	28.3
Mid-Level Gas	$C_{Dir,\ mid}$	50.8
High-Level Gas	$C_{Dir,\ high}$	86.5
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.0
Low-Level Gas	ACE_{low}	1.1
Mid-Level Gas	ACE_{mid}	1.6
High-Level Gas	ACE_{high}	0.4
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0.11
Final Zero	$C_{s,\ zero\ (post)}$	0.05
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	50.65
Final Upscale	$C_{v,\ up\ (post)}$	50.1
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.1
Zero (post)	$SB_{final\ (zero)}$	0.1
Upscale (pre)	$SB_{i\ (upscale)}$	-0.1
Upscale (post)	$SB_{final\ (upscale)}$	-0.7
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	-0.1
Upscale	$D_{upscale}$	-0.5
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	32.23
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**32.2**

Enviva - Wiggins
Run 3

Date: 10-Oct
Run Time: 1150-1250

Parameter	**Symbol**	**Green Hammermill** **THC (as C_3H_8)** **ppm$_w$**
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	0.0
Low-Level Gas	$C_{Dir,\ low}$	28.3
Mid-Level Gas	$C_{Dir,\ mid}$	50.8
High-Level Gas	$C_{Dir,\ high}$	86.5
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.0
Low-Level Gas	ACE_{low}	1.1
Mid-Level Gas	ACE_{mid}	1.6
High-Level Gas	ACE_{high}	0.4
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0.05
Final Zero	$C_{s,\ zero\ (post)}$	0.1
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	50.1
Final Upscale	$C_{v,\ up\ (post)}$	49.8
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.1
Zero (post)	$SB_{final\ (zero)}$	0.1
Upscale (pre)	$SB_{i\ (upscale)}$	-0.7
Upscale (post)	$SB_{final\ (upscale)}$	-1.0
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	0.1
Upscale	$D_{upscale}$	-0.3
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	26.38
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**26.4**

Enviva - Wiggins
Run #7

Date: 11-Oct
Run Time: 1343-1443

Parameter	Symbol	Pellet Cooler 2 THC (as C_3H_8) ppm_w
Analyzer Calibration Error - Calibration Standards		
Zero Gas	$C_{v,\ zero}$	0.0
Low-Level Gas	$C_{v,\ low}$	27.99
Mid-Level Gas	$C_{v,\ mid}$	50
High-Level Gas	$C_{v,\ high}$	86.13
Calibration Span	CS	100
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir.\ zero}$	0.0
Low-Level Gas	$C_{Dir.\ low}$	28.1
Mid-Level Gas	$C_{Dir.\ mid}$	51.1
High-Level Gas	$C_{Dir.\ high}$	86.15
Analyzer Calibration Error - Results (Percent of Span		
Zero Gas	ACE_{zero}	0.0
Low-Level Gas	ACE_{low}	0.4
Mid-Level Gas	ACE_{mid}	2.2
High-Level Gas	ACE_{high}	0.0
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0.04
Final Zero	$C_{s,\ zero\ (post)}$	0.35
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	50.14
Final Upscale	$C_{v,\ up\ (post)}$	50.2
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.0
Zero (post)	$SB_{final\ (zero)}$	0.3
Upscale (pre)	$SB_{i\ (upscale)}$	-1.0
Upscale (post)	$SB_{final\ (upscale)}$	-0.9
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	0.3
Upscale	$D_{upscale}$	0.1
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	23.80
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**23.8**

Enviva - Wiggins		Date:	11-Oct
Run #8		Run Time:	1508-1608

Parameter	Symbol	Pellet Cooler 2 THC (as C_3H_8) ppm_w
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	0.0
Low-Level Gas	$C_{Dir,\ low}$	28.1
Mid-Level Gas	$C_{Dir,\ mid}$	51.1
High-Level Gas	$C_{Dir,\ high}$	86.2
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.0
Low-Level Gas	ACE_{low}	0.4
Mid-Level Gas	ACE_{mid}	2.2
High-Level Gas	ACE_{high}	0.0
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0.35
Final Zero	$C_{s,\ zero\ (post)}$	0.18
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	50.2
Final Upscale	$C_{v,\ up\ (post)}$	50.1
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.3
Zero (post)	$SB_{final\ (zero)}$	0.1
Upscale (pre)	$SB_{i\ (upscale)}$	-0.9
Upscale (post)	$SB_{final\ (upscale)}$	-1.0
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	-0.2
Upscale	$D_{upscale}$	-0.1
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	21.29
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**21.3**

Enviva - Wiggins
Run #9

Date: 11-Oct
Run Time: 29-1729

Parameter	Symbol	Pellet Cooler 2 THC (as C_3H_8) ppm_w
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	0.0
Low-Level Gas	$C_{Dir,\ low}$	28.1
Mid-Level Gas	$C_{Dir,\ mid}$	51.1
High-Level Gas	$C_{Dir,\ high}$	86.2
Analyzer Calibration Error - Results (Percent of Span		
Zero Gas	ACE_{zero}	0.0
Low-Level Gas	ACE_{low}	0.4
Mid-Level Gas	ACE_{mid}	2.2
High-Level Gas	ACE_{high}	0.0
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0.18
Final Zero	$C_{s,\ zero\ (post)}$	0.2
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	50.1
Final Upscale	$C_{v,\ up\ (post)}$	49.8
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.1
Zero (post)	$SB_{final\ (zero)}$	0.2
Upscale (pre)	$SB_{i\ (upscale)}$	-1.0
Upscale (post)	$SB_{final\ (upscale)}$	-1.3
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	0.0
Upscale	$D_{upscale}$	-0.3
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	24.84
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**24.8**

Enviva - Wiggins
Run #4

Date: 10-Oct
Run Time: 1738-1838

Parameter	Symbol	Dryer 1
		THC (as C_3H_8)
		ppm_w
Analyzer Calibration Error - Calibration Standards		
Zero Gas	$C_{v,\ zero}$	0.0
Low-Level Gas	$C_{v,\ low}$	27.99
Mid-Level Gas	$C_{v,\ mid}$	50
High-Level Gas	$C_{v,\ high}$	86.13
Calibration Span	CS	100
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	0.0
Low-Level Gas	$C_{Dir,\ low}$	28.3
Mid-Level Gas	$C_{Dir,\ mid}$	50.8
High-Level Gas	$C_{Dir,\ high}$	86.5
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.0
Low-Level Gas	ACE_{low}	1.1
Mid-Level Gas	ACE_{mid}	1.6
High-Level Gas	ACE_{high}	0.4
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0
Final Zero	$C_{s,\ zero\ (post)}$	0.85
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	50.8
Final Upscale	$C_{v,\ up\ (post)}$	50.9
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.0
Zero (post)	$SB_{final\ (zero)}$	0.9
Upscale (pre)	$SB_{i\ (upscale)}$	0.0
Upscale (post)	$SB_{final\ (upscale)}$	0.1
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	0.9
Upscale	$D_{upscale}$	0.1
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	66.70
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	66.7

Enviva - Wiggins
Run #5

Date: 11-Oct
Run Time: 1000-1100

Parameter	**Symbol**	**Dryer 1**
		THC (as C_3H_8)
		ppm_w
Analyzer Calibration Error - Calibration Standards		
Zero Gas	$C_{v,\,zero}$	0.0
Low-Level Gas	$C_{v,\,low}$	28.0
Mid-Level Gas	$C_{v,\,mid}$	50.0
High-Level Gas	$C_{v,\,high}$	86.1
Calibration Span	CS	100.0
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\,zero}$	0.0
Low-Level Gas	$C_{Dir,\,low}$	28.1
Mid-Level Gas	$C_{Dir,\,mid}$	51.1
High-Level Gas	$C_{Dir,\,high}$	86.2
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.0
Low-Level Gas	ACE_{low}	0.4
Mid-Level Gas	ACE_{mid}	2.2
High-Level Gas	ACE_{high}	0.0
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\,zero\,(pre)}$	0.85
Final Zero	$C_{s,\,zero\,(post)}$	0.15
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\,up\,(pre)}$	50.9
Final Upscale	$C_{v,\,up\,(post)}$	50.5
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\,(zero)}$	0.8
Zero (post)	$SB_{final\,(zero)}$	0.1
Upscale (pre)	$SB_{i\,(upscale)}$	-0.2
Upscale (post)	$SB_{final\,(upscale)}$	-0.6
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	-0.7
Upscale	$D_{upscale}$	-0.4
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	61.92
Bias Average - Zero	C_O	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**61.9**

Enviva - Wiggins
Run #6

Date: 11-Oct
Run Time: 1137-1237

Parameter	Symbol	Dryer 1 THC (as C_3H_8) ppm$_w$
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	0.0
Low-Level Gas	$C_{Dir,\ low}$	28.1
Mid-Level Gas	$C_{Dir,\ mid}$	51.1
High-Level Gas	$C_{Dir,\ high}$	86.2
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.0
Low-Level Gas	ACE_{low}	0.4
Mid-Level Gas	ACE_{mid}	2.2
High-Level Gas	ACE_{high}	0.0
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0.15
Final Zero	$C_{s,\ zero\ (post)}$	0.1
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	50.5
Final Upscale	$C_{v,\ up\ (post)}$	50.14
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.1
Zero (post)	$SB_{final\ (zero)}$	0.1
Upscale (pre)	$SB_{i\ (upscale)}$	-0.6
Upscale (post)	$SB_{final\ (upscale)}$	-1.0
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	-0.1
Upscale	$D_{upscale}$	-0.4
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	57.17
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**57.2**

Enviva - Wiggins
Run 10

Date: 11-Oct
Run Time: 1811-1911

Parameter	Symbol	Hammermill 2
		THC (as C_3H_8)
		ppm$_w$
Analyzer Calibration Error - Calibration Standards		
Zero Gas	$C_{v,\ zero}$	0.0
Low-Level Gas	$C_{v,\ low}$	27.99
Mid-Level Gas	$C_{v,\ mid}$	50
High-Level Gas	$C_{v,\ high}$	86.13
Calibration Span	CS	100
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	0.0
Low-Level Gas	$C_{Dir,\ low}$	28.1
Mid-Level Gas	$C_{Dir,\ mid}$	51.1
High-Level Gas	$C_{Dir,\ high}$	86.15
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.0
Low-Level Gas	ACE_{low}	0.4
Mid-Level Gas	ACE_{mid}	2.2
High-Level Gas	ACE_{high}	0.0
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0.2
Final Zero	$C_{s,\ zero\ (post)}$	0.08
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	49.8
Final Upscale	$C_{v,\ up\ (post)}$	50
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.2
Zero (post)	$SB_{final\ (zero)}$	0.0
Upscale (pre)	$SB_{i\ (upscale)}$	-1.3
Upscale (post)	$SB_{final\ (upscale)}$	-1.1
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	-0.1
Upscale	$D_{upscale}$	0.2
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	25.19
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	25.2

Enviva - Wiggins
Run 11

Date: 11-Oct
Run Time: 1935-2035

Parameter	Symbol	Hammermill 2
		THC (as C_3H_8)
		ppm_w
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	0.0
Low-Level Gas	$C_{Dir,\ low}$	28.1
Mid-Level Gas	$C_{Dir,\ mid}$	51.1
High-Level Gas	$C_{Dir,\ high}$	86.2
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.0
Low-Level Gas	ACE_{low}	0.4
Mid-Level Gas	ACE_{mid}	2.2
High-Level Gas	ACE_{high}	0.0
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0.08
Final Zero	$C_{s,\ zero\ (post)}$	0.21
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	50
Final Upscale	$C_{v,\ up\ (post)}$	49.85
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.0
Zero (post)	$SB_{final\ (zero)}$	0.2
Upscale (pre)	$SB_{i\ (upscale)}$	-1.1
Upscale (post)	$SB_{final\ (upscale)}$	-1.3
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	0.1
Upscale	$D_{upscale}$	-0.1
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	29.72
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**29.7**

Enviva - Wiggins
Run 12

Date: 10/11/2013
Run Time: 2048-2148

Parameter	Symbol	Hammermill 2 THC (as C_3H_8) ppm$_w$
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	0.0
Low-Level Gas	$C_{Dir,\ low}$	28.1
Mid-Level Gas	$C_{Dir,\ mid}$	51.1
High-Level Gas	$C_{Dir,\ high}$	86.2
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.0
Low-Level Gas	ACE_{low}	0.4
Mid-Level Gas	ACE_{mid}	2.2
High-Level Gas	ACE_{high}	0.0
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0.21
Final Zero	$C_{s,\ zero\ (post)}$	0.23
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	49.85
Final Upscale	$C_{v,\ up\ (post)}$	49.9
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.2
Zero (post)	$SB_{final\ (zero)}$	0.2
Upscale (pre)	$SB_{i\ (upscale)}$	-1.3
Upscale (post)	$SB_{final\ (upscale)}$	-1.2
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	0.0
Upscale	$D_{upscale}$	0.0
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	24.43
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**24.4**

Enviva - Wiggins
Run 13

Date: 12-Oct
Run Time: 0858-095

Parameter	Symbol	Pellet Cooler 1
		THC (as C_3H_8)
		ppm$_w$
Analyzer Calibration Error - Calibration Standards		
Zero Gas	$C_{v,\ zero}$	0.0
Low-Level Gas	$C_{v,\ low}$	27.99
Mid-Level Gas	$C_{v,\ mid}$	50
High-Level Gas	$C_{v,\ high}$	86.13
Calibration Span	CS	100
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	0.1
Low-Level Gas	$C_{Dir,\ low}$	28.1
Mid-Level Gas	$C_{Dir,\ mid}$	50.4
High-Level Gas	$C_{Dir,\ high}$	86.15
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.1
Low-Level Gas	ACE_{low}	0.4
Mid-Level Gas	ACE_{mid}	0.8
High-Level Gas	ACE_{high}	0.0
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0.1
Final Zero	$C_{s,\ zero\ (post)}$	0.35
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	50.4
Final Upscale	$C_{v,\ up\ (post)}$	50.3
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.0
Zero (post)	$SB_{final\ (zero)}$	0.3
Upscale (pre)	$SB_{i\ (upscale)}$	0.0
Upscale (post)	$SB_{final\ (upscale)}$	-0.1
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	0.3
Upscale	$D_{upscale}$	-0.1
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	39.05
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	39.1

Enviva - Wiggins
Run 14

Date: 12-Oct
Run Time: 1022-112

Parameter	Symbol	Pellet Cooler 1
		THC (as C_3H_8)
		ppm_w
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	0.1
Low-Level Gas	$C_{Dir,\ low}$	28.1
Mid-Level Gas	$C_{Dir,\ mid}$	50.4
High-Level Gas	$C_{Dir,\ high}$	86.2
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.1
Low-Level Gas	ACE_{low}	0.4
Mid-Level Gas	ACE_{mid}	0.8
High-Level Gas	ACE_{high}	0.0
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0.35
Final Zero	$C_{s,\ zero\ (post)}$	0.24
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	50.3
Final Upscale	$C_{v,\ up\ (post)}$	50.25
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.3
Zero (post)	$SB_{final\ (zero)}$	
Upscale (pre)	$SB_{i\ (upscale)}$	-0.1
Upscale (post)	$SB_{final\ (upscale)}$	
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	-0.1
Upscale	$D_{upscale}$	0.0
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	33.29
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**33.3**

Enviva - Wiggins
Run 15

Date: 12-Oct
Run Time: 1141-124

Parameter	Symbol	Pellet Cooler 1
		THC (as C_3H_8)
		ppm_w
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	0.1
Low-Level Gas	$C_{Dir,\ low}$	28.1
Mid-Level Gas	$C_{Dir,\ mid}$	50.4
High-Level Gas	$C_{Dir,\ high}$	86.2
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.1
Low-Level Gas	ACE_{low}	0.4
Mid-Level Gas	ACE_{mid}	0.8
High-Level Gas	ACE_{high}	0.0
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	0.24
Final Zero	$C_{s,\ zero\ (post)}$	0.33
Upscale Gas Standard	C_{MA}	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	50.25
Final Upscale	$C_{v,\ up\ (post)}$	50.1
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.2
Zero (post)	$SB_{final\ (zero)}$	0.3
Upscale (pre)	$SB_{i\ (upscale)}$	-0.1
Upscale (post)	$SB_{final\ (upscale)}$	-0.3
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	0.1
Upscale	$D_{upscale}$	-0.1
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	35.65
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**35.7**

Enviva - Wiggins
Run 16

Date: 12-Oct
Run Time: 1509-160

Parameter	Symbol	Aspirator
		THC (as C_3H_8)
		ppm_w
Analyzer Calibration Error - Calibration Standards		
Zero Gas	$C_{v, zero}$	0.0
Low-Level Gas	$C_{v, low}$	258.1
Mid-Level Gas	$C_{v, mid}$	507.1
High-Level Gas	$C_{v, high}$	836.9
Calibration Span	CS	1000
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir, zero}$	1.1
Low-Level Gas	$C_{Dir, low}$	260
Mid-Level Gas	$C_{Dir, mid}$	507
High-Level Gas	$C_{Dir, high}$	838.3
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.1
Low-Level Gas	ACE_{low}	0.7
Mid-Level Gas	ACE_{mid}	0.0
High-Level Gas	ACE_{high}	0.1
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s, zero (pre)}$	1.1
Final Zero	$C_{s, zero (post)}$	2.4
Upscale Gas Standard	C_{MA}	836.9
Initial Upscale	$C_{v, up (pre)}$	838.3
Final Upscale	$C_{v, up (post)}$	837
System Bias - Results (Percent)		
Zero (pre)	$SB_{i (zero)}$	0.0
Zero (post)	$SB_{final (zero)}$	0.1
Upscale (pre)	$SB_{i (upscale)}$	0.0
Upscale (post)	$SB_{final (upscale)}$	-0.1
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	0.1
Upscale	$D_{upscale}$	-0.1
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	1074.70
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	1074.7

Enviva - Wiggins
Run 17

Date: 12-Oct
Run Time: 1636-173

Parameter	Symbol	Aspirator THC (as C_3H_8) ppm_w
Analyzer Calibration Error - Calibration Standards		
Zero Gas	$C_{v,\ zero}$	0.0
Low-Level Gas	$C_{v,\ low}$	258.1
Mid-Level Gas	$C_{v,\ mid}$	507.1
High-Level Gas	$C_{v,\ high}$	836.9
Calibration Span	CS	1000.0
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	1.1
Low-Level Gas	$C_{Dir,\ low}$	260.0
Mid-Level Gas	$C_{Dir,\ mid}$	507.0
High-Level Gas	$C_{Dir,\ high}$	838.3
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.1
Low-Level Gas	ACE_{low}	0.7
Mid-Level Gas	ACE_{mid}	0.0
High-Level Gas	ACE_{high}	0.1
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	2.40
Final Zero	$C_{s,\ zero\ (post)}$	1.4
Upscale Gas Standard	C_{MA}	836.9
Initial Upscale	$C_{v,\ up\ (pre)}$	837
Final Upscale	$C_{v,\ up\ (post)}$	837.5
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.1
Zero (post)	$SB_{final\ (zero)}$	0.0
Upscale (pre)	$SB_{i\ (upscale)}$	-0.1
Upscale (post)	$SB_{final\ (upscale)}$	-0.1
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	-0.1
Upscale	$D_{upscale}$	0.1
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	957.00
Bias Average - Zero	C_O	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**957.0**

Enviva - Wiggins
Run 18

Date: 12-Oct
Run Time: 1800-190

Parameter	Symbol	Aspirator
		THC (as C_3H_8)
		ppm_w
Analyzer Calibration Error - Instrument Response		
Zero Gas	$C_{Dir,\ zero}$	1.1
Low-Level Gas	$C_{Dir,\ low}$	260.0
Mid-Level Gas	$C_{Dir,\ mid}$	507.0
High-Level Gas	$C_{Dir,\ high}$	838.3
Analyzer Calibration Error - Results (Percent of Span)		
Zero Gas	ACE_{zero}	0.1
Low-Level Gas	ACE_{low}	0.7
Mid-Level Gas	ACE_{mid}	0.0
High-Level Gas	ACE_{high}	0.1
Specification	ACE_{spec}	±5
System Calibrations - Instrument Response		
Initial Zero	$C_{s,\ zero\ (pre)}$	1.40
Final Zero	$C_{s,\ zero\ (post)}$	2
Upscale Gas Standard	C_{MA}	836.9
Initial Upscale	$C_{v,\ up\ (pre)}$	837.5
Final Upscale	$C_{v,\ up\ (post)}$	835
System Bias - Results (Percent)		
Zero (pre)	$SB_{i\ (zero)}$	0.0
Zero (post)	$SB_{final\ (zero)}$	0.1
Upscale (pre)	$SB_{i\ (upscale)}$	-0.1
Upscale (post)	$SB_{final\ (upscale)}$	-0.3
Specification	SB_{spec}	NA
System Drift - Results (Percent)		
Zero	D_{zero}	0.1
Upscale	$D_{upscale}$	-0.3
Specification	D_{spec}	±3
Response Test - Results (seconds)		
Upscale Test		NA
Zero Test		NA
Response Time		28
Calibration Correction		
Raw Average	C_{ave}	1200.00
Bias Average - Zero	C_0	N/A
Bias Average - Upscale	C_M	N/A
Corrected Run Average	C_{Gas}	**1200.0**

Enviva - Wiggins
Run 19

Date: 13-Oct
Run Time: 0921-1021

Parameter	Symbol	Dryer 2	
		THC (as C_3H_8)	
		ppm$_w$	
Analyzer Calibration Error - Calibration Standards			
Zero Gas	$C_{v,\ zero}$	0.0	0.0
Low-Level Gas	$C_{v,\ low}$	258.1	27.99
Mid-Level Gas	$C_{v,\ mid}$	507.1	50
High-Level Gas	$C_{v,\ high}$	836.9	86.13
Calibration Span	CS	1000	100
Analyzer Calibration Error - Instrument Response			
Zero Gas	$C_{Dir,\ zero}$	1.0	1.0
Low-Level Gas	$C_{Dir,\ low}$	259	28.4
Mid-Level Gas	$C_{Dir,\ mid}$	506.8	50.34
High-Level Gas	$C_{Dir,\ high}$	837.3	86.24
Analyzer Calibration Error - Results (Percent of Span)			
Zero Gas	ACE_{zero}	0.1	1.0
Low-Level Gas	ACE_{low}	0.3	1.5
Mid-Level Gas	ACE_{mid}	-0.1	0.7
High-Level Gas	ACE_{high}	0.0	0.1
Specification	ACE_{spec}	±5	±8
System Calibrations - Instrument Response			
Initial Zero	$C_{s,\ zero\ (pre)}$	1.0	1.0
Final Zero	$C_{s,\ zero\ (post)}$	1.6	1.6
Upscale Gas Standard	C_{MA}	507.1	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	506.8	50.34
Final Upscale	$C_{v,\ up\ (post)}$	504	50.6
System Bias - Results (Percent)			
Zero (pre)	$SB_{i\ (zero)}$	0.0	0.0
Zero (post)	$SB_{final\ (zero)}$	0.1	0.6
Upscale (pre)	$SB_{i\ (upscale)}$	0.0	0.0
Upscale (post)	$SB_{final\ (upscale)}$	-0.3	0.3
Specification	SB_{spec}	NA	NA
System Drift - Results (Percent)			
Zero	D_{zero}	0.1	0.6
Upscale	$D_{upscale}$	-0.3	0.3
Specification	D_{spec}	±3	±6
Response Test - Results (seconds)			
Upscale Test		NA	NA
Zero Test		NA	NA
Response Time		28	28
Calibration Correction			
Raw Average	C_{ave}	91.8	91.8
Bias Average - Zero	C_0	N/A	N/A
Bias Average - Upscale	C_M	N/A	N/A
Corrected Run Average	C_{Gas}	**91.8**	**91.8**

Enviva - Wiggins
Run 20

Date: 13-Oct
Run Time: 1104-1204

Parameter	Symbol	Dryer 2 THC (as C_3H_8) ppm$_w$	
Analyzer Calibration Error - Calibration Standards			
Zero Gas	$C_{v,\ zero}$	0.0	0.0
Low-Level Gas	$C_{v,\ low}$	258.1	28.0
Mid-Level Gas	$C_{v,\ mid}$	507.1	50.0
High-Level Gas	$C_{v,\ high}$	836.9	86.1
Calibration Span	CS	1000.0	100.0
Analyzer Calibration Error - Instrument Response			
Zero Gas	$C_{Dir,\ zero}$	1.0	1.0
Low-Level Gas	$C_{Dir,\ low}$	259.0	28.4
Mid-Level Gas	$C_{Dir,\ mid}$	506.8	50.3
High-Level Gas	$C_{Dir,\ high}$	837.3	86.2
Analyzer Calibration Error - Results (Percent of Span)			
Zero Gas	ACE_{zero}	0.1	1.0
Low-Level Gas	ACE_{low}	0.3	1.5
Mid-Level Gas	ACE_{mid}	-0.1	0.7
High-Level Gas	ACE_{high}	0.0	0.1
Specification	ACE_{spec}	±5	±8
System Calibrations - Instrument Response			
Initial Zero	$C_{s,\ zero\ (pre)}$	1.60	1.60
Final Zero	$C_{s,\ zero\ (post)}$	0.42	0.42
Upscale Gas Standard	C_{MA}	507.1	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	504	50.6
Final Upscale	$C_{v,\ up\ (post)}$	503	50.4
System Bias - Results (Percent)			
Zero (pre)	$SB_{i\ (zero)}$	0.1	0.6
Zero (post)	$SB_{final\ (zero)}$	-0.1	-0.6
Upscale (pre)	$SB_{i\ (upscale)}$	-0.3	0.3
Upscale (post)	$SB_{final\ (upscale)}$	-0.4	0.1
Specification	SB_{spec}	NA	NA
System Drift - Results (Percent)			
Zero	D_{zero}	-0.1	-1.2
Upscale	$D_{upscale}$	-0.1	-0.2
Specification	D_{spec}	±3	±3
Response Test - Results (seconds)			
Upscale Test		NA	NA
Zero Test		NA	NA
Response Time		28	28
Calibration Correction			
Raw Average	C_{ave}	81.2	81.2
Bias Average - Zero	C_0	N/A	N/A
Bias Average - Upscale	C_M	N/A	N/A
Corrected Run Average	C_{Gas}	**81.2**	**81.2**

Enviva - Wiggins
Run 21

Date: 13-Oct
Run Time: 1231-1347
Paused (1236-1252)

Parameter	Symbol	Dryer 2	
		THC (as C_3H_8)	
		ppm_w	
Analyzer Calibration Error - Instrument Response			
Zero Gas	$C_{Dir,\ zero}$	1.0	1.00
Low-Level Gas	$C_{Dir,\ low}$	259.0	28.40
Mid-Level Gas	$C_{Dir,\ mid}$	506.8	50.34
High-Level Gas	$C_{Dir,\ high}$	837.3	86.24
Analyzer Calibration Error - Results (Percent of Span)			
Zero Gas	ACE_{zero}	0.1	1.0
Low-Level Gas	ACE_{low}	0.3	1.5
Mid-Level Gas	ACE_{mid}	-0.1	0.7
High-Level Gas	ACE_{high}	0.0	0.1
Specification	ACE_{spec}	±5	±8
System Calibrations - Instrument Response			
Initial Zero	$C_{s,\ zero\ (pre)}$	0.42	0.42
Final Zero	$C_{s,\ zero\ (post)}$	0.3	0.3
Upscale Gas Standard	C_{MA}	507.1	50.0
Initial Upscale	$C_{v,\ up\ (pre)}$	503	50.4
Final Upscale	$C_{v,\ up\ (post)}$	503.5	50.2
System Bias - Results (Percent)			
Zero (pre)	$SB_{i\ (zero)}$	-0.1	-0.6
Zero (post)	$SB_{final\ (zero)}$	-0.1	-0.7
Upscale (pre)	$SB_{i\ (upscale)}$	-0.4	0.1
Upscale (post)	$SB_{final\ (upscale)}$	-0.3	-0.1
Specification	SB_{spec}	NA	NA
System Drift - Results (Percent)			
Zero	D_{zero}	0.0	-0.1
Upscale	$D_{upscale}$	0.1	-0.2
Specification	D_{spec}	±3	±6
Response Test - Results (seconds)			
Upscale Test		NA	NA
Zero Test		NA	NA
Response Time		28	31
Calibration Correction			
Raw Average	C_{ave}	97.2	97.2
Bias Average - Zero	C_0	N/A	N/A
Bias Average - Upscale	C_M	N/A	N/A
Corrected Run Average	C_{Gas}	**97.2**	**97.2**

APPENDIX C

Method 320 Data

Company	ACT
Analyst Initials	CJT
Parameters	EPA Method 320
# Samples	21 Runs

Client #	1911
Job #	0913-111
PO #	3134 1911
Report Date	V0.62 13.10.18.12.58

Compound	Sample ID / Concentration (ppmv wet)					
			Data Runs			
	GMH Run 1	**GMH Run 2**	**GMH Run 3**	**Dryer 1 Run 1**	**Dryer 1 Run 2**	**Dryer 1 Run 3**
Acrolein	1.13 J	1.20 J	1.15 J	1.79 J	1.72 ND	1.72 ND
Formaldehyde	0.742	0.629	0.561	3.32	1.60	1.78
Methanol	0.508	0.460	0.376	2.52	1.70	1.59
Phenol	0.88 ND	0.88 ND	0.88 ND	2.04 ND	2.04 ND	2.04 ND
Propionaldehyde	0.234 ND	0.234 ND	0.251 J	0.644 J	0.714 J	0.505 J
acetaldehyde	0.756 J	0.721 J	0.723 J	1.27 ND	1.27 ND	1.27 ND
			Data Runs			
	Pellet Cooler 2 Run 1	**Pellet Cooler 2 Run 2**	**Pellet Cooler 2 Run 3**	**Hammermill 2 Run 1**	**Hammermill 2 Run 2**	**Hammermill 2 Run 3**
Acrolein	1.29 J	1.21 J	1.33 J	0.980 J	0.975 J	0.965 ND
Formaldehyde	1.07	0.663	1.84	1.04	1.14	1.11
Methanol	0.797	0.680 J	0.844	0.189 J	0.211 J	0.204 J
Phenol	1.08 ND	1.08 ND	1.08 ND	1.08 ND	1.08 ND	1.08 ND
Propionaldehyde	0.246 J	0.246 ND	0.359 J	0.233 J	0.243 J	0.263 J
acetaldehyde	0.864 J	0.825 J	0.786 J	0.715 J	0.710 J	0.707 ND
			Data Runs			
	Pellet Cooler 1 Run 1	**Pellet Cooler 1 Run 2**	**Pellet Cooler 1 Run 3**	**Aspirator Run 1**	**Aspirator Run 2**	**Aspirator Run 3**
Acrolein	0.976 J	1.02 J	1.35 J	3.16	3.12	2.25 J
Formaldehyde	1.44	1.25	1.26	1.05 ND	1.58 J	1.06 J
Methanol	0.537	0.327	0.351	8.30	8.90	8.16
Phenol	1.00 J	0.98 ND	0.98 ND	2.73 ND	2.73 ND	2.73 ND
Propionaldehyde	0.381 J	0.290 J	0.236 ND	3.00 ND	3.00 ND	3.00 ND
acetaldehyde	0.691 J	0.695 J	0.759 J	4.65	3.92 J	3.75
			Data Runs			
	Dryer 2 Run 1	**Dryer 2 Run 2**	**Dryer 2 Run 3**			
Acrolein	1.90 J	2.59	2.49			
Formaldehyde	6.40	6.58	6.76			
Methanol	18.8	10.2	10.8			
Phenol	2.78 ND	2.78 ND	2.78 ND			
Propionaldehyde	2.37	1.38	1.70			
acetaldehyde	0.967 J	3.28	1.02 J			

Company	ACT
Analyst Initials	CJT
Parameters	EPA Method 320
# Samples	21 Runs

Client #	1911
Job #	0913-111
PO #	3134 1911
Report Date	V0.62 13.10.18.12.58

Minimum Detectable Concentration - Default

GMH	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
Run 1	1.13	0.502	0.742	0.0719	0.51	0.0912	0.88	0.44	0.234	0.120	0.756	0.371
Run 2	1.20	0.474	0.629	0.0684	0.46	0.0935	0.88	0.44	0.234	0.118	0.721	0.351
Run 3	1.15	0.460	0.561	0.0677	0.38	0.0913	0.88	0.45	0.251	0.113	0.723	0.355
Average SEC(ppm):	0.485		0.0693		0.0920		0.44		0.117		0.359	
MDC(ppm):	**0.971**		**0.139**		**0.184**		**0.88**		**0.234**		**0.718**	
Dryer 1												
Run 1	1.79	0.917	3.32	0.131	2.52	0.296	2.04	1.00	0.644	0.239	1.270	0.679
Run 2	1.72	0.850	1.60	0.126	1.70	0.293	2.04	1.07	0.714	0.227	1.270	0.628
Run 3	1.72	0.812	1.78	0.120	1.59	0.287	2.04	0.99	0.505	0.213	1.270	0.598
Average SEC(ppm):	0.859		0.126		0.292		1.02		0.226		0.635	
MDC(ppm):	**1.72**		**0.252**		**0.584**		**2.04**		**0.452**		**1.27**	
Pellet Cooler 2												
Run 1	1.29	0.496	1.07	0.0711	0.60	0.0813	1.08	0.54	0.246	0.125	0.864	0.370
Run 2	1.21	0.497	0.663	0.0704	0.68	0.0823	1.08	0.54	0.246	0.120	0.825	0.370
Run 3	1.33	0.507	1.84	0.0732	0.84	0.0844	1.09	0.55	0.359	0.124	0.786	0.378
Average SEC(ppm):	0.500		0.0716		0.0826		0.54		0.123		0.373	
MDC(ppm):	**1.00**		**0.143**		**0.165**		**1.08**		**0.246**		**0.745**	
Hammermill 2												
Run 1	0.98	0.480	1.04	0.0677	0.19	0.0809	1.08	0.54	0.233	0.113	0.715	0.353
Run 2	0.97	0.480	1.14	0.0682	0.21	0.0832	1.08	0.54	0.243	0.122	0.710	0.352
Run 3	0.97	0.488	1.11	0.0675	0.20	0.0839	1.08	0.55	0.263	0.113	0.707	0.356
Average SEC(ppm):	0.483		0.0678		0.0826		0.54		0.116		0.354	
MDC(ppm):	**0.965**		**0.136**		**0.165**		**1.08**		**0.232**		**0.707**	
Pellet Cooler 1												
Run 1	0.98	0.467	1.44	0.0646	0.54	0.0736	1.00	0.50	0.381	0.118	0.691	0.344
Run 2	1.02	0.463	1.25	0.0635	0.33	0.0723	0.98	0.50	0.290	0.119	0.695	0.341
Run 3	1.35	0.467	1.26	0.0647	0.35	0.0690	0.98	0.48	0.236	0.118	0.759	0.345
Average SEC(ppm):	0.466		0.0642		0.0717		0.49		0.118		0.343	
MDC(ppm):	**0.931**		**0.128**		**0.143**		**0.98**		**0.236**		**0.686**	
Aspirator												
Run 1	3.16	0.827	1.055	0.535	8.30	0.244	2.73	1.15	3.00	1.53	4.65	0.616
Run 2	3.12	0.808	1.58	0.467	8.90	0.256	2.73	1.60	3.00	1.35	3.92	0.602
Run 3	2.25	0.916	1.063	0.580	8.16	0.265	2.73	1.34	3.00	1.62	3.75	0.681
Average SEC(ppm):	0.850		0.527		0.255		1.36		1.50		0.633	
MDC(ppm):	**1.70**		**1.05**		**0.510**		**2.73**		**3.00**		**1.27**	
Dryer 2												
Run 1	1.90	0.631	6.40	0.108	18.8	0.539	2.78	1.29	2.37	0.222	0.967	0.472
Run 2	2.59	0.617	6.58	0.105	10.2	0.549	2.78	1.55	1.38	0.260	3.28	0.457
Run 3	2.49	0.633	6.76	0.112	10.8	0.531	2.78	1.33	1.70	0.263	1.02	0.473
Average SEC(ppm):	0.627		0.108		0.540		1.39		0.248		0.467	
MDC(ppm):	**1.25**		**0.217**		**1.08**		**2.78**		**0.497**		**0.934**	

Company	ACT
Analyst Initials	CJT
Parameters	EPA Method 320
# Samples	21 Runs

Client #	1911
Job #	0913-111
PO #	3134 1911
Report Date	V0.62 13.10.18.12.58

GMH Run 1

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/10/2013 9:17	0913-111_A	13_10_10_0917_37_938	1	1.58	0.517	0.848	0.0700	0.434	0.0900	0.88	0.43	0.234	0.114	0.718	0.383
10/10/2013 9:18	0913-111_A	13_10_10_0918_38_788	1	0.971	0.472	0.708	0.0680	0.457	0.0890	0.88	0.43	0.234	0.112	0.718	0.346
10/10/2013 9:19	0913-111_A	13_10_10_0919_39_508	1	0.971	0.504	0.778	0.0720	0.443	0.0920	0.88	0.43	0.234	0.115	0.718	0.373
10/10/2013 9:20	0913-111_A	13_10_10_0920_40_336	1	0.971	0.484	0.696	0.0690	0.487	0.0860	0.88	0.44	0.234	0.111	0.718	0.345
10/10/2013 9:21	0913-111_A	13_10_10_0921_41_008	1	1.59	0.483	0.633	0.0700	0.454	0.0920	0.88	0.43	0.234	0.114	0.993	0.385
10/10/2013 9:22	0913-111_A	13_10_10_0922_41_806	1	0.971	0.493	0.708	0.0680	0.457	0.0880	0.88	0.44	0.234	0.114	0.718	0.360
10/10/2013 9:23	0913-111_A	13_10_10_0923_42_538	1	0.971	0.464	0.814	0.0660	0.469	0.0880	0.88	0.44	0.234	0.111	0.718	0.341
10/10/2013 9:24	0913-111_A	13_10_10_0924_43_348	1	1.15	0.462	0.696	0.0630	0.481	0.0900	0.88	0.44	0.234	0.111	0.718	0.336
10/10/2013 9:25	0913-111_A	13_10_10_0925_44_128	1	0.971	0.465	0.698	0.0680	0.477	0.0900	0.88	0.43	0.234	0.110	0.718	0.347
10/10/2013 9:26	0913-111_A	13_10_10_0926_44_818	1	0.971	0.498	0.782	0.0660	0.407	0.0870	0.88	0.44	0.234	0.115	0.750	0.375
10/10/2013 9:27	0913-111_A	13_10_10_0927_45_618	1	0.971	0.459	0.759	0.0660	0.491	0.0870	0.88	0.44	0.234	0.108	0.718	0.335
10/10/2013 9:28	0913-111_A	13_10_10_0928_46_429	1	1.16	0.499	0.820	0.0690	0.383	0.0890	0.88	0.44	0.234	0.116	0.718	0.370
10/10/2013 9:29	0913-111_A	13_10_10_0929_47_158	1	1.61	0.471	0.784	0.0680	0.445	0.0870	0.88	0.43	0.234	0.113	0.718	0.348
10/10/2013 9:30	0913-111_A	13_10_10_0930_47_959	1	0.971	0.454	0.803	0.0680	0.537	0.0880	0.88	0.44	0.234	0.111	0.718	0.332
10/10/2013 9:31	0913-111_A	13_10_10_0931_48_709	1	0.971	0.477	0.775	0.0700	0.442	0.0910	0.88	0.44	0.234	0.118	0.718	0.353
10/10/2013 9:32	0913-111_A	13_10_10_0932_49_519	1	0.971	0.460	0.748	0.0660	0.477	0.0910	0.88	0.44	0.234	0.113	0.718	0.348
10/10/2013 9:33	0913-111_A	13_10_10_0933_50_289	1	0.971	0.491	0.723	0.0730	0.473	0.0890	0.88	0.44	0.234	0.118	0.718	0.357
10/10/2013 9:34	0913-111_A	13_10_10_0934_50_859	1	0.971	0.491	0.731	0.0680	0.456	0.0910	0.88	0.44	0.234	0.117	0.718	0.360
10/10/2013 9:35	0913-111_A	13_10_10_0935_51_689	1	0.971	0.469	0.739	0.0680	0.477	0.0870	0.88	0.44	0.234	0.112	0.718	0.349
10/10/2013 9:36	0913-111_A	13_10_10_0936_52_439	1	0.971	0.483	0.650	0.0710	0.446	0.0890	0.88	0.44	0.234	0.117	0.718	0.359
10/10/2013 9:37	0913-111_A	13_10_10_0937_53_149	1	1.32	0.497	0.751	0.0700	0.448	0.0910	0.88	0.44	0.234	0.116	0.718	0.373
10/10/2013 9:38	0913-111_A	13_10_10_0938_53_929	1	0.971	0.467	0.668	0.0680	0.467	0.0890	0.88	0.44	0.234	0.115	0.718	0.345
10/10/2013 9:39	0913-111_A	13_10_10_0939_54_720	1	0.971	0.483	0.800	0.0720	0.416	0.0930	0.88	0.44	0.234	0.118	0.718	0.354
10/10/2013 9:40	0913-111_A	13_10_10_0940_55_430	1	0.971	0.487	0.703	0.0680	0.393	0.0910	0.88	0.44	0.234	0.117	0.718	0.357
10/10/2013 9:41	0913-111_A	13_10_10_0941_56_230	1	0.971	0.504	0.745	0.0710	0.435	0.0870	0.88	0.44	0.234	0.118	0.718	0.370
10/10/2013 9:42	0913-111_A	13_10_10_0942_57_010	1	1.10	0.501	0.813	0.0700	0.470	0.0910	0.88	0.44	0.234	0.117	0.718	0.367
10/10/2013 9:43	0913-111_A	13_10_10_0943_57_650	1	0.971	0.473	0.697	0.0690	0.415	0.0910	0.88	0.44	0.234	0.112	0.718	0.347
10/10/2013 9:44	0913-111_A	13_10_10_0944_58_440	1	0.971	0.477	0.736	0.0670	0.393	0.0910	0.88	0.44	0.234	0.113	0.718	0.349
10/10/2013 9:45	0913-111_A	13_10_10_0945_59_220	1	0.971	0.482	0.634	0.0670	0.388	0.0910	0.88	0.44	0.234	0.109	0.718	0.355
10/10/2013 9:47	0913-111_A	13_10_10_0947_00_000	1	1.48	0.477	0.644	0.0690	0.459	0.0890	0.88	0.44	0.234	0.118	0.742	0.355
10/10/2013 9:48	0913-111_A	13_10_10_0948_00_730	1	0.971	0.461	0.774	0.0660	0.420	0.0880	0.88	0.44	0.234	0.112	0.718	0.337
10/10/2013 9:49	0913-111_A	13_10_10_0949_01_480	1	1.29	0.487	0.773	0.0640	0.501	0.0910	0.88	0.44	0.234	0.112	0.718	0.359
10/10/2013 9:50	0913-111_A	13_10_10_0950_02_280	1	0.971	0.483	0.721	0.0680	0.464	0.0910	0.88	0.44	0.234	0.115	0.718	0.353
10/10/2013 9:51	0913-111_A	13_10_10_0951_03_020	1	0.971	0.476	0.710	0.0700	0.437	0.0870	0.88	0.44	0.234	0.117	0.718	0.353
10/10/2013 9:52	0913-111_A	13_10_10_0952_03_761	1	0.971	0.489	0.663	0.0700	0.523	0.0880	0.88	0.44	0.234	0.119	0.735	0.364
10/10/2013 9:53	0913-111_A	13_10_10_0953_04_581	1	0.971	0.500	0.789	0.0690	0.523	0.0880	0.88	0.44	0.234	0.118	0.718	0.368
10/10/2013 9:54	0913-111_A	13_10_10_0954_05_281	1	0.971	0.455	0.737	0.0660	0.667	0.0900	0.88	0.44	0.234	0.114	0.740	0.339
10/10/2013 9:55	0913-111_A	13_10_10_0955_06_091	1	1.41	0.489	0.869	0.0710	0.647	0.0950	0.88	0.44	0.234	0.118	0.718	0.351
10/10/2013 9:56	0913-111_A	13_10_10_0956_06_811	1	0.971	0.513	0.980	0.0740	0.645	0.0910	0.88	0.44	0.234	0.124	0.718	0.382
10/10/2013 9:57	0913-111_A	13_10_10_0957_07_611	1	1.30	0.487	0.870	0.0720	0.667	0.0960	0.88	0.44	0.234	0.122	0.990	0.356
10/10/2013 9:58	0913-111_A	13_10_10_0958_08_331	1	0.971	0.488	0.920	0.0700	0.688	0.0950	0.88	0.44	0.234	0.117	0.947	0.366
10/10/2013 9:59	0913-111_A	13_10_10_0959_09_071	1	1.42	0.496	0.677	0.0700	0.649	0.0930	0.88	0.44	0.234	0.119	0.872	0.364
10/10/2013 10.00	0913-111_A	13_10_10_1000_09_811	1	0.971	0.492	0.821	0.0700	0.584	0.0920	0.88	0.44	0.234	0.117	0.747	0.360
10/10/2013 10:01	0913-111_A	13_10_10_1001_10_611	1	1.62	0.494	0.864	0.0720	0.597	0.0930	0.88	0.44	0.234	0.123	0.718	0.376
10/10/2013 10:02	0913-111_A	13_10_10_1002_11_391	1	0.971	0.487	0.850	0.0680	0.580	0.0920	0.88	0.44	0.234	0.114	0.868	0.363
10/10/2013 10:03	0913-111_A	13_10_10_1003_12_111	1	1.80	0.503	0.846	0.0710	0.577	0.0930	0.88	0.44	0.234	0.118	0.718	0.368
10/10/2013 10:04	0913-111_A	13_10_10_1004_12_832	1	0.978	0.474	0.794	0.0690	0.664	0.0920	0.88	0.44	0.234	0.118	0.718	0.358
10/10/2013 10:05	0913-111_A	13_10_10_1005_13_842	1	1.21	0.489	0.819	0.0760	0.593	0.0890	0.88	0.44	0.234	0.124	0.718	0.364
10/10/2013 10:06	0913-111_A	13_10_10_1006_14_372	1	0.971	0.476	0.718	0.0710	0.644	0.0930	0.88	0.44	0.234	0.118	0.718	0.353
10/10/2013 10:07	0913-111_A	13_10_10_1007_15_182	1	1.07	0.497	0.769	0.0720	0.727	0.0910	0.88	0.44	0.234	0.125	0.718	0.367
10/10/2013 10:08	0913-111_A	13_10_10_1008_15_892	1	1.28	0.512	0.804	0.0750	0.860	0.0950	0.88	0.44	0.234	0.124	0.718	0.383
10/10/2013 10:09	0913-111_A	13_10_10_1009_16_712	1	1.61	0.551	0.828	0.0820	0.582	0.0910	0.88	0.44	0.234	0.133	0.718	0.406
10/10/2013 10:10	0913-111_A	13_10_10_1010_17_422	1	0.986	0.559	0.706	0.0790	0.620	0.0940	0.88	0.44	0.234	0.133	0.718	0.417
10/10/2013 10:11	0913-111_A	13_10_10_1011_18_172	1	1.39	0.537	0.667	0.0780	0.631	0.0920	0.88	0.44	0.234	0.134	0.900	0.395
10/10/2013 10:12	0913-111_A	13_10_10_1012_18_922	1	0.971	0.535	0.703	0.0770	0.435	0.0950	0.88	0.43	0.234	0.130	1.28	0.393
10/10/2013 10:13	0913-111_A	13_10_10_1013_19_722	1	1.48	0.582	0.825	0.0840	0.497	0.0970	0.88	0.43	0.234	0.139	1.05	0.429
10/10/2013 10:14	0913-111_A	13_10_10_1014_20_442	1	0.999	0.682	0.594	0.0930	0.537	0.0950	0.88	0.43	0.234	0.155	0.718	0.495
10/10/2013 10:15	0913-111_A	13_10_10_1015_21_272	1	1.71	0.651	0.563	0.0920	0.501	0.0970	0.88	0.43	0.234	0.150	0.718	0.477
10/10/2013 10:16	0913-111_A	13_10_10_1016_21_893	1	0.971	0.705	0.431	0.0960	0.400	0.102	0.88	0.43	0.234	0.158	0.718	0.515
10/10/2013 10:17	0913-111_A	13_10_10_1017_22_633	1	1.15	0.698	0.729	0.100	0.361	0.100	0.88	0.44	0.234	0.162	0.718	0.514
		Average Conc. (ppm):	1	1.13	0.502	0.742	0.0719	0.608	0.0912	0.88	0.44	0.234	0.120	0.756	0.371

GMH Run 2

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/10/2013 10:36	0913-111_A	13_10_10_1036_37_174	1	1.30	0.438	0.768	0.0660	0.421	0.0890	0.88	0.43	0.234	0.115	0.718	0.324
10/10/2013 10:37	0913-111_A	13_10_10_1037_37_934	1	1.05	0.483	0.596	0.0660	0.415	0.0900	0.88	0.43	0.234	0.121	0.718	0.353
10/10/2013 10:38	0913-111_A	13_10_10_1038_38_624	1	1.89	0.468	0.609	0.0690	0.442	0.0910	0.88	0.43	0.234	0.119	0.718	0.346
10/10/2013 10:39	0913-111_A	13_10_10_1039_39_436	1	0.971	0.474	0.653	0.0670	0.423	0.0920	0.88	0.43	0.234	0.118	0.718	0.344
10/10/2013 10:40	0913-111_A	13_10_10_1040_40_195	1	0.971	0.480	0.745	0.0690	0.402	0.0890	0.88	0.43	0.234	0.116	0.718	0.355
10/10/2013 10:41	0913-111_A	13_10_10_1041_41_005	1	0.971	0.462	0.729	0.0690	0.409	0.0900	0.88	0.44	0.234	0.117	0.718	0.341
10/10/2013 10:42	0913-111_A	13_10_10_1042_41_815	1	1.32	0.491	0.653	0.0740	0.403	0.0920	0.88	0.44	0.234	0.121	0.718	0.363
10/10/2013 10:43	0913-111_A	13_10_10_1043_42_555	1	1.41	0.475	0.688	0.0700	0.421	0.0930	0.88	0.44	0.234	0.121	0.718	0.353
10/10/2013 10:44	0913-111_A	13_10_10_1044_43_305	1	0.982	0.450	0.665	0.0700	0.465	0.0930	0.88	0.44	0.234	0.117	0.718	0.330
10/10/2013 10:45	0913-111_A	13_10_10_1045_44_015	1	1.05	0.464	0.705	0.0710	0.439	0.0920	0.88	0.44	0.234	0.119	0.718	0.344
10/10/2013 10:46	0913-111_A	13_10_10_1046_44_775	1	0.971	0.441	0.685	0.0690	0.408	0.0950	0.88	0.44	0.234	0.118	0.718	0.335
10/10/2013 10:47	0913-111_A	13_10_10_1047_45_585	1	1.46	0.503	0.602	0.0700	0.427	0.0950	0.88	0.44	0.234	0.121	0.718	0.367
10/10/2013 10:48	0913-111_A	13_10_10_1048_46_355	1	1.06	0.461	0.746	0.0690	0.387	0.0920	0.88	0.44	0.234	0.116	0.718	0.339
10/10/2013 10:49	0913-111_A	13_10_10_1049_47_115	1	0.971	0.475	0.640	0.0660	0.410	0.0920	0.88	0.44	0.234	0.116	0.718	0.351
10/10/2013 10:50	0913-111_A	13_10_10_1050_47_935	1	0.971	0.470	0.668	0.0880	0.482	0.0940	0.88	0.43	0.234	0.118	0.718	0.350
10/10/2013 10:51	0913-111_A	13_10_10_1051_48_648	1	1.13	0.477	0.622	0.0640	0.490	0.0950	0.88	0.43	0.234	0.116	0.718	0.348
10/10/2013 10:52	0913-111_A	13_10_10_1052_49_458	1	2.24	0.475	0.487	0.0680	0.390	0.0950	0.88	0.44	0.234	0.118	0.718	0.354
10/10/2013 10:53	0913-111_A	13_10_10_1053_50_288	1	1.20	0.487	0.608	0.0700	0.453	0.0930	0.88	0.44	0.234	0.122	0.718	0.361
10/10/2013 10:54	0913-111_A	13_10_10_1054_50_976	1	1.59	0.487	0.684	0.0670	0.427	0.0940	0.88	0.44	0.234	0.118	0.760	0.361
10/10/2013 10:55	0913-111_A	13_10_10_1055_51_786	1	0.971	0.474	0.616	0.0670	0.498	0.0930	0.88	0.44	0.234	0.116	0.718	0.351
10/10/2013 10:56	0913-111_A	13_10_10_1056_52_486	1	1.55	0.439	0.589	0.0670	0.459	0.0950	0.88	0.44	0.234	0.120	0.718	0.330
10/10/2013 10:57	0913-111_A	13_10_10_1057_53_186	1	0.971	0.438	0.650	0.0640	0.431	0.0940	0.88	0.43	0.234	0.114	0.718	0.330
10/10/2013 10:58	0913-111_A	13_10_10_1058_53_966	1	0.971	0.502	0.663	0.0700	0.438	0.0930	0.88	0.43	0.234	0.120	0.718	0.370
10/10/2013 10:59	0913-111_A	13_10_10_1059_54_676	1	0.982	0.476	0.570	0.0670	0.520	0.0940	0.88	0.44	0.234	0.117	0.718	0.353
10/10/2013 11:00	0913-111_A	13_10_10_1100_55_506	1	0.991	0.468	0.713	0.0690	0.420	0.0940	0.88	0.43	0.234	0.117	0.718	0.343
10/10/2013 11:01	0913-111_A	13_10_10_1101_56_246	1	0.971	0.483	0.589	0.0670	0.428	0.0930	0.88	0.43	0.234	0.114	0.718	0.353
10/10/2013 11:02	0913-111_A	13_10_10_1102_56_996	1	1.16	0.489	0.681	0.0700	0.402	0.0940	0.88	0.43	0.234	0.121	0.718	0.359
10/10/2013 11:03	0913-111_A	13_10_10_1103_57_807	1	2.29	0.482	0.659	0.0690	0.524	0.0930	0.88	0.43	0.234	0.122	0.718	0.357
10/10/2013 11:04	0913-111_A	13_10_10_1104_58_527	1	1.13	0.465	0.692	0.0650	0.415	0.0960	0.88	0.43	0.234	0.117	0.718	0.347
10/10/2013 11:05	0913-111_A	13_10_10_1105_59_347	1	0.971	0.476	0.615	0.0700	0.457	0.0960	0.88	0.43	0.234	0.118	0.718	0.361
10/10/2013 11:07	0913-111_A	13_10_10_1107_00_087	1	1.32	0.474	0.596	0.0690	0.499	0.0950	0.88	0.43	0.234	0.116	0.718	0.348
10/10/2013 11:08	0913-111_A	13_10_10_1108_00_897	1	1.25	0.482	0.602	0.0710	0.468	0.0950	0.88	0.43	0.234	0.122	0.718	0.357
10/10/2013 11:09	0913-111_A	13_10_10_1109_01_657	1	1.13	0.465	0.638	0.0660	0.508	0.0960	0.88	0.43	0.234	0.117	0.718	0.354
10/10/2013 11:10	0913-111_A	13_10_10_1110_02_367	1	1.38	0.465	0.607	0.0660	0.400	0.0930	0.88	0.43	0.234	0.116	0.718	0.342
10/10/2013 11:11	0913-111_A	13_10_10_1111_03_147	1	0.971	0.448	0.509	0.0690	0.436	0.0950	0.88	0.43	0.234	0.116	0.718	0.333
10/10/2013 11:12	0913-111_A	13_10_10_1112_03_917	1	1.10	0.466	0.657	0.0660	0.441	0.0950	0.88	0.44	0.234	0.116	0.718	0.344
10/10/2013 11:13	0913-111_A	13_10_10_1113_04_727	1	0.971	0.454	0.581	0.0670	0.470	0.0960	0.88	0.44	0.234	0.113	0.718	0.343
10/10/2013 11:14	0913-111_A	13_10_10_1114_05_517	1	0.971	0.500	0.594	0.0700	0.439	0.0940	0.88	0.44	0.234	0.125	0.718	0.377
10/10/2013 11:15	0913-111_A	13_10_10_1115_06_218	1	1.14	0.483	0.565	0.0670	0.543	0.0940	0.88	0.44	0.234	0.118	0.718	0.354
10/10/2013 11:16	0913-111_A	13_10_10_1116_07_048	1	1.54	0.487	0.669	0.0690	0.489	0.0950	0.88	0.44	0.234	0.123	0.718	0.361
10/10/2013 11:17	0913-111_A	13_10_10_1117_07_798	1	1.47	0.439	0.564	0.0680	0.495	0.0970	0.88	0.44	0.234	0.115	0.718	0.327
10/10/2013 11:18	0913-111_A	13_10_10_1118_08_548	1	0.971	0.441	0.586	0.0670	0.489	0.0920	0.88	0.44	0.234	0.111	0.718	0.327
10/10/2013 11:19	0913-111_A	13_10_10_1119_09_278	1	0.971	0.458	0.455	0.0680	0.470	0.0960	0.88	0.44	0.234	0.116	0.718	0.340
10/10/2013 11:20	0913-111_A	13_10_10_1120_10_068	1	0.972	0.491	0.725	0.0680	0.469	0.0950	0.88	0.44	0.234	0.120	0.718	0.357
10/10/2013 11:21	0913-111_A	13_10_10_1121_10_908	1	0.971	0.491	0.603	0.0710	0.480	0.0950	0.88	0.44	0.234	0.122	0.718	0.358
10/10/2013 11:22	0913-111_A	13_10_10_1122_11_598	1	1.11	0.463	0.554	0.0680	0.485	0.0950	0.88	0.44	0.234	0.118	0.718	0.341
10/10/2013 11:23	0913-111_A	13_10_10_1123_12_398	1	1.10	0.495	0.562	0.0720	0.425	0.0930	0.88	0.44	0.234	0.120	0.718	0.359
10/10/2013 11:24	0913-111_A	13_10_10_1124_13_208	1	1.14	0.470	0.631	0.0720	0.508	0.0960	0.88	0.44	0.234	0.123	0.718	0.356
10/10/2013 11:25	0913-111_A	13_10_10_1125_13_918	1	0.971	0.481	0.681	0.0680	0.501	0.0940	0.88	0.44	0.234	0.120	0.718	0.345
10/10/2013 11:26	0913-111_A	13_10_10_1126_14_788	1	1.42	0.474	0.642	0.0700	0.503	0.0940	0.88	0.44	0.234	0.119	0.718	0.349
10/10/2013 11:27	0913-111_A	13_10_10_1127_15_509	1	1.34	0.483	0.715	0.0680	0.566	0.0910	0.88	0.44	0.234	0.118	0.718	0.360
10/10/2013 11:28	0913-111_A	13_10_10_1128_16_309	1	1.76	0.511	0.549	0.0710	0.489	0.0910	0.88	0.44	0.234	0.126	0.718	0.383
10/10/2013 11:29	0913-111_A	13_10_10_1129_17_059	1	1.14	0.479	0.682	0.0660	0.429	0.0910	0.88	0.44	0.234	0.117	0.718	0.351
10/10/2013 11:30	0913-111_A	13_10_10_1130_17_759	1	0.971	0.495	0.737	0.0690	0.526	0.0960	0.88	0.44	0.234	0.119	0.718	0.369
10/10/2013 11:31	0913-111_A	13_10_10_1131_18_579	1	1.28	0.484	0.594	0.0670	0.461	0.0930	0.88	0.44	0.234	0.115	0.798	0.352
10/10/2013 11:32	0913-111_A	13_10_10_1132_19_389	1	2.07	0.459	0.582	0.0650	0.465	0.0930	0.88	0.44	0.234	0.114	0.718	0.339
10/10/2013 11:33	0913-111_A	13_10_10_1133_20_149	1	0.971	0.497	0.530	0.0710	0.460	0.0910	0.88	0.44	0.234	0.116	0.718	0.362
10/10/2013 11:34	0913-111_A	13_10_10_1134_20_899	1	0.971	0.463	0.634	0.0680	0.521	0.0920	0.88	0.44	0.234	0.114	0.718	0.338
10/10/2013 11:35	0913-111_A	13_10_10_1135_21_699	1	0.971	0.500	0.641	0.0710	0.497	0.0950	0.88	0.44	0.234	0.119	0.746	0.366
10/10/2013 11:36	0913-111_A	13_10_10_1136_22_389	1	1.18	0.506	0.445	0.0710	0.534	0.0930	0.88	0.45	0.234	0.120	0.718	0.366
		Average Conc. (ppm):	1	1.20	0.474	0.629	0.0684	0.460	0.0935	0.88	0.44	0.234	0.118	**0.721**	0.351

Company ACT
Analyst Initials CJT
Parameters EPA Method 320
Samples 21 Runs

Client # 1911
Job # 0913-111
PO # 3134 1911
Report Date V0.62 13.10.18.12.58

GMH Run 3

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/10/2013 11:50	0913-111_A	13_10_10_1150_33_060	1	0.971	0.488	0.541	0.0650	0.432	0.0970	0.88	0.44	0.234	0.109	0.718	0.348
10/10/2013 11:51	0913-111_A	13_10_10_1151_33_861	1	0.987	0.510	0.328	0.0700	0.457	0.0930	0.88	0.44	0.234	0.113	0.904	0.373
10/10/2013 11:52	0913-111_A	13_10_10_1152_34_581	1	0.971	0.513	0.468	0.0710	0.466	0.0940	0.88	0.44	0.234	0.116	0.718	0.374
10/10/2013 11:53	0913-111_A	13_10_10_1153_35_331	1	0.971	0.499	0.475	0.0650	0.418	0.0970	0.88	0.44	0.234	0.110	0.718	0.368
10/10/2013 11:54	0913-111_A	13_10_10_1154_36_151	1	1.30	0.467	0.511	0.0670	0.387	0.0950	0.88	0.45	0.234	0.112	0.718	0.348
10/10/2013 11:55	0913-111_A	13_10_10_1155_36_951	1	1.20	0.499	0.554	0.0710	0.435	0.0940	0.88	0.45	0.234	0.117	0.718	0.365
10/10/2013 11:56	0913-111_A	13_10_10_1156_37_691	1	0.971	0.481	0.425	0.0680	0.378	0.0910	0.88	0.45	0.234	0.112	0.718	0.355
10/10/2013 11:57	0913-111_A	13_10_10_1157_38_401	1	1.41	0.466	0.527	0.0690	0.498	0.0940	0.88	0.45	0.234	0.114	0.718	0.346
10/10/2013 11:58	0913-111_A	13_10_10_1158_39_211	1	1.13	0.468	0.472	0.0710	0.432	0.0940	0.88	0.45	0.234	0.113	0.718	0.351
10/10/2013 11:59	0913-111_A	13_10_10_1159_40_021	1	1.58	0.479	0.524	0.0680	0.324	0.0900	0.88	0.44	0.234	0.113	0.718	0.357
10/10/2013 12:00	0913-111_A	13_10_10_1200_40_731	1	0.971	0.485	0.472	0.0670	0.389	0.0950	0.88	0.45	0.234	0.112	0.718	0.359
10/10/2013 12:01	0913-111_A	13_10_10_1201_41_561	1	1.28	0.472	0.636	0.0700	0.357	0.0910	0.88	0.44	0.234	0.113	0.718	0.355
10/10/2013 12:02	0913-111_A	13_10_10_1202_42_302	1	0.971	0.473	0.612	0.0670	0.404	0.0910	0.88	0.44	0.234	0.114	0.718	0.349
10/10/2013 12:03	0913-111_A	13_10_10_1203_43_022	1	0.971	0.449	0.609	0.0630	0.398	0.0900	0.88	0.44	0.234	0.105	0.718	0.328
10/10/2013 12:04	0913-111_A	13_10_10_1204_43_872	1	1.01	0.469	0.509	0.0700	0.361	0.0930	0.88	0.45	0.234	0.116	0.718	0.364
10/10/2013 12:05	0913-111_A	13_10_10_1205_44_582	1	0.971	0.505	0.520	0.0700	0.401	0.0910	0.88	0.45	0.234	0.116	0.718	0.376
10/10/2013 12:06	0913-111_A	13_10_10_1206_45_332	1	1.66	0.479	0.582	0.0680	0.354	0.0930	0.88	0.44	0.234	0.112	0.718	0.358
10/10/2013 12:07	0913-111_A	13_10_10_1207_46_182	1	0.971	0.478	0.498	0.0640	0.379	0.0910	0.88	0.45	0.234	0.112	0.718	0.358
10/10/2013 12:08	0913-111_A	13_10_10_1208_46_912	1	1.00	0.500	0.622	0.0670	0.438	0.0910	0.88	0.45	0.234	0.114	0.718	0.373
10/10/2013 12:09	0913-111_A	13_10_10_1209_47_682	1	1.35	0.456	0.588	0.0670	0.406	0.0910	0.88	0.45	0.234	0.112	0.718	0.346
10/10/2013 12:10	0913-111_A	13_10_10_1210_48_492	1	0.971	0.533	0.475	0.0710	0.361	0.0910	0.88	0.44	0.234	0.117	0.718	0.391
10/10/2013 12:11	0913-111_A	13_10_10_1211_49_202	1	0.971	0.444	0.555	0.0650	0.338	0.0930	0.88	0.44	0.234	0.109	0.718	0.338
10/10/2013 12:12	0913-111_A	13_10_10_1212_50_012	1	0.971	0.500	0.555	0.0700	0.363	0.0910	0.88	0.44	0.234	0.114	0.718	0.372
10/10/2013 12:13	0913-111_A	13_10_10_1213_50_712	1	0.971	0.466	0.624	0.0650	0.410	0.0940	0.88	0.44	0.234	0.109	0.718	0.347
10/10/2013 12:14	0913-111_A	13_10_10_1214_51_513	1	1.36	0.450	0.604	0.0660	0.355	0.0920	0.88	0.45	0.234	0.108	0.718	0.334
10/10/2013 12:15	0913-111_A	13_10_10_1215_52_273	1	0.971	0.496	0.543	0.0720	0.420	0.0890	0.88	0.44	0.234	0.118	0.718	0.364
10/10/2013 12:16	0913-111_A	13_10_10_1216_53_003	1	1.00	0.465	0.562	0.0660	0.302	0.0900	0.88	0.44	0.234	0.110	0.838	0.341
10/10/2013 12:17	0913-111_A	13_10_10_1217_53_803	1	1.42	0.480	0.562	0.0670	0.311	0.0910	0.88	0.44	0.234	0.113	0.718	0.352
10/10/2013 12:18	0913-111_A	13_10_10_1218_54_503	1	0.980	0.474	0.507	0.0690	0.363	0.0890	0.88	0.44	0.234	0.113	0.718	0.356
10/10/2013 12:19	0913-111_A	13_10_10_1219_55_313	1	1.41	0.460	0.565	0.0650	0.409	0.0910	0.88	0.45	0.234	0.110	0.718	0.359
10/10/2013 12:20	0913-111_A	13_10_10_1220_55_913	1	0.971	0.469	0.563	0.0690	0.363	0.0910	0.88	0.44	0.234	0.110	0.718	0.343
10/10/2013 12:21	0913-111_A	13_10_10_1221_56_773	1	1.09	0.439	0.556	0.0650	0.413	0.0920	0.88	0.45	0.234	0.109	0.718	0.319
10/10/2013 12:22	0913-111_A	13_10_10_1222_57_533	1	1.29	0.501	0.511	0.0680	0.345	0.0930	0.88	0.45	0.234	0.117	0.718	0.368
10/10/2013 12:23	0913-111_A	13_10_10_1223_58_253	1	1.89	0.488	0.614	0.0690	0.276	0.0900	0.88	0.45	0.234	0.115	0.718	0.365
10/10/2013 12:24	0913-111_A	13_10_10_1224_59_013	1	0.971	0.467	0.561	0.0670	0.371	0.0900	0.88	0.45	0.234	0.109	0.718	0.345
10/10/2013 12:25	0913-111_A	13_10_10_1225_59_763	1	0.971	0.465	0.501	0.0670	0.404	0.0910	0.88	0.45	0.262	0.111	0.718	0.345
10/10/2013 12:27	0913-111_A	13_10_10_1227_00_544	1	0.971	0.493	0.590	0.0700	0.331	0.0920	0.88	0.45	0.234	0.114	0.718	0.359
10/10/2013 12:28	0913-111_A	13_10_10_1228_01_284	1	0.971	0.486	0.598	0.0680	0.349	0.0910	0.88	0.45	0.235	0.114	0.718	0.357
10/10/2013 12:29	0913-111_A	13_10_10_1229_02_134	1	1.27	0.485	0.520	0.0650	0.346	0.0890	0.88	0.45	0.234	0.112	0.718	0.359
10/10/2013 12:30	0913-111_A	13_10_10_1230_02_884	1	1.57	0.483	0.477	0.0670	0.323	0.0910	0.88	0.45	0.234	0.113	0.718	0.356
10/10/2013 12:31	0913-111_A	13_10_10_1231_03_584	1	0.971	0.457	0.589	0.0630	0.393	0.0920	0.88	0.45	0.234	0.107	0.718	0.336
10/10/2013 12:32	0913-111_A	13_10_10_1232_04_304	1	0.971	0.485	0.687	0.0690	0.350	0.0890	0.88	0.45	0.234	0.113	0.718	0.359
10/10/2013 12:33	0913-111_A	13_10_10_1233_05_164	1	1.56	0.491	0.551	0.0680	0.337	0.0900	0.88	0.45	0.348	0.119	0.718	0.368
10/10/2013 12:34	0913-111_A	13_10_10_1234_05_914	1	1.02	0.480	0.648	0.0680	0.334	0.0910	0.88	0.45	0.234	0.116	0.718	0.355
10/10/2013 12:35	0913-111_A	13_10_10_1235_06_674	1	0.971	0.462	0.608	0.0660	0.357	0.0900	0.88	0.45	0.234	0.111	0.718	0.343
10/10/2013 12:36	0913-111_A	13_10_10_1236_07_474	1	0.971	0.487	0.567	0.0680	0.366	0.0900	0.88	0.45	0.263	0.113	0.718	0.345
10/10/2013 12:37	0913-111_A	13_10_10_1237_08_174	1	0.971	0.473	0.642	0.0650	0.403	0.0910	0.88	0.45	0.234	0.112	0.718	0.345
10/10/2013 12:38	0913-111_A	13_10_10_1238_09_024	1	0.971	0.483	0.701	0.0690	0.414	0.0900	0.88	0.45	0.234	0.117	0.718	0.355
10/10/2013 12:40	0913-111_A	13_10_10_1240_22_680	1	1.54	0.467	0.615	0.0670	0.370	0.0890	0.88	0.45	0.349	0.116	0.718	0.346
10/10/2013 12:41	0913-111_A	13_10_10_1241_23_370	1	1.50	0.503	0.599	0.0700	0.393	0.0920	0.88	0.45	0.347	0.117	0.718	0.374
10/10/2013 12:42	0913-111_A	13_10_10_1242_24_140	1	1.83	0.489	0.510	0.0690	0.329	0.0890	0.88	0.44	0.279	0.120	0.718	0.364
10/10/2013 12:43	0913-111_A	13_10_10_1243_24_950	1	1.61	0.487	0.520	0.0690	0.338	0.0910	0.88	0.44	0.354	0.119	0.718	0.358
10/10/2013 12:44	0913-111_A	13_10_10_1244_25_670	1	1.08	0.461	0.560	0.0680	0.372	0.0910	0.88	0.45	0.358	0.113	0.718	0.339
10/10/2013 12:45	0913-111_A	13_10_10_1245_26_440	1	1.33	0.461	0.586	0.0680	0.332	0.0880	0.88	0.45	0.349	0.117	0.718	0.343
10/10/2013 12:46	0913-111_A	13_10_10_1246_27_150	1	0.971	0.479	0.592	0.0670	0.330	0.0900	0.88	0.44	0.234	0.113	0.718	0.354
10/10/2013 12:47	0913-111_A	13_10_10_1247_27_970	1	1.06	0.483	0.718	0.0640	0.390	0.0880	0.88	0.45	0.291	0.111	0.718	0.354
10/10/2013 12:48	0913-111_A	13_10_10_1248_28_700	1	0.971	0.489	0.559	0.0700	0.385	0.0920	0.88	0.45	0.234	0.119	0.718	0.368
10/10/2013 12:49	0913-111_A	13_10_10_1249_29_530	1	0.971	0.522	0.687	0.0710	0.345	0.0900	0.88	0.44	0.368	0.121	0.718	0.388
10/10/2013 12:50	0913-111_A	13_10_10_1250_30_250	1	1.09	0.475	0.612	0.0670	0.353	0.0880	0.88	0.45	0.234	0.114	0.718	0.380
		Average Conc. (ppm):	1	1.15	0.480	0.561	0.0677	0.376	0.0913	0.88	0.45	0.251	0.113	0.723	0.356

Dryer 1 Run 1

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/10/2013 17:38	0913-111_A	13_10_10_1738_19_856	1	1.87	0.969	5.41	0.145	3.36	0.311	2.04	0.94	1.36	0.253	1.27	0.711
10/10/2013 17:39	0913-111_A	13_10_10_1739_20_675	1	2.01	0.979	5.39	0.142	3.31	0.309	2.04	0.92	1.36	0.258	1.27	0.725
10/10/2013 17:41	0913-111_A	13_10_10_1741_33_410	1	1.72	0.949	5.44	0.148	3.31	0.314	2.04	0.89	1.18	0.258	1.27	0.703
10/10/2013 17:42	0913-111_A	13_10_10_1742_34_100	1	2.10	0.963	5.60	0.148	3.32	0.318	2.04	0.88	1.13	0.259	1.27	0.712
10/10/2013 17:43	0913-111_A	13_10_10_1743_34_880	1	2.27	0.976	5.77	0.148	3.46	0.323	2.04	0.86	1.02	0.267	1.27	0.719
10/10/2013 17:44	0913-111_A	13_10_10_1744_35_610	1	1.72	0.988	6.15	0.148	3.65	0.326	2.04	0.85	1.24	0.264	1.27	0.725
10/10/2013 17:45	0913-111_A	13_10_10_1745_36_400	1	1.79	0.992	6.69	0.147	3.80	0.332	2.04	0.85	1.25	0.266	1.27	0.726
10/10/2013 17:46	0913-111_A	13_10_10_1746_37_220	1	1.95	1.01	6.74	0.151	3.88	0.330	2.04	0.85	1.16	0.269	1.27	0.735
10/10/2013 17:47	0913-111_A	13_10_10_1747_37_980	1	2.68	0.984	6.60	0.147	3.84	0.323	2.04	0.87	1.21	0.267	1.27	0.728
10/10/2013 17:48	0913-111_A	13_10_10_1748_38_700	1	1.78	0.985	6.70	0.152	3.85	0.319	2.04	0.88	1.22	0.266	1.27	0.724
10/10/2013 17:49	0913-111_A	13_10_10_1749_39_450	1	2.02	1.00	6.10	0.146	3.67	0.317	2.04	0.88	1.01	0.263	1.27	0.739
10/10/2013 17:50	0913-111_A	13_10_10_1750_40_250	1	2.05	0.960	5.27	0.139	3.31	0.307	2.04	0.90	0.847	0.252	1.27	0.707
10/10/2013 17:51	0913-111_A	13_10_10_1751_41_070	1	1.72	0.956	4.78	0.135	3.07	0.307	2.04	0.91	0.728	0.251	1.27	0.702
10/10/2013 17:52	0913-111_A	13_10_10_1752_41_790	1	1.72	0.967	4.48	0.137	2.94	0.306	2.04	0.93	0.560	0.250	1.27	0.709
10/10/2013 17:53	0913-111_A	13_10_10_1753_42_531	1	1.90	0.951	3.97	0.137	2.81	0.301	2.04	0.94	0.514	0.253	1.27	0.704
10/10/2013 17:54	0913-111_A	13_10_10_1754_43_251	1	1.72	0.943	3.70	0.135	2.69	0.297	2.04	0.96	0.452	0.251	1.27	0.696
10/10/2013 17:55	0913-111_A	13_10_10_1755_44_091	1	1.79	0.903	3.57	0.135	2.58	0.294	2.04	0.96	0.452	0.246	1.27	0.665
10/10/2013 17:56	0913-111_A	13_10_10_1756_44_841	1	1.72	0.961	3.29	0.135	2.45	0.293	2.04	0.98	0.452	0.247	1.27	0.712
10/10/2013 17:57	0913-111_A	13_10_10_1757_45_591	1	2.09	0.908	3.03	0.129	2.46	0.290	2.04	0.99	0.452	0.237	1.27	0.670
10/10/2013 17:58	0913-111_A	13_10_10_1758_46_391	1	1.72	0.909	2.91	0.132	2.41	0.289	2.04	1.01	0.452	0.243	1.27	0.680
10/10/2013 17:59	0913-111_A	13_10_10_1759_47_171	1	1.72	0.908	2.72	0.131	2.21	0.286	2.04	1.01	0.452	0.239	1.27	0.670
10/10/2013 18:00	0913-111_A	13_10_10_1800_47_881	1	1.72	0.931	2.52	0.129	2.28	0.281	2.04	1.04	0.452	0.241	1.27	0.698
10/10/2013 18:01	0913-111_A	13_10_10_1801_48_661	1	1.72	0.903	2.45	0.129	2.24	0.277	2.04	1.04	0.452	0.240	1.27	0.672
10/10/2013 18:02	0913-111_A	13_10_10_1802_49_451	1	1.72	0.919	2.17	0.129	2.05	0.272	2.04	1.06	0.452	0.236	1.27	0.688
10/10/2013 18:03	0913-111_A	13_10_10_1803_50_191	1	1.72	0.862	2.18	0.123	1.96	0.277	2.04	1.07	0.452	0.228	1.27	0.644
10/10/2013 18:04	0913-111_A	13_10_10_1804_51_001	1	1.72	0.858	2.04	0.120	2.08	0.282	2.04	1.07	0.452	0.224	1.27	0.638
10/10/2013 18:05	0913-111_A	13_10_10_1805_51_742	1	1.72	0.905	2.12	0.126	2.06	0.291	2.04	1.06	0.452	0.232	1.27	0.664
10/10/2013 18:06	0913-111_A	13_10_10_1806_52_442	1	1.72	0.910	2.33	0.127	2.13	0.295	2.04	1.04	0.452	0.232	1.27	0.671
10/10/2013 18:07	0913-111_A	13_10_10_1807_53_232	1	1.72	0.901	2.55	0.127	2.22	0.297	2.04	1.02	0.452	0.239	1.27	0.666
10/10/2013 18:08	0913-111_A	13_10_10_1808_53_952	1	1.72	0.938	2.54	0.128	2.23	0.296	2.04	1.02	0.452	0.242	1.27	0.691
10/10/2013 18:09	0913-111_A	13_10_10_1809_54_762	1	1.72	0.943	2.46	0.125	2.29	0.297	2.04	1.02	0.452	0.238	1.27	0.706
10/10/2013 18:10	0913-111_A	13_10_10_1810_55_572	1	1.72	0.908	2.54	0.127	2.30	0.298	2.04	1.00	0.452	0.233	1.27	0.672
10/10/2013 18:11	0913-111_A	13_10_10_1811_56_282	1	1.72	0.879	2.86	0.124	2.40	0.306	2.04	1.00	0.452	0.228	1.27	0.654
10/10/2013 18:12	0913-111_A	13_10_10_1812_57_092	1	1.72	0.930	3.03	0.129	2.62	0.310	2.04	0.99	0.452	0.238	1.27	0.690
10/10/2013 18:13	0913-111_A	13_10_10_1813_57_812	1	1.72	0.947	3.21	0.130	2.56	0.307	2.04	0.98	0.452	0.240	1.27	0.703
10/10/2013 18:14	0913-111_A	13_10_10_1814_58_622	1	1.72	0.922	3.36	0.133	2.59	0.306	2.04	0.97	0.452	0.238	1.27	0.684
10/10/2013 18:15	0913-111_A	13_10_10_1815_59_382	1	1.72	0.927	3.14	0.129	2.69	0.302	2.04	0.97	0.452	0.237	1.27	0.685
10/10/2013 18:17	0913-111_A	13_10_10_1817_00_093	1	1.86	0.926	2.95	0.129	2.59	0.296	2.04	0.96	0.452	0.238	1.27	0.697
10/10/2013 18:18	0913-111_A	13_10_10_1818_00_713	1	1.72	0.924	3.03	0.129	2.49	0.293	2.04	0.99	0.452	0.235	1.27	0.684
10/10/2013 18:19	0913-111_A	13_10_10_1819_01_513	1	1.72	0.895	2.77	0.132	2.34	0.291	2.04	1.00	0.452	0.236	1.27	0.660
10/10/2013 18:20	0913-111_A	13_10_10_1820_02_313	1	1.72	0.906	2.49	0.128	2.20	0.284	2.04	1.02	0.452	0.229	1.27	0.671
10/10/2013 18:21	0913-111_A	13_10_10_1821_03_043	1	1.72	0.903	2.25	0.127	2.16	0.283	2.04	1.05	0.452	0.231	1.27	0.667
10/10/2013 18:22	0913-111_A	13_10_10_1822_03_843	1	1.72	0.878	2.31	0.123	2.06	0.284	2.04	1.07	0.452	0.225	1.27	0.653
10/10/2013 18:23	0913-111_A	13_10_10_1823_04_563	1	1.77	0.885	2.38	0.125	2.12	0.288	2.04	1.08	0.452	0.226	1.27	0.654
10/10/2013 18:24	0913-111_A	13_10_10_1824_05_383	1	1.72	0.873	2.37	0.122	2.15	0.291	2.04	1.10	0.452	0.225	1.27	0.642
10/10/2013 18:25	0913-111_A	13_10_10_1825_06_133	1	1.72	0.877	2.31	0.125	2.13	0.292	2.04	1.10	0.452	0.224	1.27	0.652
10/10/2013 18:26	0913-111_A	13_10_10_1826_06_873	1	1.72	0.916	2.29	0.127	2.12	0.288	2.04	1.10	0.452	0.230	1.27	0.683
10/10/2013 18:27	0913-111_A	13_10_10_1827_07_663	1	1.72	0.857	2.38	0.123	2.24	0.294	2.04	1.07	0.452	0.226	1.27	0.637
10/10/2013 18:28	0913-111_A	13_10_10_1828_08_403	1	1.72	0.869	2.36	0.123	2.11	0.288	2.04	1.06	0.462	0.224	1.27	0.642
10/10/2013 18:29	0913-111_A	13_10_10_1829_09_244	1	1.72	0.846	2.51	0.125	2.24	0.288	2.04	1.06	0.489	0.223	1.27	0.627
10/10/2013 18:30	0913-111_A	13_10_10_1830_09_954	1	1.72	0.883	2.29	0.126	2.12	0.280	2.04	1.01	0.575	0.227	1.27	0.657
10/10/2013 18:31	0913-111_A	13_10_10_1831_10_774	1	1.72	0.860	2.07	0.123	1.92	0.277	2.04	1.08	0.500	0.223	1.27	0.641
10/10/2013 18:32	0913-111_A	13_10_10_1832_11_484	1	1.72	0.855	2.07	0.120	1.92	0.281	2.04	1.10	0.719	0.221	1.27	0.635
10/10/2013 18:33	0913-111_A	13_10_10_1833_12_274	1	1.72	0.872	2.11	0.122	1.96	0.284	2.04	1.11	0.732	0.222	1.27	0.639
10/10/2013 18:34	0913-111_A	13_10_10_1834_13_034	1	1.72	0.874	2.08	0.120	1.86	0.283	2.04	1.13	0.748	0.220	1.27	0.642
10/10/2013 18:35	0913-111_A	13_10_10_1835_13_864	1	1.72	0.878	1.93	0.124	1.82	0.285	2.04	1.09	0.786	0.227	1.27	0.654
10/10/2013 18:36	0913-111_A	13_10_10_1836_14_564	1	1.72	0.875	1.73	0.128	1.74	0.280	2.04	1.10	0.717	0.230	1.27	0.657
10/10/2013 18:37	0913-111_A	13_10_10_1837_15_364	1	1.72	0.852	1.71	0.124	1.63	0.275	2.04	1.11	0.735	0.221	1.27	0.630
10/10/2013 18:38	0913-111_A	13_10_10_1838_16_164	1	1.72	0.839	1.76	0.118	1.67	0.280	2.04	1.13	0.806	0.216	1.27	0.622
		Average Conc. (ppm):	1	1.79	0.917	3.32	0.131	2.62	0.296	2.04	1.00	0.644	0.239	1.27	0.679

Company ACT
Analyst Initials CJT
Parameters EPA Method 320
Samples 21 Runs

Client # 1911
Job # 0913-111
PO # 3134 1911
Report Date V0.62 13.10.18.12.58

Dryer 1 Run 2

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/11/2013 10:00	0913-111_A	13_10_11_1000_40_402	1	1.72	0.860	1.57	0.121	1.50	0.297	2.04	1.20	0.672	0.219	1.27	0.636
10/11/2013 10:01	0913-111_A	13_10_11_1001_41_122	1	1.72	0.811	1.50	0.116	1.53	0.301	2.04	1.18	0.500	0.215	1.27	0.595
10/11/2013 10:02	0913-111_A	13_10_11_1002_41_912	1	1.72	0.841	1.40	0.126	1.50	0.297	2.04	1.18	0.684	0.224	1.27	0.624
10/11/2013 10:03	0913-111_A	13_10_11_1003_42_642	1	1.72	0.846	1.51	0.128	1.64	0.306	2.04	1.13	0.624	0.224	1.27	0.623
10/11/2013 10:04	0913-111_A	13_10_11_1004_43_352	1	1.72	0.853	1.56	0.129	1.59	0.301	2.04	1.12	0.550	0.227	1.27	0.633
10/11/2013 10:05	0913-111_A	13_10_11_1005_44_132	1	1.72	0.825	1.53	0.122	1.52	0.297	2.04	1.10	0.513	0.219	1.27	0.603
10/11/2013 10:06	0913-111_A	13_10_11_1006_44_842	1	1.72	0.870	1.47	0.127	1.59	0.298	2.04	1.10	0.547	0.226	1.27	0.640
10/11/2013 10:07	0913-111_A	13_10_11_1007_45_852	1	1.72	0.847	1.43	0.123	1.58	0.300	2.04	1.10	0.452	0.223	1.27	0.624
10/11/2013 10:08	0913-111_A	13_10_11_1008_46_362	1	1.72	0.863	1.51	0.125	1.63	0.299	2.04	1.09	0.698	0.225	1.27	0.635
10/11/2013 10:09	0913-111_A	13_10_11_1009_47_132	1	1.72	0.883	1.42	0.127	1.63	0.292	2.04	1.08	0.688	0.225	1.27	0.646
10/11/2013 10:10	0913-111_A	13_10_11_1010_47_862	1	1.72	0.846	1.33	0.128	1.58	0.291	2.04	1.08	0.609	0.227	1.27	0.623
10/11/2013 10:11	0913-111_A	13_10_11_1011_48_603	1	1.72	0.850	1.50	0.124	1.66	0.290	2.04	1.08	0.644	0.224	1.27	0.631
10/11/2013 10:12	0913-111_A	13_10_11_1012_49_403	1	1.72	0.856	1.43	0.125	1.59	0.283	2.04	1.08	0.489	0.222	1.27	0.629
10/11/2013 10:13	0913-111_A	13_10_11_1013_50_133	1	1.72	0.854	1.48	0.128	1.61	0.291	2.04	1.09	0.613	0.226	1.27	0.632
10/11/2013 10:14	0913-111_A	13_10_11_1014_50_843	1	1.72	0.860	1.46	0.122	1.60	0.290	2.04	1.09	0.548	0.221	1.27	0.643
10/11/2013 10:15	0913-111_A	13_10_11_1015_51_633	1	1.72	0.869	1.44	0.126	1.61	0.285	2.04	1.09	0.578	0.228	1.27	0.642
10/11/2013 10:16	0913-111_A	13_10_11_1016_52_393	1	1.72	0.847	1.46	0.123	1.70	0.288	2.04	1.08	0.639	0.222	1.27	0.629
10/11/2013 10:17	0913-111_A	13_10_11_1017_53_133	1	1.72	0.852	1.52	0.127	1.64	0.282	2.04	1.08	0.710	0.226	1.27	0.631
10/11/2013 10:18	0913-111_A	13_10_11_1018_53_883	1	1.72	0.862	1.24	0.129	1.62	0.282	2.04	1.09	0.649	0.227	1.27	0.639
10/11/2013 10:19	0913-111_A	13_10_11_1019_54_693	1	1.72	0.814	1.44	0.125	1.61	0.280	2.04	1.07	0.687	0.222	1.27	0.606
10/11/2013 10:20	0913-111_A	13_10_11_1020_55_363	1	1.72	0.861	1.28	0.123	1.58	0.281	2.04	1.07	0.452	0.222	1.27	0.636
10/11/2013 10.21	0913-111_A	13_10_11_1021_56_083	1	1.72	0.843	1.35	0.128	1.56	0.281	2.04	1.07	0.537	0.227	1.27	0.627
10/11/2013 10:22	0913-111_A	13_10_11_1022_56_793	1	1.72	0.828	1.47	0.123	1.54	0.282	2.04	1.07	0.517	0.218	1.27	0.606
10/11/2013 10:23	0913-111_A	13_10_11_1023_57_534	1	1.72	0.887	1.48	0.126	1.57	0.293	2.04	1.08	0.581	0.223	1.27	0.640
10/11/2013 10:24	0913-111_A	13_10_11_1024_58_264	1	1.72	0.851	1.40	0.128	1.59	0.287	2.04	1.07	0.623	0.222	1.27	0.636
10/11/2013 10:25	0913-111_A	13_10_11_1025_58_974	1	1.72	0.867	1.50	0.122	1.61	0.286	2.04	1.05	0.599	0.226	1.27	0.635
10/11/2013 10:26	0913-111_A	13_10_11_1026_59_734	1	1.72	0.829	1.63	0.122	1.56	0.292	2.04	1.06	0.692	0.219	1.27	0.601
10/11/2013 10:28	0913-111_A	13_10_11_1028_00_474	1	1.72	0.844	1.58	0.129	1.59	0.289	2.04	1.05	0.636	0.222	1.27	0.631
10/11/2013 10:29	0913-111_A	13_10_11_1029_01_274	1	1.72	0.862	1.68	0.127	1.71	0.295	2.04	1.07	0.704	0.226	1.27	0.633
10/11/2013 10.30	0913-111_A	13_10_11_1030_01_984	1	1.72	0.829	1.44	0.123	1.64	0.288	2.04	1.07	0.523	0.220	1.27	0.610
10/11/2013 10:31	0913-111_A	13_10_11_1031_02_734	1	1.72	0.822	1.46	0.124	1.51	0.282	2.04	1.08	0.749	0.219	1.27	0.611
10/11/2013 10:32	0913-111_A	13_10_11_1032_03_544	1	1.72	0.860	1.47	0.125	1.58	0.284	2.04	1.08	0.701	0.225	1.27	0.638
10/11/2013 10.33	0913-111_A	13_10_11_1033_04_204	1	1.72	0.853	1.42	0.128	1.61	0.286	2.04	1.06	0.721	0.224	1.27	0.628
10/11/2013 10.34	0913-111_A	13_10_11_1034_05_004	1	1.72	0.848	1.48	0.125	1.58	0.288	2.04	1.07	0.542	0.223	1.27	0.631
10/11/2013 10:35	0913-111_A	13_10_11_1035_05_724	1	1.72	0.859	1.62	0.130	1.69	0.289	2.04	1.06	0.719	0.231	1.27	0.633
10/11/2013 10:36	0913-111_A	13_10_11_1036_06_535	1	1.72	0.865	1.55	0.128	1.68	0.290	2.04	1.06	0.686	0.230	1.27	0.637
10/11/2013 10:37	0913-111_A	13_10_11_1037_07_285	1	1.72	0.851	1.47	0.127	1.57	0.295	2.04	1.06	0.740	0.227	1.27	0.631
10/11/2013 10:38	0913-111_A	13_10_11_1038_07_965	1	1.72	0.833	1.59	0.127	1.72	0.293	2.04	1.05	0.693	0.229	1.27	0.613
10/11/2013 10:39	0913-111_A	13_10_11_1039_08_675	1	1.72	0.842	1.59	0.127	1.67	0.294	2.04	1.05	0.712	0.226	1.27	0.624
10/11/2013 10:40	0913-111_A	13_10_11_1040_09_475	1	1.72	0.838	1.56	0.129	1.75	0.292	2.04	1.06	0.752	0.231	1.27	0.620
10/11/2013 10:41	0913-111_A	13_10_11_1041_10_245	1	1.72	0.861	1.58	0.129	1.70	0.294	2.04	1.05	0.773	0.225	1.27	0.631
10/11/2013 10:42	0913-111_A	13_10_11_1042_11_005	1	1.72	0.846	1.59	0.125	1.74	0.293	2.04	1.05	0.693	0.227	1.27	0.630
10/11/2013 10:43	0913-111_A	13_10_11_1043_11_705	1	1.72	0.870	1.69	0.127	1.74	0.295	2.04	1.08	0.766	0.228	1.27	0.637
10/11/2013 10:44	0913-111_A	13_10_11_1044_12_415	1	1.72	0.843	1.52	0.123	1.63	0.287	2.04	1.08	0.744	0.225	1.27	0.617
10/11/2013 10:45	0913-111_A	13_10_11_1045_13_215	1	1.72	0.831	1.49	0.127	1.65	0.288	2.04	1.07	0.754	0.224	1.27	0.614
10/11/2013 10:46	0913-111_A	13_10_11_1046_13_925	1	1.72	0.838	1.57	0.126	1.69	0.291	2.04	1.05	0.694	0.223	1.27	0.627
10/11/2013 10:47	0913-111_A	13_10_11_1047_14_755	1	1.72	0.849	1.54	0.127	1.70	0.295	2.04	1.04	0.706	0.231	1.27	0.624
10/11/2013 10:48	0913-111_A	13_10_11_1048_15_466	1	1.72	0.838	1.62	0.124	1.88	0.298	2.04	1.03	0.851	0.231	1.27	0.621
10/11/2013 10:49	0913-111_A	13_10_11_1049_16_246	1	1.72	0.878	1.69	0.128	1.78	0.301	2.04	1.01	0.949	0.237	1.27	0.650
10/11/2013 10:50	0913-111_A	13_10_11_1050_16_906	1	1.72	0.890	2.24	0.131	2.08	0.319	2.04	0.98	0.875	0.238	1.27	0.658
10/11/2013 10:51	0913-111_A	13_10_11_1051_17_706	1	1.72	0.900	2.70	0.131	2.33	0.320	2.04	0.97	1.12	0.241	1.27	0.666
10/11/2013 10:52	0913-111_A	13_10_11_1052_18_496	1	1.72	0.861	2.71	0.133	2.31	0.318	2.04	0.97	1.25	0.245	1.27	0.642
10/11/2013 10:53	0913-111_A	13_10_11_1053_19_216	1	1.72	0.863	2.31	0.132	2.16	0.310	2.04	0.99	1.13	0.241	1.27	0.637
10/11/2013 10:54	0913-111_A	13_10_11_1054_19_966	1	1.72	0.855	2.12	0.129	2.11	0.303	2.04	1.01	1.17	0.237	1.27	0.634
10/11/2013 10:55	0913-111_A	13_10_11_1055_20_716	1	1.72	0.871	1.93	0.127	2.00	0.299	2.04	1.03	1.10	0.235	1.27	0.641
10/11/2013 10:56	0913-111_A	13_10_11_1056_21_456	1	1.72	0.856	1.83	0.126	1.86	0.298	2.04	1.02	1.00	0.232	1.27	0.637
10/11/2013 10:57	0913-111_A	13_10_11_1057_22_216	1	1.72	0.846	1.81	0.131	1.87	0.299	2.04	1.03	0.795	0.238	1.27	0.624
10/11/2013 10:58	0913-111_A	13_10_11_1058_22_936	1	1.72	0.846	1.87	0.128	1.87	0.304	2.04	1.04	0.971	0.228	1.27	0.623
10/11/2013 10:59	0913-111_A	13_10_11_1059_23_757	1	1.72	0.840	1.71	0.124	1.85	0.294	2.04	1.04	1.01	0.228	1.27	0.616
10/11/2013 11:00	0913-111_A	13_10_11_1100_24_457	1	1.72	0.739	1.36	0.113	1.64	0.240	2.04	1.23	0.562	0.230	1.27	0.551
		Average Conc. (ppm):	1	1.72	0.860	1.60	0.126	1.70	0.293	2.04	1.07	0.714	0.227	1.27	0.628

Dryer 1 Run 3

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/11/2013 11:37	0913-111_A	13_10_11_1137_48_670	1	1.72	0.785	1.48	0.117	1.23	0.285	2.04	1.07	0.452	0.217	1.27	0.580
10/11/2013 11:38	0913-111_A	13_10_11_1138_49_370	1	1.72	0.778	1.61	0.119	1.23	0.285	2.04	1.06	0.452	0.211	1.27	0.572
10/11/2013 11:39	0913-111_A	13_10_11_1139_50_160	1	1.72	0.799	1.54	0.121	1.32	0.284	2.04	1.05	0.452	0.217	1.27	0.577
10/11/2013 11:40	0913-111_A	13_10_11_1140_50_930	1	1.72	0.811	1.65	0.123	1.36	0.282	2.04	1.05	0.452	0.221	1.27	0.600
10/11/2013 11:41	0913-111_A	13_10_11_1141_51_850	1	1.72	0.804	1.67	0.119	1.30	0.277	2.04	1.04	0.452	0.216	1.27	0.591
10/11/2013 11:42	0913-111_A	13_10_11_1142_52_480	1	1.72	0.814	1.55	0.122	1.30	0.276	2.04	1.04	0.452	0.218	1.27	0.601
10/11/2013 11:43	0913-111_A	13_10_11_1143_53_130	1	1.72	0.821	1.37	0.121	1.26	0.277	2.04	1.03	0.452	0.221	1.27	0.606
10/11/2013 11:44	0913-111_A	13_10_11_1144_53_970	1	1.72	0.798	1.47	0.121	1.27	0.278	2.04	1.02	0.452	0.217	1.27	0.585
10/11/2013 11:45	0913-111_A	13_10_11_1145_54_690	1	1.72	0.825	1.60	0.120	1.30	0.277	2.04	1.03	0.452	0.218	1.27	0.605
10/11/2013 11:46	0913-111_A	13_10_11_1146_55_471	1	1.72	0.782	1.71	0.118	1.39	0.278	2.04	1.05	0.452	0.210	1.27	0.580
10/11/2013 11:47	0913-111_A	13_10_11_1147_56_221	1	1.72	0.807	1.58	0.120	1.35	0.278	2.04	1.04	0.452	0.212	1.27	0.589
10/11/2013 11:48	0913-111_A	13_10_11_1148_57_041	1	1.72	0.839	1.57	0.120	1.44	0.280	2.04	1.03	0.452	0.214	1.27	0.616
10/11/2013 11:49	0913-111_A	13_10_11_1149_57_761	1	1.72	0.782	1.69	0.116	1.55	0.279	2.04	1.02	0.464	0.203	1.27	0.581
10/11/2013 11:50	0913-111_A	13_10_11_1150_58_531	1	1.72	0.803	1.55	0.119	1.52	0.276	2.04	1.02	0.452	0.206	1.27	0.595
10/11/2013 11:51	0913-111_A	13_10_11_1151_59_131	1	1.72	0.808	1.60	0.119	1.55	0.277	2.04	1.03	0.452	0.208	1.27	0.595
10/11/2013 11:52	0913-111_A	13_10_11_1152_59_901	1	1.72	0.806	1.61	0.119	1.54	0.280	2.04	1.00	0.452	0.206	1.27	0.591
10/11/2013 11:54	0913-111_A	13_10_11_1154_00_611	1	1.72	0.781	1.81	0.120	1.58	0.288	2.04	0.99	0.452	0.204	1.27	0.574
10/11/2013 11:55	0913-111_A	13_10_11_1155_01_421	1	1.72	0.864	1.72	0.120	1.63	0.290	2.04	0.98	0.452	0.209	1.27	0.635
10/11/2013 11:56	0913-111_A	13_10_11_1156_02_111	1	1.72	0.812	1.74	0.123	1.65	0.286	2.04	0.97	0.452	0.209	1.27	0.602
10/11/2013 11:57	0913-111_A	13_10_11_1157_02_921	1	1.72	0.808	1.72	0.120	1.69	0.285	2.04	0.97	0.483	0.205	1.27	0.589
10/11/2013 11:58	0913-111_A	13_10_11_1158_03_661	1	1.72	0.776	1.56	0.116	1.67	0.282	2.04	0.99	0.562	0.201	1.27	0.574
10/11/2013 11:59	0913-111_A	13_10_11_1159_04_382	1	1.72	0.805	1.70	0.126	1.60	0.281	2.04	0.99	0.576	0.213	1.27	0.603
10/11/2013 12:00	0913-111_A	13_10_11_1200_05_122	1	1.72	0.838	1.68	0.123	1.62	0.287	2.04	0.99	0.452	0.212	1.27	0.618
10/11/2013 12:01	0913-111_A	13_10_11_1201_05_832	1	1.72	0.775	1.72	0.116	1.67	0.286	2.04	1.01	0.452	0.201	1.27	0.572
10/11/2013 12:02	0913-111_A	13_10_11_1202_06_592	1	1.72	0.812	1.59	0.119	1.57	0.277	2.04	1.00	0.452	0.208	1.27	0.599
10/11/2013 12:03	0913-111_A	13_10_11_1203_07_332	1	1.72	0.799	1.64	0.122	1.61	0.284	2.04	1.01	0.452	0.206	1.27	0.594
10/11/2013 12:04	0913-111_A	13_10_11_1204_08_092	1	1.72	0.823	1.64	0.120	1.59	0.286	2.04	1.01	0.625	0.208	1.27	0.605
10/11/2013 12:05	0913-111_A	13_10_11_1205_08_912	1	1.72	0.835	1.78	0.116	1.63	0.284	2.04	0.99	0.533	0.208	1.27	0.615
10/11/2013 12:06	0913-111_A	13_10_11_1206_09_582	1	1.72	0.814	1.75	0.119	1.59	0.289	2.04	0.98	0.452	0.206	1.27	0.597
10/11/2013 12:07	0913-111_A	13_10_11_1207_10_432	1	1.72	0.827	1.81	0.123	1.67	0.290	2.04	0.97	0.491	0.215	1.27	0.610
10/11/2013 12:08	0913-111_A	13_10_11_1208_11_142	1	1.72	0.789	1.70	0.116	1.62	0.282	2.04	0.98	0.452	0.204	1.27	0.581
10/11/2013 12:09	0913-111_A	13_10_11_1209_11_902	1	1.72	0.817	1.76	0.115	1.62	0.285	2.04	0.99	0.508	0.200	1.27	0.598
10/11/2013 12:10	0913-111_A	13_10_11_1210_12_712	1	1.72	0.809	1.72	0.121	1.60	0.282	2.04	1.00	0.518	0.207	1.27	0.599
10/11/2013 12:11	0913-111_A	13_10_11_1211_13_423	1	1.72	0.806	1.71	0.118	1.60	0.285	2.04	0.99	0.452	0.206	1.27	0.595
10/11/2013 12:12	0913-111_A	13_10_11_1212_14_173	1	1.72	0.782	1.74	0.121	1.63	0.286	2.04	1.00	0.452	0.209	1.27	0.577
10/11/2013 12:13	0913-111_A	13_10_11_1213_14_893	1	1.72	0.806	1.53	0.118	1.67	0.284	2.04	1.00	0.452	0.206	1.27	0.595
10/11/2013 12:14	0913-111_A	13_10_11_1214_15_703	1	1.72	0.828	1.82	0.119	1.64	0.286	2.04	0.99	0.452	0.215	1.27	0.614
10/11/2013 12:15	0913-111_A	13_10_11_1215_16_453	1	1.72	0.801	1.73	0.118	1.59	0.288	2.04	0.99	0.474	0.207	1.27	0.591
10/11/2013 12:16	0913-111_A	13_10_11_1216_17_183	1	1.72	0.830	1.78	0.122	1.62	0.287	2.04	0.98	0.474	0.215	1.27	0.607
10/11/2013 12:17	0913-111_A	13_10_11_1217_18_003	1	1.72	0.803	1.84	0.119	1.61	0.292	2.04	0.97	0.452	0.209	1.27	0.590
10/11/2013 12:18	0913-111_A	13_10_11_1218_18_713	1	1.72	0.769	1.85	0.119	1.68	0.287	2.04	0.97	0.555	0.208	1.27	0.587
10/11/2013 12:19	0913-111_A	13_10_11_1219_19_493	1	1.72	0.801	1.82	0.123	1.62	0.287	2.04	0.98	0.465	0.216	1.27	0.592
10/11/2013 12:20	0913-111_A	13_10_11_1220_20_233	1	1.72	0.801	1.88	0.121	1.64	0.287	2.04	0.98	0.452	0.213	1.27	0.588
10/11/2013 12:21	0913-111_A	13_10_11_1221_20_953	1	1.72	0.816	1.74	0.119	1.59	0.288	2.04	0.98	0.532	0.217	1.27	0.604
10/11/2013 12:22	0913-111_A	13_10_11_1222_21_693	1	1.72	0.801	2.02	0.119	1.68	0.291	2.04	0.98	0.509	0.212	1.27	0.592
10/11/2013 12:23	0913-111_A	13_10_11_1223_22_454	1	1.72	0.838	1.95	0.125	1.68	0.293	2.04	0.97	0.490	0.221	1.27	0.614
10/11/2013 12:24	0913-111_A	13_10_11_1224_23_174	1	1.72	0.825	1.88	0.122	1.72	0.298	2.04	0.96	0.633	0.217	1.27	0.611
10/11/2013 12:25	0913-111_A	13_10_11_1225_23_994	1	1.72	0.845	1.97	0.121	1.77	0.297	2.04	0.97	0.614	0.220	1.27	0.627
10/11/2013 12:26	0913-111_A	13_10_11_1226_24_704	1	1.72	0.826	2.00	0.121	1.71	0.303	2.04	0.96	0.544	0.221	1.27	0.611
10/11/2013 12:27	0913-111_A	13_10_11_1227_25_514	1	1.72	0.836	1.98	0.121	1.77	0.304	2.04	0.94	0.648	0.219	1.27	0.610
10/11/2013 12:28	0913-111_A	13_10_11_1228_26_224	1	1.72	0.833	2.21	0.123	1.84	0.305	2.04	0.92	0.566	0.219	1.27	0.615
10/11/2013 12:29	0913-111_A	13_10_11_1229_27_034	1	1.72	0.830	2.20	0.125	1.91	0.301	2.04	0.94	0.796	0.225	1.27	0.615
10/11/2013 12:31	0913-111_A	13_10_11_1231_37_650	1	1.72	0.828	2.19	0.123	1.86	0.294	2.04	0.95	0.577	0.219	1.27	0.607
10/11/2013 12:32	0913-111_A	13_10_11_1232_38_340	1	1.72	0.820	1.94	0.123	1.73	0.286	2.04	0.95	0.654	0.220	1.27	0.605
10/11/2013 12:33	0913-111_A	13_10_11_1233_39_140	1	1.72	0.819	2.02	0.123	1.71	0.290	2.04	0.94	0.516	0.217	1.27	0.602
10/11/2013 12:34	0913-111_A	13_10_11_1234_39_730	1	1.72	0.839	2.14	0.123	1.84	0.300	2.04	0.94	0.607	0.224	1.27	0.617
10/11/2013 12:35	0913-111_A	13_10_11_1235_40_510	1	1.72	0.851	2.37	0.122	1.82	0.305	2.04	0.93	0.635	0.223	1.27	0.627
10/11/2013 12:36	0913-111_A	13_10_11_1236_41_230	1	1.72	0.826	2.58	0.124	2.06	0.312	2.04	0.92	0.648	0.226	1.27	0.606
		Average Conc. (ppm):	1	1.72	0.812	1.78	0.120	1.59	0.287	2.04	**0.99**	0.505	0.213	**1.27**	**0.598**

Company ACT
Analyst Initials CJT
Parameters EPA Method 320
Samples 21 Runs

Client # 1911
Job # 0913-111
PO # 3134 1911
Report Date V0.62 13.10.18.12.58

Pellet Cooler 2 Run 1

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/11/2013 13:44	0913-111_A	13_10_11_1344_00_484	1	1.00	0.514	1.48	0.0740	0.972	0.0810	1.08	0.54	0.246	0.127	1.07	0.386
10/11/2013 13:45	0913-111_A	13_10_11_1345_01_204	1	1.21	0.477	1.41	0.0700	0.939	0.0810	1.08	0.53	0.246	0.126	1.10	0.362
10/11/2013 13:46	0913-111_A	13_10_11_1346_02_004	1	1.38	0.509	1.09	0.0710	0.876	0.0810	1.08	0.53	0.246	0.124	1.10	0.384
10/11/2013 13:47	0913-111_A	13_10_11_1347_02_754	1	1.00	0.492	1.15	0.0710	0.801	0.0790	1.08	0.53	0.246	0.122	0.812	0.367
10/11/2013 13:48	0913-111_A	13_10_11_1348_03_454	1	1.39	0.518	1.03	0.0690	0.829	0.0820	1.08	0.53	0.246	0.123	0.745	0.381
10/11/2013 13:49	0913-111_A	13_10_11_1349_04_244	1	1.06	0.453	1.02	0.0690	0.798	0.0790	1.08	0.54	0.246	0.117	0.878	0.338
10/11/2013 13:50	0913-111_A	13_10_11_1350_05_064	1	1.47	0.480	1.00	0.0700	0.818	0.0820	1.08	0.54	0.246	0.119	0.745	0.356
10/11/2013 13:51	0913-111_A	13_10_11_1351_05_795	1	1.69	0.503	1.05	0.0750	0.826	0.0830	1.08	0.54	0.246	0.126	0.745	0.381
10/11/2013 13:52	0913-111_A	13_10_11_1352_06_545	1	2.23	0.464	0.984	0.0750	0.730	0.0800	1.08	0.53	0.246	0.124	1.12	0.353
10/11/2013 13:53	0913-111_A	13_10_11_1353_07_335	1	1.00	0.521	1.10	0.0740	0.859	0.0800	1.08	0.53	0.246	0.128	0.819	0.386
10/11/2013 13:54	0913-111_A	13_10_11_1354_08_045	1	1.00	0.498	1.02	0.0680	0.823	0.0830	1.08	0.54	0.246	0.121	0.884	0.368
10/11/2013 13:55	0913-111_A	13_10_11_1355_08_815	1	2.04	0.513	1.06	0.0750	0.829	0.0800	1.08	0.54	0.246	0.128	0.937	0.392
10/11/2013 13:56	0913-111_A	13_10_11_1356_09_515	1	1.85	0.514	1.06	0.0750	0.861	0.0800	1.08	0.53	0.246	0.127	0.874	0.384
10/11/2013 13:57	0913-111_A	13_10_11_1357_10_335	1	1.12	0.488	1.15	0.0660	0.904	0.0840	1.08	0.54	0.246	0.116	0.784	0.380
10/11/2013 13:58	0913-111_A	13_10_11_1358_11_105	1	1.00	0.487	1.12	0.0700	0.817	0.0820	1.08	0.54	0.246	0.122	1.02	0.380
10/11/2013 13:59	0913-111_A	13_10_11_1359_11_825	1	1.00	0.480	1.11	0.0730	0.851	0.0830	1.08	0.53	0.246	0.124	1.23	0.358
10/11/2013 14:00	0913-111_A	13_10_11_1400_12_475	1	1.18	0.488	1.01	0.0700	0.854	0.0830	1.08	0.54	0.246	0.124	1.19	0.363
10/11/2013 14:01	0913-111_A	13_10_11_1401_13_185	1	1.00	0.514	1.08	0.0720	0.822	0.0770	1.08	0.53	0.246	0.124	0.745	0.381
10/11/2013 14:02	0913-111_A	13_10_11_1402_13_945	1	1.42	0.493	1.05	0.0730	0.833	0.0800	1.08	0.53	0.246	0.122	0.862	0.368
10/11/2013 14:03	0913-111_A	13_10_11_1403_14_706	1	1.36	0.505	1.03	0.0690	0.804	0.0790	1.08	0.53	0.246	0.122	0.745	0.377
10/11/2013 14:04	0913-111_A	13_10_11_1404_15_456	1	1.18	0.484	1.18	0.0690	0.787	0.0810	1.08	0.54	0.246	0.124	0.869	0.366
10/11/2013 14:05	0913-111_A	13_10_11_1405_16_186	1	1.00	0.489	1.11	0.0680	0.832	0.0810	1.08	0.54	0.246	0.121	0.745	0.368
10/11/2013 14:06	0913-111_A	13_10_11_1406_16_946	1	1.11	0.527	1.01	0.0670	0.828	0.0800	1.08	0.54	0.246	0.124	0.765	0.390
10/11/2013 14:07	0913-111_A	13_10_11_1407_17_746	1	1.00	0.488	1.11	0.0690	0.796	0.0810	1.08	0.53	0.246	0.121	0.917	0.387
10/11/2013 14:08	0913-111_A	13_10_11_1408_18_506	1	1.28	0.491	1.10	0.0700	0.797	0.0790	1.08	0.53	0.246	0.122	0.875	0.365
10/11/2013 14:09	0913-111_A	13_10_11_1409_19_206	1	1.00	0.486	1.06	0.0710	0.804	0.0790	1.08	0.53	0.246	0.123	0.745	0.368
10/11/2013 14:10	0913-111_A	13_10_11_1410_20_016	1	1.06	0.496	1.05	0.0680	0.853	0.0790	1.08	0.53	0.246	0.122	1.05	0.377
10/11/2013 14:11	0913-111_A	13_10_11_1411_20_696	1	1.24	0.504	1.04	0.0710	0.818	0.0790	1.08	0.53	0.246	0.125	1.25	0.376
10/11/2013 14:12	0913-111_A	13_10_11_1412_21_506	1	1.11	0.489	1.10	0.0680	0.905	0.0770	1.08	0.53	0.246	0.123	1.06	0.363
10/11/2013 14:13	0913-111_A	13_10_11_1413_22_276	1	1.23	0.489	1.06	0.0720	0.778	0.0790	1.08	0.53	0.246	0.121	0.958	0.367
10/11/2013 14:14	0913-111_A	13_10_11_1414_22_977	1	1.14	0.476	1.17	0.0730	0.810	0.0810	1.08	0.54	0.246	0.123	0.745	0.361
10/11/2013 14:15	0913-111_A	13_10_11_1415_23_697	1	1.13	0.488	0.926	0.0730	0.808	0.0800	1.08	0.54	0.246	0.125	0.745	0.367
10/11/2013 14:16	0913-111_A	13_10_11_1416_24_517	1	1.50	0.503	1.06	0.0710	0.831	0.0830	1.08	0.54	0.246	0.127	0.947	0.370
10/11/2013 14:17	0913-111_A	13_10_11_1417_25_267	1	1.00	0.504	1.14	0.0700	0.791	0.0790	1.08	0.54	0.246	0.122	0.887	0.371
10/11/2013 14:18	0913-111_A	13_10_11_1418_25_987	1	1.27	0.515	1.15	0.0710	0.820	0.0810	1.08	0.54	0.246	0.126	0.745	0.380
10/11/2013 14:19	0913-111_A	13_10_11_1419_26_887	1	1.72	0.503	1.07	0.0700	0.766	0.0810	1.08	0.54	0.246	0.125	0.745	0.371
10/11/2013 14:20	0913-111_A	13_10_11_1420_27_457	1	1.45	0.468	1.11	0.0720	0.824	0.0820	1.08	0.54	0.246	0.125	1.13	0.350
10/11/2013 14:21	0913-111_A	13_10_11_1421_28_207	1	1.09	0.495	1.04	0.0710	0.744	0.0800	1.08	0.54	0.246	0.124	0.745	0.363
10/11/2013 14:22	0913-111_A	13_10_11_1422_28_957	1	1.40	0.499	1.09	0.0710	0.679	0.0840	1.08	0.54	0.252	0.128	0.745	0.369
10/11/2013 14:23	0913-111_A	13_10_11_1423_29_697	1	1.80	0.513	1.12	0.0710	0.798	0.0820	1.08	0.54	0.246	0.125	0.905	0.382
10/11/2013 14:24	0913-111_A	13_10_11_1424_30_467	1	1.46	0.492	1.11	0.0700	0.785	0.0820	1.08	0.54	0.246	0.124	0.928	0.369
10/11/2013 14:25	0913-111_A	13_10_11_1425_31_177	1	1.00	0.488	1.09	0.0680	0.824	0.0830	1.08	0.54	0.246	0.124	0.901	0.361
10/11/2013 14:26	0913-111_A	13_10_11_1426_31_988	1	1.62	0.517	1.12	0.0740	0.781	0.0820	1.08	0.54	0.246	0.129	0.946	0.380
10/11/2013 14:27	0913-111_A	13_10_11_1427_32_718	1	1.00	0.462	1.07	0.0700	0.751	0.0820	1.08	0.54	0.246	0.122	0.745	0.349
10/11/2013 14:28	0913-111_A	13_10_11_1428_33_468	1	1.94	0.493	1.07	0.0700	0.752	0.0810	1.08	0.54	0.246	0.128	0.745	0.386
10/11/2013 14:29	0913-111_A	13_10_11_1429_34_178	1	1.00	0.513	1.02	0.0720	0.778	0.0840	1.08	0.54	0.246	0.127	0.745	0.380
10/11/2013 14:30	0913-111_A	13_10_11_1430_35_028	1	1.00	0.518	0.998	0.0750	0.794	0.0830	1.08	0.54	0.246	0.129	0.998	0.380
10/11/2013 14:31	0913-111_A	13_10_11_1431_36_796	1	1.50	0.499	1.04	0.0740	0.788	0.0830	1.08	0.54	0.246	0.126	0.762	0.376
10/11/2013 14:32	0913-111_A	13_10_11_1432_36_498	1	1.19	0.506	1.04	0.0730	0.760	0.0820	1.08	0.54	0.246	0.128	0.745	0.379
10/11/2013 14:33	0913-111_A	13_10_11_1433_37_208	1	1.00	0.487	1.06	0.0730	0.774	0.0830	1.08	0.54	0.246	0.127	0.760	0.368
10/11/2013 14:34	0913-111_A	13_10_11_1434_37_918	1	1.06	0.496	1.14	0.0700	0.750	0.0830	1.08	0.54	0.246	0.126	0.788	0.374
10/11/2013 14:35	0913-111_A	13_10_11_1435_38_748	1	1.00	0.467	1.08	0.0670	0.796	0.0840	1.08	0.55	0.246	0.122	0.745	0.349
10/11/2013 14:36	0913-111_A	13_10_11_1436_39_408	1	2.12	0.483	1.08	0.0690	0.736	0.0840	1.08	0.55	0.246	0.124	0.780	0.360
10/11/2013 14:37	0913-111_A	13_10_11_1437_40_168	1	1.85	0.508	1.00	0.0730	0.722	0.0850	1.08	0.55	0.246	0.128	0.745	0.374
10/11/2013 14:38	0913-111_A	13_10_11_1438_40_969	1	1.55	0.494	0.950	0.0740	0.789	0.0840	1.08	0.55	0.246	0.128	0.784	0.372
10/11/2013 14:39	0913-111_A	13_10_11_1439_41_669	1	1.00	0.513	1.05	0.0750	0.750	0.0860	1.08	0.55	0.246	0.131	0.745	0.379
10/11/2013 14:40	0913-111_A	13_10_11_1440_42_449	1	1.56	0.487	1.12	0.0720	0.710	0.0880	1.08	0.56	0.246	0.126	0.745	0.362
10/11/2013 14:41	0913-111_A	13_10_11_1441_43_159	1	1.17	0.522	1.12	0.0730	0.768	0.0860	1.08	0.55	0.246	0.132	0.745	0.386
10/11/2013 14:42	0913-111_A	13_10_11_1442_43_779	1	1.00	0.517	0.993	0.0710	0.760	0.0860	1.08	0.55	0.246	0.127	0.745	0.381
10/11/2013 14:43	0913-111_A	13_10_11_1443_44_609	1	1.44	0.475	0.493	0.0680	0.333	0.0580	1.08	0.39	0.246	0.153	0.745	0.359
		Average Conc. (ppm):	1	1.29	0.496	1.07	0.0711	0.797	0.0813	1.08	0.54	0.246	0.125	0.864	0.370

Pellet Cooler 2 Run 2

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/11/2013 15:08	0913-111_A	13_10_11_1508_02_515	1	1.00	0.480	0.460	0.0650	0.602	0.0840	1.08	0.55	0.246	0.115	1.06	0.354
10/11/2013 15:09	0913-111_A	13_10_11_1509_03_295	1	1.00	0.504	0.613	0.0690	0.664	0.0820	1.08	0.55	0.246	0.120	0.745	0.366
10/11/2013 15:10	0913-111_A	13_10_11_1510_03_995	1	1.90	0.488	0.548	0.0710	0.724	0.0840	1.08	0.55	0.246	0.120	0.745	0.372
10/11/2013 15:11	0913-111_A	13_10_11_1511_04_765	1	1.77	0.485	0.590	0.0750	0.714	0.0820	1.08	0.55	0.246	0.123	0.745	0.372
10/11/2013 15:12	0913-111_A	13_10_11_1512_05_525	1	1.22	0.502	0.600	0.0730	0.686	0.0820	1.08	0.55	0.246	0.122	0.745	0.374
10/11/2013 15:13	0913-111_A	13_10_11_1513_06_245	1	1.90	0.485	0.676	0.0710	0.664	0.0850	1.08	0.55	0.246	0.125	0.892	0.365
10/11/2013 15:14	0913-111_A	13_10_11_1514_07_006	1	1.00	0.491	0.632	0.0690	0.673	0.0830	1.08	0.55	0.246	0.119	0.745	0.364
10/11/2013 15:15	0913-111_A	13_10_11_1515_07_716	1	1.19	0.462	0.642	0.0670	0.638	0.0850	1.08	0.55	0.246	0.115	0.745	0.346
10/11/2013 15:16	0913-111_A	13_10_11_1516_08_536	1	1.01	0.496	0.553	0.0690	0.603	0.0820	1.08	0.55	0.246	0.117	0.745	0.374
10/11/2013 15:17	0913-111_A	13_10_11_1517_09_276	1	1.00	0.477	0.655	0.0670	0.694	0.0810	1.08	0.55	0.246	0.114	1.07	0.351
10/11/2013 15:18	0913-111_A	13_10_11_1518_09_996	1	1.00	0.487	0.410	0.0710	0.610	0.0840	1.08	0.54	0.246	0.117	1.18	0.361
10/11/2013 15:19	0913-111_A	13_10_11_1519_10_776	1	1.09	0.483	0.607	0.0690	0.628	0.0830	1.08	0.54	0.246	0.119	0.745	0.353
10/11/2013 15:20	0913-111_A	13_10_11_1520_11_496	1	1.00	0.478	0.536	0.0720	0.682	0.0810	1.08	0.55	0.246	0.118	0.792	0.352
10/11/2013 15:21	0913-111_A	13_10_11_1521_12_216	1	1.46	0.483	0.666	0.0700	0.599	0.0810	1.08	0.54	0.246	0.119	1.29	0.361
10/11/2013 15:22	0913-111_A	13_10_11_1522_13_016	1	1.05	0.487	0.599	0.0720	0.714	0.0830	1.08	0.55	0.246	0.122	0.745	0.367
10/11/2013 15:23	0913-111_A	13_10_11_1523_13_686	1	1.00	0.528	0.660	0.0740	0.648	0.0870	1.08	0.55	0.246	0.123	0.745	0.394
10/11/2013 15:24	0913-111_A	13_10_11_1524_14_526	1	1.77	0.502	0.620	0.0720	0.656	0.0820	1.08	0.55	0.246	0.121	0.745	0.373
10/11/2013 15:25	0913-111_A	13_10_11_1525_15_076	1	1.62	0.484	0.608	0.0710	0.648	0.0840	1.08	0.55	0.246	0.121	0.870	0.366
10/11/2013 15:26	0913-111_A	13_10_11_1526_15_847	1	1.00	0.504	0.687	0.0680	0.608	0.0820	1.08	0.55	0.246	0.120	1.06	0.372
10/11/2013 15:27	0913-111_A	13_10_11_1527_16_607	1	1.00	0.502	0.742	0.0740	0.644	0.0860	1.08	0.55	0.246	0.123	0.745	0.372
10/11/2013 15:28	0913-111_A	13_10_11_1528_17_427	1	1.00	0.500	0.707	0.0710	0.759	0.0860	1.08	0.54	0.246	0.122	0.745	0.369
10/11/2013 15:29	0913-111_A	13_10_11_1529_18_077	1	1.99	0.539	0.660	0.0730	0.661	0.0810	1.08	0.55	0.246	0.124	1.19	0.392
10/11/2013 15:30	0913-111_A	13_10_11_1530_18_867	1	1.16	0.495	0.714	0.0700	0.659	0.0830	1.08	0.55	0.246	0.119	0.745	0.366
10/11/2013 15:31	0913-111_A	13_10_11_1531_19_617	1	1.00	0.495	0.602	0.0730	0.619	0.0830	1.08	0.55	0.246	0.120	0.745	0.375
10/11/2013 15:32	0913-111_A	13_10_11_1532_20_327	1	1.92	0.461	0.677	0.0680	0.704	0.0840	1.08	0.54	0.246	0.118	0.985	0.350
10/11/2013 15:33	0913-111_A	13_10_11_1533_21_047	1	1.32	0.489	0.665	0.0720	0.834	0.0830	1.08	0.55	0.246	0.124	0.782	0.365
10/11/2013 15:34	0913-111_A	13_10_11_1534_21_857	1	1.64	0.492	0.735	0.0690	0.738	0.0840	1.08	0.54	0.246	0.120	0.745	0.359
10/11/2013 15:35	0913-111_A	13_10_11_1535_22_627	1	1.00	0.499	0.783	0.0710	0.680	0.0830	1.08	0.55	0.246	0.125	0.946	0.369
10/11/2013 15:36	0913-111_A	13_10_11_1536_23_337	1	1.00	0.529	0.649	0.0710	0.672	0.0800	1.08	0.54	0.246	0.122	0.745	0.398
10/11/2013 15:37	0913-111_A	13_10_11_1537_24_107	1	1.00	0.480	0.678	0.0710	0.660	0.0800	1.08	0.54	0.246	0.120	0.825	0.365
10/11/2013 15:38	0913-111_A	13_10_11_1538_24_808	1	1.17	0.496	0.661	0.0670	0.700	0.0810	1.08	0.54	0.246	0.118	0.993	0.364
10/11/2013 15:39	0913-111_A	13_10_11_1539_25_628	1	1.00	0.507	0.598	0.0730	0.708	0.0810	1.08	0.54	0.246	0.121	0.771	0.384
10/11/2013 15:40	0913-111_A	13_10_11_1540_26_368	1	1.00	0.494	0.674	0.0680	0.711	0.0820	1.08	0.54	0.246	0.118	0.745	0.381
10/11/2013 15:41	0913-111_A	13_10_11_1541_27_078	1	1.00	0.497	0.748	0.0700	0.769	0.0830	1.08	0.54	0.246	0.120	0.745	0.385
10/11/2013 15:42	0913-111_A	13_10_11_1542_27_858	1	1.13	0.473	0.885	0.0680	0.707	0.0830	1.08	0.54	0.246	0.115	0.745	0.355
10/11/2013 15:43	0913-111_A	13_10_11_1543_28_578	1	1.00	0.527	0.700	0.0720	0.769	0.0840	1.08	0.54	0.246	0.121	0.922	0.390
10/11/2013 15:44	0913-111_A	13_10_11_1544_29_308	1	1.06	0.512	0.703	0.0730	0.728	0.0840	1.08	0.55	0.246	0.125	0.745	0.378
10/11/2013 15:45	0913-111_A	13_10_11_1545_30_128	1	2.10	0.502	0.776	0.0730	0.763	0.0830	1.08	0.54	0.246	0.122	0.745	0.379
10/11/2013 15:46	0913-111_A	13_10_11_1546_30_828	1	1.36	0.496	0.759	0.0770	0.747	0.0860	1.08	0.55	0.246	0.125	0.745	0.375
10/11/2013 15:47	0913-111_A	13_10_11_1547_31_558	1	1.30	0.525	0.716	0.0740	0.729	0.0830	1.08	0.55	0.246	0.126	1.18	0.392
10/11/2013 15:48	0913-111_A	13_10_11_1548_32_338	1	1.00	0.508	0.569	0.0700	0.695	0.0840	1.08	0.55	0.246	0.120	0.823	0.372
10/11/2013 15:49	0913-111_A	13_10_11_1549_33_079	1	1.00	0.497	0.733	0.0710	0.708	0.0870	1.08	0.54	0.246	0.121	0.745	0.369
10/11/2013 15:50	0913-111_A	13_10_11_1550_33_889	1	1.73	0.500	0.698	0.0710	0.754	0.0840	1.08	0.55	0.246	0.124	0.745	0.369
10/11/2013 15:51	0913-111_A	13_10_11_1551_34_639	1	1.00	0.513	0.692	0.0690	0.645	0.0830	1.08	0.55	0.246	0.119	0.745	0.373
10/11/2013 15:52	0913-111_A	13_10_11_1552_35_349	1	1.09	0.531	0.823	0.0720	0.697	0.0830	1.08	0.55	0.246	0.124	0.745	0.400
10/11/2013 15:53	0913-111_A	13_10_11_1553_36_139	1	1.19	0.474	0.790	0.0690	0.568	0.0850	1.08	0.55	0.246	0.116	0.745	0.353
10/11/2013 15:54	0913-111_A	13_10_11_1554_36_819	1	1.00	0.516	0.721	0.0720	0.729	0.0850	1.08	0.55	0.246	0.122	1.11	0.382
10/11/2013 15:55	0913-111_A	13_10_11_1555_37_609	1	1.09	0.528	0.747	0.0740	0.718	0.0850	1.08	0.55	0.246	0.125	0.745	0.394
10/11/2013 15:56	0913-111_A	13_10_11_1556_38_329	1	1.00	0.507	0.785	0.0720	0.736	0.0840	1.08	0.55	0.246	0.126	0.745	0.379
10/11/2013 15:57	0913-111_A	13_10_11_1557_39_079	1	1.00	0.498	0.652	0.0690	0.677	0.0820	1.08	0.55	0.246	0.121	0.745	0.368
10/11/2013 15:58	0913-111_A	13_10_11_1558_39_819	1	1.25	0.502	0.812	0.0700	0.683	0.0850	1.08	0.55	0.246	0.121	0.745	0.371
10/11/2013 15:59	0913-111_A	13_10_11_1559_40_609	1	1.37	0.499	0.662	0.0680	0.714	0.0830	1.08	0.55	0.246	0.118	0.865	0.374
10/11/2013 16:00	0913-111_A	13_10_11_1600_41_319	1	1.05	0.508	0.723	0.0690	0.718	0.0820	1.08	0.54	0.246	0.122	0.745	0.378
10/11/2013 16:01	0913-111_A	13_10_11_1601_42_060	1	1.47	0.513	0.714	0.0710	0.722	0.0820	1.08	0.54	0.246	0.120	0.745	0.384
10/11/2013 16:02	0913-111_A	13_10_11_1602_42_810	1	1.00	0.482	0.708	0.0700	0.678	0.0810	1.08	0.54	0.246	0.117	0.745	0.364
10/11/2013 16:03	0913-111_A	13_10_11_1603_43_570	1	1.00	0.501	0.588	0.0720	0.719	0.0810	1.08	0.54	0.246	0.117	0.775	0.375
10/11/2013 16:04	0913-111_A	13_10_11_1604_44_320	1	1.30	0.507	0.699	0.0700	0.655	0.0830	1.08	0.54	0.246	0.118	0.745	0.378
10/11/2013 16:05	0913-111_A	13_10_11_1605_45_020	1	1.13	0.509	0.683	0.0690	0.719	0.0800	1.08	0.54	0.246	0.116	0.745	0.380
10/11/2013 16:06	0913-111_A	13_10_11_1606_45_820	1	1.18	0.491	0.625	0.0710	0.681	0.0830	1.08	0.54	0.246	0.117	0.918	0.367
10/11/2013 16:07	0913-111_A	13_10_11_1607_46_470	1	1.11	0.501	0.676	0.0690	0.634	0.0800	1.08	0.54	0.246	0.118	0.745	0.373
10/11/2013 16:08	0913-111_A	13_10_11_1608_47_210	1	1.00	0.397	0.143	0.0550	0.165	0.0360	1.08	0.218	0.246	0.0910	0.745	0.296
		Average Conc. (ppm):	1	1.21	0.487	0.883	0.0704	0.680	0.0823	1.08	0.54	0.246	0.120	0.825	0.370

Company: ACT
Analyst Initials: CJT
Parameters: EPA Method 320
Samples: 21 Runs

Client #: 1911
Job #: 0913-111
PO #: 3134 1911
Report Date: V0.62 13.10.18.12 58

Pellet Cooler 2 Run 3

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/11/2013 16:29	0913-111_A	13_10_11_1629_02_222	1	1.41	0.500	1.27	0.0750	0.793	0.0840	1.08	0.55	0.246	0.125	0.989	0.379
10/11/2013 16:30	0913-111_A	13_10_11_1630_02_972	1	1.08	0.520	1.12	0.0740	0.741	0.0840	1.08	0.55	0.246	0.125	0.787	0.385
10/11/2013 16:31	0913-111_A	13_10_11_1631_03_632	1	1.13	0.505	0.925	0.0710	0.715	0.0850	1.08	0.55	0.246	0.119	1.25	0.372
10/11/2013 16:32	0913-111_A	13_10_11_1532_04_442	1	1.00	0.521	1.10	0.0720	0.688	0.0820	1.08	0.55	0.246	0.123	1.18	0.385
10/11/2013 16:33	0913-111_A	13_10_11_1633_05_202	1	1.11	0.507	1.07	0.0730	0.780	0.0840	1.08	0.55	0.246	0.118	0.745	0.384
10/11/2013 16:34	0913-111_A	13_10_11_1634_05_962	1	1.25	0.512	1.11	0.0690	0.837	0.0870	1.08	0.55	0.246	0.117	1.02	0.379
10/11/2013 16:35	0913-111_A	13_10_11_1635_06_772	1	1.27	0.525	1.12	0.0730	0.837	0.0860	1.08	0.55	0.246	0.125	0.991	0.388
10/11/2013 16:36	0913-111_A	13_10_11_1636_07_512	1	1.00	0.524	1.20	0.0760	0.931	0.0840	1.08	0.55	0.246	0.124	0.745	0.395
10/11/2013 16:37	0913-111_A	13_10_11_1637_08_223	1	1.00	0.528	1.19	0.0760	0.887	0.0880	1.08	0.56	0.246	0.127	0.745	0.393
10/11/2013 16:38	0913-111_A	13_10_11_1638_08_953	1	1.67	0.504	1.20	0.0780	0.906	0.0860	1.08	0.56	0.246	0.129	1.16	0.377
10/11/2013 16:39	0913-111_A	13_10_11_1639_09_743	1	1.00	0.532	1.28	0.0740	0.932	0.0870	1.08	0.56	0.246	0.125	0.745	0.390
10/11/2013 16:40	0913-111_A	13_10_11_1640_10_493	1	1.00	0.536	1.34	0.0770	0.956	0.0870	1.08	0.56	0.246	0.129	0.745	0.394
10/11/2013 16:41	0913-111_A	13_10_11_1641_11_243	1	1.10	0.505	1.31	0.0720	0.940	0.0880	1.08	0.56	0.246	0.122	0.745	0.372
10/11/2013 16:42	0913-111_A	13_10_11_1642_12_003	1	1.05	0.482	1.31	0.0690	0.921	0.0880	1.08	0.56	0.246	0.121	0.922	0.362
10/11/2013 16:43	0913-111_A	13_10_11_1643_12_743	1	1.49	0.519	1.42	0.0730	0.948	0.0870	1.08	0.56	0.246	0.129	0.746	0.387
10/11/2013 16:44	0913-111_A	13_10_11_1644_13_493	1	1.52	0.519	1.30	0.0740	0.951	0.0850	1.08	0.56	0.246	0.129	0.745	0.388
10/11/2013 16:45	0913-111_A	13_10_11_1645_14_293	1	2.25	0.539	3.47	0.0800	1.675	0.0870	1.49	0.57	1.49	0.143	0.745	0.403
10/11/2013 16:46	0913-111_A	13_10_11_1646_15_003	1	2.60	0.502	3.49	0.0810	1.271	0.0870	1.14	0.56	1.16	0.139	0.745	0.372
10/11/2013 16:47	0913-111_A	13_10_11_1647_15_783	1	2.07	0.525	2.98	0.0800	1.030	0.0880	1.08	0.56	0.670	0.136	0.745	0.390
10/11/2013 16:48	0913-111_A	13_10_11_1648_16_503	1	1.17	0.504	2.40	0.0780	0.875	0.0860	1.08	0.56	0.621	0.131	0.745	0.371
10/11/2013 16:49	0913-111_A	13_10_11_1649_17_154	1	1.44	0.509	2.21	0.0760	0.739	0.0830	1.08	0.55	0.485	0.129	0.745	0.378
10/11/2013 16:50	0913-111_A	13_10_11_1650_17_954	1	1.22	0.521	2.09	0.0720	0.746	0.0850	1.08	0.56	0.404	0.124	0.745	0.384
10/11/2013 16:51	0913-111_A	13_10_11_1651_18_704	1	1.05	0.503	2.18	0.0770	0.833	0.0860	1.08	0.56	0.347	0.125	0.745	0.379
10/11/2013 16:52	0913-111_A	13_10_11_1652_19_514	1	1.67	0.515	2.13	0.0750	0.842	0.0880	1.08	0.56	0.424	0.125	0.745	0.389
10/11/2013 16:53	0913-111_A	13_10_11_1653_20_254	1	1.18	0.528	2.14	0.0770	0.888	0.0860	1.08	0.56	0.259	0.129	0.745	0.385
10/11/2013 16:54	0913-111_A	13_10_11_1654_20_974	1	1.00	0.496	2.22	0.0780	0.804	0.0840	1.08	0.56	0.309	0.130	0.745	0.380
10/11/2013 16:55	0913-111_A	13_10_11_1655_21_734	1	1.00	0.521	2.23	0.0750	0.784	0.0880	1.08	0.56	0.338	0.127	0.745	0.390
10/11/2013 16:56	0913-111_A	13_10_11_1656_22_484	1	1.79	0.517	2.23	0.0730	0.820	0.0840	1.08	0.55	0.618	0.128	0.745	0.385
10/11/2013 16:57	0913-111_A	13_10_11_1657_23_244	1	1.00	0.521	2.31	0.0750	0.867	0.0830	1.08	0.55	0.447	0.127	0.745	0.382
10/11/2013 16:58	0913-111_A	13_10_11_1658_24_014	1	1.43	0.494	2.09	0.0720	0.753	0.0870	1.08	0.56	0.384	0.125	0.745	0.370
10/11/2013 16:59	0913-111_A	13_10_11_1659_24_714	1	1.44	0.527	2.01	0.0720	0.783	0.0840	1.08	0.55	0.434	0.127	0.745	0.388
10/11/2013 17:00	0913-111_A	13_10_11_1700_25_504	1	1.00	0.521	2.05	0.0760	0.806	0.0840	1.08	0.55	0.460	0.128	0.745	0.393
10/11/2013 17:01	0913-111_A	13_10_11_1701_26_275	1	1.46	0.530	1.98	0.0740	0.722	0.0830	1.08	0.55	0.463	0.125	0.745	0.392
10/11/2013 17:02	0913-111_A	13_10_11_1702_27_015	1	1.52	0.496	1.94	0.0690	0.790	0.0840	1.08	0.55	0.344	0.120	0.745	0.371
10/11/2013 17:03	0913-111_A	13_10_11_1703_27_725	1	1.80	0.504	1.90	0.0750	0.764	0.0850	1.08	0.55	0.268	0.126	0.745	0.375
10/11/2013 17:04	0913-111_A	13_10_11_1704_28_495	1	1.37	0.488	1.78	0.0730	0.737	0.0850	1.08	0.55	0.380	0.122	0.745	0.364
10/11/2013 17:05	0913-111_A	13_10_11_1705_29_235	1	1.64	0.497	1.88	0.0720	0.809	0.0820	1.08	0.55	0.246	0.121	0.745	0.364
10/11/2013 17:06	0913-111_A	13_10_11_1706_30_015	1	1.24	0.491	1.92	0.0710	0.778	0.0820	1.08	0.55	0.313	0.119	0.761	0.370
10/11/2013 17:07	0913-111_A	13_10_11_1707_30_725	1	1.00	0.524	1.92	0.0730	0.801	0.0840	1.08	0.55	0.323	0.123	0.745	0.390
10/11/2013 17:08	0913-111_A	13_10_11_1708_31_445	1	1.00	0.502	1.92	0.0710	0.728	0.0830	1.08	0.55	0.391	0.118	0.745	0.376
10/11/2013 17:09	0913-111_A	13_10_11_1709_32_195	1	2.23	0.512	1.90	0.0720	0.804	0.0800	1.08	0.55	0.386	0.122	0.745	0.381
10/11/2013 17:10	0913-111_A	13_10_11_1710_33_005	1	1.31	0.486	1.97	0.0720	0.773	0.0840	1.08	0.54	0.413	0.120	0.745	0.367
10/11/2013 17:11	0913-111_A	13_10_11_1711_33_755	1	1.00	0.508	1.88	0.0710	0.831	0.0820	1.08	0.55	0.424	0.119	0.745	0.376
10/11/2013 17:12	0913-111_A	13_10_11_1712_34_465	1	1.00	0.505	1.96	0.0780	0.738	0.0840	1.08	0.55	0.330	0.127	0.862	0.386
10/11/2013 17:13	0913-111_A	13_10_11_1713_35_276	1	1.00	0.500	2.00	0.0710	0.907	0.0810	1.08	0.55	0.293	0.123	0.745	0.379
10/11/2013 17:14	0913-111_A	13_10_11_1714_35_986	1	1.38	0.473	1.83	0.0720	0.748	0.0850	1.08	0.55	0.246	0.121	0.745	0.353
10/11/2013 17:15	0913-111_A	13_10_11_1715_36_786	1	1.31	0.511	1.91	0.0710	0.731	0.0840	1.08	0.55	0.343	0.121	0.745	0.374
10/11/2013 17:16	0913-111_A	13_10_11_1716_37_496	1	1.54	0.489	1.88	0.0680	0.776	0.0800	1.08	0.55	0.245	0.122	0.745	0.359
10/11/2013 17:17	0913-111_A	13_10_11_1717_38_286	1	1.29	0.469	1.87	0.0680	0.840	0.0850	1.08	0.55	0.323	0.121	0.745	0.349
10/11/2013 17:18	0913-111_A	13_10_11_1718_38_976	1	1.51	0.474	1.78	0.0710	0.830	0.0820	1.08	0.55	0.248	0.123	0.745	0.351
10/11/2013 17:19	0913-111_A	13_10_11_1719_39_786	1	1.22	0.511	1.79	0.0700	0.870	0.0840	1.08	0.55	0.285	0.120	0.745	0.378
10/11/2013 17:20	0913-111_A	13_10_11_1720_40_566	1	1.17	0.497	1.92	0.0710	0.727	0.0820	1.08	0.55	0.291	0.120	0.745	0.369
10/11/2013 17:21	0913-111_A	13_10_11_1721_41_276	1	1.00	0.507	1.97	0.0690	0.785	0.0820	1.08	0.55	0.257	0.119	0.745	0.379
10/11/2013 17:22	0913-111_A	13_10_11_1722_41_986	1	1.00	0.519	1.95	0.0720	0.778	0.0810	1.08	0.54	0.246	0.127	0.745	0.381
10/11/2013 17:23	0913-111_A	13_10_11_1723_42_806	1	1.00	0.487	1.85	0.0710	0.879	0.0840	1.08	0.54	0.326	0.122	0.745	0.367
10/11/2013 17:24	0913-111_A	13_10_11_1724_43_527	1	1.00	0.492	1.96	0.0720	0.858	0.0840	1.08	0.55	0.246	0.123	0.745	0.367
10/11/2013 17:25	0913-111_A	13_10_11_1725_44_267	1	1.00	0.500	1.93	0.0690	0.854	0.0840	1.08	0.55	0.403	0.121	0.756	0.373
10/11/2013 17:26	0913-111_A	13_10_11_1726_44_997	1	2.21	0.497	2.04	0.0710	0.849	0.0830	1.08	0.55	0.283	0.124	0.745	0.375
10/11/2013 17:27	0913-111_A	13_10_11_1727_45_747	1	1.92	0.492	1.89	0.0720	0.869	0.0830	1.08	0.55	0.246	0.121	0.745	0.367
10/11/2013 17:28	0913-111_A	13_10_11_1728_46_477	1	1.20	0.490	1.80	0.0750	0.814	0.0820	1.08	0.55	0.248	0.122	0.787	0.367
10/11/2013 17:29	0913-111_A	13_10_11_1729_47_307	1	1.25	0.504	1.95	0.0720	0.843	0.0820	1.08	0.55	0.302	0.124	0.745	0.380
		Average Conc. (ppm):	1	1.33	0.507	1.84	0.0732	0.844	0.0844	1.09	0.55	0.359	0.124	0.788	0.378

Hammermill 2 Run 1

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/11/2013 18:10	0913-111_A	13_10_11_1810_59_463	1	0.965	0.482	1.19	0.0720	0.249	0.0830	1.08	0.54	0.232	0.115	0.707	0.360
10/11/2013 18:12	0913-111_A	13_10_11_1812_00_213	1	0.965	0.488	1.42	0.0680	0.186	0.0820	1.08	0.54	0.232	0.118	0.707	0.345
10/11/2013 18:13	0913-111_A	13_10_11_1813_00_923	1	0.965	0.473	1.20	0.0700	0.212	0.0780	1.08	0.52	0.232	0.112	0.707	0.352
10/11/2013 18:14	0913-111_A	13_10_11_1814_01_633	1	0.965	0.449	0.735	0.0620	0.165	0.0750	1.06	0.51	0.232	0.103	0.713	0.329
10/11/2013 18:15	0913-111_A	13_10_11_1815_02_453	1	0.965	0.486	0.807	0.0630	0.188	0.0730	1.08	0.50	0.232	0.108	0.707	0.354
10/11/2013 18:16	0913-111_A	13_10_11_1816_03_143	1	0.965	0.503	0.816	0.0680	0.165	0.0730	1.08	0.50	0.232	0.110	0.707	0.367
10/11/2013 18:17	0913-111_A	13_10_11_1817_03_783	1	0.965	0.460	0.851	0.0650	0.165	0.0750	1.08	0.51	0.232	0.104	0.707	0.341
10/11/2013 18:18	0913-111_A	13_10_11_1818_04_593	1	0.965	0.459	1.07	0.0650	0.165	0.0740	1.08	0.51	0.232	0.104	0.707	0.339
10/11/2013 18:19	0913-111_A	13_10_11_1819_05_353	1	0.965	0.474	0.921	0.0680	0.165	0.0740	1.08	0.51	0.232	0.111	0.707	0.348
10/11/2013 18:20	0913-111_A	13_10_11_1820_06_113	1	0.965	0.477	0.901	0.0640	0.165	0.0740	1.08	0.51	0.232	0.109	0.707	0.354
10/11/2013 18:21	0913-111_A	13_10_11_1821_06_804	1	0.965	0.471	0.964	0.0650	0.165	0.0740	1.08	0.51	0.232	0.110	0.707	0.349
10/11/2013 18:22	0913-111_A	13_10_11_1822_07_644	1	0.965	0.483	0.764	0.0620	0.165	0.0740	1.08	0.51	0.232	0.107	0.707	0.350
10/11/2013 18:23	0913-111_A	13_10_11_1823_08_354	1	0.965	0.468	0.964	0.0660	0.165	0.0750	1.08	0.51	0.232	0.110	0.707	0.341
10/11/2013 18:24	0913-111_A	13_10_11_1824_09_134	1	0.965	0.488	1.11	0.0680	0.172	0.0800	1.08	0.52	0.232	0.114	0.707	0.358
10/11/2013 18:25	0913-111_A	13_10_11_1825_09_894	1	0.965	0.473	1.06	0.0680	0.165	0.0750	1.08	0.52	0.232	0.115	0.707	0.353
10/11/2013 18:26	0913-111_A	13_10_11_1826_10_654	1	0.965	0.457	0.814	0.0650	0.165	0.0750	1.08	0.51	0.232	0.110	0.707	0.335
10/11/2013 18:27	0913-111_A	13_10_11_1827_11_364	1	0.965	0.458	0.922	0.0640	0.165	0.0740	1.08	0.51	0.232	0.107	0.707	0.336
10/11/2013 18:28	0913-111_A	13_10_11_1828_12_104	1	0.965	0.439	0.837	0.0650	0.165	0.0750	1.08	0.51	0.232	0.106	0.707	0.328
10/11/2013 18:29	0913-111_A	13_10_11_1829_12_904	1	0.965	0.444	0.806	0.0680	0.165	0.0760	1.08	0.52	0.232	0.111	0.707	0.330
10/11/2013 18:30	0913-111_A	13_10_11_1830_13_594	1	0.965	0.470	0.857	0.0670	0.165	0.0750	1.08	0.52	0.232	0.109	0.707	0.341
10/11/2013 18:31	0913-111_A	13_10_11_1831_14_434	1	0.965	0.473	0.688	0.0660	0.223	0.0780	1.08	0.52	0.232	0.109	0.707	0.348
10/11/2013 18:32	0913-111_A	13_10_11_1832_15_199	1	0.965	0.475	0.616	0.0680	0.165	0.0780	1.08	0.52	0.232	0.109	0.707	0.357
10/11/2013 18:33	0913-111_A	13_10_11_1833_15_889	1	0.965	0.484	0.887	0.0670	0.165	0.0780	1.06	0.52	0.232	0.109	0.707	0.357
10/11/2013 18:34	0913-111_A	13_10_11_1834_16_699	1	0.965	0.473	0.830	0.0660	0.165	0.0780	1.08	0.52	0.232	0.105	0.707	0.347
10/11/2013 18:35	0913-111_A	13_10_11_1835_17_419	1	0.965	0.458	0.627	0.0670	0.165	0.0780	1.08	0.53	0.232	0.104	0.707	0.336
10/11/2013 18:36	0913-111_A	13_10_11_1836_18_119	1	0.965	0.477	0.696	0.0650	0.165	0.0790	1.08	0.53	0.232	0.108	0.707	0.347
10/11/2013 18:37	0913-111_A	13_10_11_1837_18_879	1	0.965	0.482	0.581	0.0650	0.165	0.0820	1.08	0.54	0.232	0.109	0.707	0.353
10/11/2013 18:38	0913-111_A	13_10_11_1838_19_609	1	0.965	0.467	0.828	0.0710	0.175	0.0820	1.08	0.54	0.232	0.112	0.707	0.339
10/11/2013 18:39	0913-111_A	13_10_11_1839_20_429	1	0.965	0.485	0.791	0.0680	0.165	0.0830	1.08	0.55	0.232	0.113	0.707	0.354
10/11/2013 18:40	0913-111_A	13_10_11_1840_21_149	1	0.965	0.480	1.12	0.0700	0.195	0.0880	1.08	0.56	0.232	0.119	0.707	0.352
10/11/2013 18:41	0913-111_A	13_10_11_1841_21_879	1	0.965	0.512	1.43	0.0690	0.165	0.0900	1.08	0.57	0.232	0.123	0.707	0.374
10/11/2013 18:42	0913-111_A	13_10_11_1842_22_679	1	0.965	0.499	1.33	0.0720	0.170	0.0850	1.08	0.55	0.232	0.126	0.707	0.368
10/11/2013 18:43	0913-111_A	13_10_11_1843_23_399	1	0.965	0.498	1.18	0.0720	0.184	0.0870	1.08	0.55	0.232	0.118	0.707	0.361
10/11/2013 18:44	0913-111_A	13_10_11_1844_24_210	1	0.965	0.498	1.04	0.0700	0.165	0.0850	1.08	0.55	0.232	0.115	0.707	0.363
10/11/2013 18:45	0913-111_A	13_10_11_1845_24_920	1	0.965	0.512	1.07	0.0720	0.177	0.0850	1.08	0.55	0.232	0.116	0.707	0.375
10/11/2013 18:46	0913-111_A	13_10_11_1846_25_720	1	0.965	0.496	1.06	0.0680	0.165	0.0810	1.08	0.54	0.232	0.113	0.707	0.364
10/11/2013 18:47	0913-111_A	13_10_11_1847_26_450	1	0.965	0.477	1.05	0.0680	0.165	0.0830	1.08	0.55	0.232	0.112	0.707	0.351
10/11/2013 18:48	0913-111_A	13_10_11_1848_27_220	1	0.965	0.495	1.03	0.0670	0.189	0.0800	1.08	0.54	0.232	0.114	0.707	0.360
10/11/2013 18:49	0913-111_A	13_10_11_1849_27_940	1	0.965	0.483	1.01	0.0650	0.181	0.0820	1.08	0.54	0.232	0.108	0.707	0.351
10/11/2013 18:50	0913-111_A	13_10_11_1850_28_750	1	0.965	0.458	0.807	0.0680	0.213	0.0850	1.08	0.55	0.232	0.111	0.707	0.338
10/11/2013 18:51	0913-111_A	13_10_11_1851_29_430	1	1.52	0.467	0.875	0.0690	0.180	0.0860	1.08	0.55	0.232	0.113	0.707	0.343
10/11/2013 18:52	0913-111_A	13_10_11_1852_30_250	1	0.965	0.466	0.864	0.0680	0.165	0.0840	1.06	0.55	0.232	0.111	0.707	0.347
10/11/2013 18:53	0913-111_A	13_10_11_1853_30_960	1	0.965	0.472	0.858	0.0650	0.286	0.0830	1.08	0.55	0.232	0.109	0.707	0.350
10/11/2013 18:54	0913-111_A	13_10_11_1854_31_790	1	0.965	0.503	1.13	0.0680	0.205	0.0820	1.08	0.54	0.232	0.112	0.707	0.367
10/11/2013 18:55	0913-111_A	13_10_11_1855_32_530	1	0.965	0.470	1.28	0.0670	0.268	0.0870	1.08	0.56	0.232	0.113	0.707	0.350
10/11/2013 18:56	0913-111_A	13_10_11_1856_33_251	1	0.965	0.500	1.13	0.0710	0.216	0.0850	1.08	0.56	0.232	0.117	0.707	0.366
10/11/2013 18:57	0913-111_A	13_10_11_1857_34_061	1	0.965	0.479	0.990	0.0650	0.165	0.0850	1.08	0.55	0.232	0.108	0.707	0.348
10/11/2013 18:58	0913-111_A	13_10_11_1858_34_711	1	0.965	0.479	1.07	0.0700	0.271	0.0830	1.08	0.55	0.232	0.115	0.707	0.349
10/11/2013 18:59	0913-111_A	13_10_11_1859_35_411	1	0.965	0.483	1.15	0.0650	0.242	0.0860	1.08	0.56	0.232	0.112	0.707	0.357
10/11/2013 19:00	0913-111_A	13_10_11_1900_36_211	1	0.965	0.487	1.23	0.0690	0.165	0.0840	1.08	0.55	0.232	0.118	0.707	0.358
10/11/2013 19:01	0913-111_A	13_10_11_1901_36_921	1	0.965	0.492	1.48	0.0700	0.239	0.0860	1.08	0.56	0.232	0.119	0.707	0.358
10/11/2013 19:02	0913-111_A	13_10_11_1902_37_721	1	0.965	0.498	1.47	0.0710	0.185	0.0840	1.08	0.56	0.249	0.121	0.707	0.369
10/11/2013 19:03	0913-111_A	13_10_11_1903_38_431	1	0.965	0.532	1.69	0.0740	0.166	0.0890	1.08	0.56	0.232	0.130	0.707	0.385
10/11/2013 19:04	0913-111_A	13_10_11_1904_39_141	1	0.965	0.515	1.76	0.0720	0.228	0.0870	1.08	0.56	0.232	0.128	0.835	0.374
10/11/2013 19:05	0913-111_A	13_10_11_1905_39_951	1	0.965	0.488	1.51	0.0700	0.228	0.0850	1.08	0.55	0.232	0.118	0.707	0.356
10/11/2013 19:06	0913-111_A	13_10_11_1906_40_701	1	0.965	0.487	1.26	0.0680	0.248	0.0820	1.08	0.54	0.232	0.113	0.707	0.353
10/11/2013 19:07	0913-111_A	13_10_11_1907_41_401	1	0.965	0.484	1.58	0.0650	0.265	0.0810	1.08	0.54	0.297	0.111	0.707	0.363
10/11/2013 19:08	0913-111_A	13_10_11_1908_42_132	1	0.965	0.487	1.28	0.0680	0.165	0.0830	1.08	0.55	0.232	0.117	0.707	0.360
10/11/2013 19:09	0913-111_A	13_10_11_1909_42_892	1	1.32	0.491	1.22	0.0720	0.171	0.0830	1.08	0.55	0.232	0.122	0.707	0.367
10/11/2013 19:10	0913-111_A	13_10_11_1910_43_642	1	0.965	0.480	1.35	0.0680	0.214	0.0840	1.08	0.55	0.232	0.119	1.02	0.351
10/11/2013 19:11	0913-111_A	13_10_11_1911_44_452	1	0.965	0.463	1.20	0.0650	0.227	0.0820	1.08	0.54	0.232	0.114	0.707	0.340
		Average Conc. (ppm):	1	0.980	0.480	1.04	0.0677	0.189	0.0809	1.08	0.54	0.233	0.113	0.716	0.353

Company ACT
Analyst Initials CJT
Parameters EPA Method 320
Samples 21 Runs

Client # 1911
Job # 0913-111
PO # 3134 1911
Report Date V0.62 13.10.18.12.58

Hammermill 2 Run 2

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/11/2013 19:35	0913-111_A	13_10_11_1935_01_714	1	1.03	0.455	0.387	0.0660	0.165	0.0760	1.08	0.52	0.232	0.107	0.707	0.335
10/11/2013 19:36	0913-111_A	13_10_11_1936_02_534	1	0.965	0.465	0.476	0.0620	0.184	0.0770	1.08	0.52	0.232	0.104	0.707	0.343
10/11/2013 19:37	0913-111_A	13_10_11_1937_03_234	1	0.965	0.466	0.584	0.0660	0.165	0.0770	1.08	0.52	0.232	0.107	0.707	0.343
10/11/2013 19:38	0913-111_A	13_10_11_1938_03_984	1	0.965	0.470	0.688	0.0650	0.165	0.0800	1.08	0.53	0.232	0.110	0.707	0.348
10/11/2013 19:39	0913-111_A	13_10_11_1939_04_744	1	0.965	0.468	0.608	0.0660	0.165	0.0810	1.08	0.53	0.232	0.108	0.731	0.346
10/11/2013 19:40	0913-111_A	13_10_11_1940_05_514	1	0.965	0.483	0.569	0.0680	0.203	0.0800	1.08	0.54	0.232	0.109	0.707	0.360
10/11/2013 19:41	0913-111_A	13_10_11_1941_06_114	1	0.965	0.470	0.705	0.0620	0.168	0.0850	1.08	0.55	0.232	0.105	0.707	0.343
10/11/2013 19:42	0913-111_A	13_10_11_1942_06_924	1	0.965	0.504	0.659	0.0670	0.169	0.0830	1.08	0.55	0.232	0.114	0.707	0.369
10/11/2013 19:43	0913-111_A	13_10_11_1943_07_674	1	0.965	0.502	0.739	0.0700	0.160	0.0860	1.08	0.55	0.232	0.117	0.707	0.369
10/11/2013 19:44	0913-111_A	13_10_11_1944_08_385	1	0.965	0.467	0.816	0.0680	0.184	0.0850	1.08	0.55	0.232	0.114	0.707	0.355
10/11/2013 19:45	0913-111_A	13_10_11_1945_09_195	1	0.965	0.496	0.955	0.0730	0.189	0.0860	1.08	0.56	0.232	0.123	0.707	0.366
10/11/2013 19:46	0913-111_A	13_10_11_1946_09_915	1	0.965	0.512	1.22	0.0740	0.178	0.0880	1.08	0.57	0.233	0.127	0.707	0.375
10/11/2013 19:47	0913-111_A	13_10_11_1947_10_665	1	0.965	0.505	1.29	0.0720	0.175	0.0860	1.08	0.56	0.232	0.122	0.707	0.372
10/11/2013 19:48	0913-111_A	13_10_11_1948_11_485	1	0.965	0.487	1.11	0.0670	0.165	0.0830	1.08	0.55	0.232	0.113	0.707	0.357
10/11/2013 19:49	0913-111_A	13_10_11_1949_12_195	1	0.965	0.492	1.06	0.0700	0.165	0.0840	1.08	0.55	0.292	0.114	0.707	0.359
10/11/2013 19:50	0913-111_A	13_10_11_1950_12_945	1	0.965	0.460	1.14	0.0660	0.165	0.0840	1.08	0.55	0.232	0.107	0.707	0.337
10/11/2013 19:51	0913-111_A	13_10_11_1951_13_755	1	0.965	0.462	1.17	0.0650	0.165	0.0830	1.08	0.55	0.271	0.106	0.707	0.339
10/11/2013 19:52	0913-111_A	13_10_11_1952_14_475	1	0.965	0.501	1.09	0.0680	0.165	0.0840	1.08	0.55	0.232	0.114	0.707	0.363
10/11/2013 19:53	0913-111_A	13_10_11_1953_15_195	1	0.965	0.453	0.918	0.0660	0.165	0.0820	1.08	0.55	0.238	0.109	0.707	0.338
10/11/2013 19:54	0913-111_A	13_10_11_1954_16_015	1	1.16	0.466	0.745	0.0620	0.165	0.0840	1.08	0.55	0.236	0.110	0.707	0.342
10/11/2013 19:55	0913-111_A	13_10_11_1955_16_735	1	0.965	0.484	0.645	0.0670	0.186	0.0830	1.08	0.55	0.274	0.109	0.707	0.364
10/11/2013 19:56	0913-111_A	13_10_11_1956_17_546	1	0.965	0.477	0.739	0.0700	0.167	0.0870	1.08	0.55	0.232	0.114	0.707	0.351
10/11/2013 19:57	0913-111_A	13_10_11_1957_18_266	1	0.965	0.484	0.834	0.0700	0.165	0.0830	1.08	0.55	0.232	0.114	0.707	0.355
10/11/2013 19:58	0913-111_A	13_10_11_1958_18_986	1	0.965	0.497	0.781	0.0660	0.197	0.0890	1.08	0.56	0.303	0.114	0.707	0.361
10/11/2013 19:59	0913-111_A	13_10_11_1959_19_796	1	0.965	0.495	0.968	0.0700	0.165	0.0870	1.08	0.56	0.232	0.116	0.707	0.364
10/11/2013 20:00	0913-111_A	13_10_11_2000_20_526	1	0.965	0.485	1.18	0.0670	0.235	0.0840	1.08	0.55	0.232	0.115	0.707	0.358
10/11/2013 20:01	0913-111_A	13_10_11_2001_21_306	1	0.965	0.486	0.996	0.0660	0.282	0.0820	1.08	0.55	0.232	0.114	0.707	0.365
10/11/2013 20:02	0913-111_A	13_10_11_2002_22_058	1	0.965	0.470	1.20	0.0710	0.297	0.0870	1.08	0.58	0.232	0.117	0.707	0.346
10/11/2013 20:03	0913-111_A	13_10_11_2003_22_768	1	0.965	0.503	1.15	0.0730	0.266	0.0870	1.08	0.56	0.232	0.120	0.707	0.362
10/11/2013 20:04	0913-111_A	13_10_11_2004_23_566	1	0.965	0.490	1.52	0.0720	0.287	0.0890	1.08	0.58	0.232	0.120	0.707	0.362
10/11/2013 20:05	0913-111_A	13_10_11_2005_24_316	1	0.965	0.499	1.31	0.0720	0.247	0.0900	1.08	0.56	0.232	0.121	0.707	0.366
10/11/2013 20:06	0913-111_A	13_10_11_2006_25_026	1	0.965	0.479	1.24	0.0870	0.289	0.0850	1.08	0.55	0.232	0.116	0.707	0.351
10/11/2013 20:07	0913-111_A	13_10_11_2007_25_847	1	0.965	0.471	1.50	0.0680	0.281	0.0840	1.08	0.55	0.290	0.113	0.707	0.340
10/11/2013 20:08	0913-111_A	13_10_11_2008_26_547	1	1.29	0.496	1.77	0.0710	0.381	0.0840	1.08	0.55	0.232	0.121	0.707	0.363
10/11/2013 20:09	0913-111_A	13_10_11_2009_27_317	1	0.965	0.479	1.88	0.0690	0.323	0.0850	1.08	0.56	0.232	0.117	0.707	0.348
10/11/2013 20:10	0913-111_A	13_10_11_2010_28_067	1	0.965	0.515	2.01	0.0720	0.308	0.0860	1.08	0.56	0.232	0.127	0.846	0.373
10/11/2013 20:11	0913-111_A	13_10_11_2011_28_787	1	0.965	0.457	2.07	0.0680	0.316	0.0880	1.08	0.55	0.383	0.118	0.707	0.342
10/11/2013 20:12	0913-111_A	13_10_11_2012_29_547	1	0.965	0.517	1.95	0.0710	0.254	0.0860	1.08	0.55	0.371	0.121	0.707	0.378
10/11/2013 20:13	0913-111_A	13_10_11_2013_30_317	1	0.965	0.479	1.47	0.0700	0.284	0.0860	1.08	0.55	0.232	0.119	0.707	0.352
10/11/2013 20:14	0913-111_A	13_10_11_2014_31_027	1	0.965	0.486	1.48	0.0700	0.165	0.0830	1.08	0.55	0.341	0.117	0.707	0.352
10/11/2013 20:15	0913-111_A	13_10_11_2015_31_827	1	0.965	0.502	1.42	0.0710	0.200	0.0840	1.08	0.55	0.232	0.117	0.707	0.366
10/11/2013 20:16	0913-111_A	13_10_11_2016_32_537	1	0.965	0.474	1.60	0.0660	0.218	0.0860	1.08	0.55	0.232	0.115	0.707	0.349
10/11/2013 20:17	0913-111_A	13_10_11_2017_33_357	1	0.965	0.473	1.84	0.0690	0.244	0.0860	1.08	0.56	0.232	0.120	0.707	0.345
10/11/2013 20:18	0913-111_A	13_10_11_2018_34_067	1	0.965	0.483	1.79	0.0720	0.207	0.0840	1.08	0.55	0.232	0.118	0.707	0.353
10/11/2013 20:19	0913-111_A	13_10_11_2019_34_828	1	0.965	0.441	1.32	0.0570	0.231	0.0810	1.08	0.54	0.232	0.103	0.707	0.319
10/11/2013 20:20	0913-111_A	13_10_11_2020_35_678	1	0.965	0.409	0.893	0.0620	0.237	0.0790	1.08	0.53	0.232	0.100	0.707	0.303
10/11/2013 20:21	0913-111_A	13_10_11_2021_36_418	1	0.965	0.433	0.987	0.0620	0.202	0.0750	1.08	0.53	0.232	0.103	0.707	0.318
10/11/2013 20:22	0913-111_A	13_10_11_2022_37_128	1	0.965	0.461	1.19	0.0620	0.237	0.0830	1.08	0.54	0.232	0.107	0.707	0.338
10/11/2013 20:23	0913-111_A	13_10_11_2023_37_728	1	0.965	0.479	1.38	0.0660	0.198	0.0870	1.08	0.56	0.232	0.119	0.707	0.351
10/11/2013 20:24	0913-111_A	13_10_11_2024_38_578	1	0.965	0.483	1.45	0.0680	0.184	0.0860	1.08	0.56	0.232	0.124	0.707	0.352
10/11/2013 20:25	0913-111_A	13_10_11_2025_39_308	1	0.965	0.491	1.36	0.0700	0.239	0.0850	1.08	0.56	0.232	0.121	0.707	0.360
10/11/2013 20:26	0913-111_A	13_10_11_2026_40_038	1	0.965	0.466	1.27	0.0680	0.182	0.0850	1.08	0.56	0.232	0.116	0.707	0.341
10/11/2013 20:27	0913-111_A	13_10_11_2027_40_768	1	0.965	0.484	1.15	0.0670	0.191	0.0860	1.08	0.55	0.232	0.115	0.707	0.356
10/11/2013 20:28	0913-111_A	13_10_11_2028_41_548	1	0.965	0.493	1.23	0.0660	0.243	0.0850	1.08	0.55	0.232	0.114	0.707	0.359
10/11/2013 20:29	0913-111_A	13_10_11_2029_42_348	1	0.965	0.477	0.973	0.0670	0.171	0.0860	1.08	0.55	0.232	0.113	0.707	0.350
10/11/2013 20:30	0913-111_A	13_10_11_2030_43_068	1	0.965	0.474	0.997	0.0660	0.165	0.0850	1.08	0.55	0.232	0.111	0.707	0.344
10/11/2013 20:31	0913-111_A	13_10_11_2031_43_869	1	0.965	0.483	1.65	0.0660	0.201	0.0840	1.08	0.55	0.232	0.114	0.707	0.355
10/11/2013 20:32	0913-111_A	13_10_11_2032_44_619	1	0.965	0.493	1.57	0.0710	0.253	0.0850	1.08	0.56	0.232	0.122	0.707	0.360
10/11/2013 20:33	0913-111_A	13_10_11_2033_45_359	1	0.965	0.463	1.44	0.0870	0.165	0.0840	1.08	0.55	0.232	0.111	0.707	0.342
10/11/2013 20:34	0913-111_A	13_10_11_2034_46_079	1	0.965	0.450	0.598	0.0670	0.165	0.0680	1.08	0.48	0.232	0.172	0.707	0.331
10/11/2013 20:35	0913-111_A	13_10_11_2035_46_799	1	0.965	0.515	0.136	0.100	0.165	0.0420	1.08	0.128	0.232	0.504	0.707	0.391
		Average Conc. (ppm):	1	0.975	0.480	1.14	0.0682	0.211	0.0832	1.08	0.54	0.243	0.122	0.710	0.352

Hammermill 2 Run 3

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/11/2013 20:48	0913-111_A	13_10_11_2048_56_780	1	0.965	0.501	0.733	0.0690	0.224	0.0890	1.08	0.57	0.292	0.115	0.707	0.366
10/11/2013 20:49	0913-111_A	13_10_11_2049_57_480	1	0.965	0.487	0.771	0.0690	0.200	0.0900	1.08	0.57	0.232	0.116	0.707	0.362
10/11/2013 20:50	0913-111_A	13_10_11_2050_58_210	1	0.965	0.514	0.779	0.0740	0.165	0.0910	1.08	0.57	0.326	0.118	0.707	0.374
10/11/2013 20:51	0913-111_A	13_10_11_2051_58_930	1	0.965	0.481	0.837	0.0670	0.197	0.0880	1.08	0.57	0.232	0.111	0.707	0.356
10/11/2013 20:52	0913-111_A	13_10_11_2052_59_690	1	0.965	0.543	1.01	0.0710	0.165	0.0920	1.08	0.57	0.232	0.124	0.707	0.394
10/11/2013 20:54	0913-111_A	13_10_11_2054_00_490	1	0.965	0.496	1.02	0.0690	0.200	0.0880	1.08	0.57	0.232	0.117	0.707	0.360
10/11/2013 20:55	0913-111_A	13_10_11_2055_01_210	1	0.965	0.489	1.16	0.0660	0.188	0.0880	1.08	0.57	0.232	0.113	0.707	0.355
10/11/2013 20:56	0913-111_A	13_10_11_2056_01_991	1	0.965	0.513	1.14	0.0680	0.180	0.0890	1.08	0.57	0.232	0.118	0.707	0.372
10/11/2013 20:57	0913-111_A	13_10_11_2057_02_811	1	0.965	0.510	0.977	0.0710	0.168	0.0880	1.08	0.57	0.232	0.118	0.707	0.371
10/11/2013 20:58	0913-111_A	13_10_11_2058_03_541	1	0.965	0.536	0.850	0.0710	0.223	0.0870	1.08	0.57	0.232	0.122	0.707	0.390
10/11/2013 20:59	0913-111_A	13_10_11_2059_04_241	1	0.965	0.490	0.967	0.0680	0.182	0.0900	1.08	0.57	0.232	0.114	0.707	0.357
10/11/2013 21:00	0913-111_A	13_10_11_2100_05_061	1	0.965	0.482	0.978	0.0700	0.172	0.0890	1.08	0.57	0.232	0.116	0.707	0.355
10/11/2013 21:01	0913-111_A	13_10_11_2101_05_801	1	0.965	0.513	1.05	0.0690	0.165	0.0880	1.08	0.56	0.232	0.119	0.707	0.373
10/11/2013 21:02	0913-111_A	13_10_11_2102_06_551	1	0.965	0.499	1.17	0.0690	0.164	0.0850	1.08	0.56	0.429	0.111	0.707	0.364
10/11/2013 21:03	0913-111_A	13_10_11_2103_07_271	1	0.965	0.472	1.09	0.0690	0.231	0.0860	1.08	0.56	0.232	0.112	0.707	0.353
10/11/2013 21:04	0913-111_A	13_10_11_2104_08_001	1	0.965	0.487	1.23	0.0700	0.229	0.0880	1.08	0.56	0.348	0.118	0.707	0.359
10/11/2013 21:05	0913-111_A	13_10_11_2105_08_691	1	0.965	0.510	1.31	0.0670	0.251	0.0850	1.08	0.56	0.232	0.118	0.707	0.368
10/11/2013 21:06	0913-111_A	13_10_11_2106_09_461	1	0.965	0.501	1.49	0.0670	0.304	0.0840	1.08	0.56	0.243	0.115	0.707	0.362
10/11/2013 21:07	0913-111_A	13_10_11_2107_10_192	1	0.965	0.500	1.68	0.0700	0.193	0.0890	1.08	0.56	0.232	0.116	0.707	0.369
10/11/2013 21:08	0913-111_A	13_10_11_2108_10_932	1	0.965	0.495	1.51	0.0700	0.263	0.0860	1.08	0.56	0.232	0.116	0.707	0.357
10/11/2013 21:09	0913-111_A	13_10_11_2109_11_712	1	0.965	0.498	1.67	0.0690	0.232	0.0860	1.08	0.56	0.232	0.120	0.707	0.364
10/11/2013 21:10	0913-111_A	13_10_11_2110_12_422	1	0.965	0.512	1.80	0.0690	0.320	0.0900	1.08	0.56	0.232	0.120	0.707	0.373
10/11/2013 21:11	0913-111_A	13_10_11_2111_13_262	1	0.965	0.469	1.42	0.0660	0.228	0.0820	1.08	0.54	0.388	0.110	0.707	0.347
10/11/2013 21:12	0913-111_A	13_10_11_2112_13_952	1	0.965	0.463	1.43	0.0630	0.212	0.0800	1.08	0.53	0.378	0.105	0.707	0.337
10/11/2013 21:13	0913-111_A	13_10_11_2113_14_782	1	0.965	0.483	1.23	0.0710	0.235	0.0800	1.08	0.53	0.298	0.113	0.707	0.350
10/11/2013 21:14	0913-111_A	13_10_11_2114_15_492	1	0.965	0.502	0.938	0.0660	0.174	0.0800	1.08	0.54	0.232	0.112	0.707	0.364
10/11/2013 21:15	0913-111_A	13_10_11_2115_16_232	1	0.965	0.478	1.04	0.0670	0.214	0.0870	1.08	0.55	0.232	0.110	0.707	0.348
10/11/2013 21:16	0913-111_A	13_10_11_2116_16_982	1	0.965	0.503	1.26	0.0700	0.279	0.0850	1.08	0.56	0.232	0.118	0.707	0.354
10/11/2013 21:17	0913-111_A	13_10_11_2117_17_712	1	0.965	0.494	1.29	0.0690	0.244	0.0870	1.08	0.56	0.232	0.118	0.707	0.353
10/11/2013 21:18	0913-111_A	13_10_11_2118_18_552	1	0.965	0.479	1.19	0.0680	0.191	0.0810	1.08	0.54	0.246	0.111	0.707	0.349
10/11/2013 21:19	0913-111_A	13_10_11_2119_19_303	1	0.965	0.468	0.972	0.0650	0.165	0.0790	1.08	0.53	0.251	0.105	0.707	0.344
10/11/2013 21:20	0913-111_A	13_10_11_2120_19_973	1	0.965	0.480	0.781	0.0670	0.206	0.0780	1.08	0.53	0.232	0.109	0.707	0.351
10/11/2013 21:21	0913-111_A	13_10_11_2121_20_793	1	0.965	0.478	1.09	0.0650	0.165	0.0790	1.08	0.54	0.365	0.108	0.707	0.350
10/11/2013 21:22	0913-111_A	13_10_11_2122_21_503	1	0.965	0.450	0.961	0.0650	0.165	0.0790	1.08	0.53	0.232	0.107	0.707	0.328
10/11/2013 21:23	0913-111_A	13_10_11_2123_22_333	1	0.965	0.489	0.850	0.0660	0.165	0.0790	1.08	0.53	0.342	0.111	0.707	0.355
10/11/2013 21:24	0913-111_A	13_10_11_2124_23_063	1	0.965	0.429	0.798	0.0600	0.165	0.0790	1.08	0.53	0.232	0.100	0.707	0.313
10/11/2013 21:25	0913-111_A	13_10_11_2125_23_823	1	0.965	0.467	0.778	0.0670	0.165	0.0770	1.08	0.52	0.306	0.108	0.707	0.342
10/11/2013 21:26	0913-111_A	13_10_11_2126_24_523	1	0.965	0.496	0.849	0.0650	0.180	0.0790	1.08	0.53	0.232	0.111	0.707	0.358
10/11/2013 21:27	0913-111_A	13_10_11_2127_25_333	1	0.965	0.494	0.874	0.0630	0.200	0.0810	1.08	0.54	0.232	0.110	0.707	0.362
10/11/2013 21:28	0913-111_A	13_10_11_2128_26_043	1	0.965	0.499	1.12	0.0670	0.174	0.0830	1.08	0.54	0.232	0.112	0.707	0.368
10/11/2013 21:29	0913-111_A	13_10_11_2129_26_823	1	0.965	0.479	1.07	0.0680	0.191	0.0830	1.08	0.54	0.356	0.112	0.707	0.352
10/11/2013 21:30	0913-111_A	13_10_11_2130_27_533	1	0.965	0.492	1.36	0.0670	0.192	0.0820	1.08	0.54	0.252	0.111	0.707	0.359
10/11/2013 21:31	0913-111_A	13_10_11_2131_28_364	1	0.965	0.488	1.26	0.0680	0.174	0.0810	1.08	0.55	0.232	0.113	0.707	0.356
10/11/2013 21:32	0913-111_A	13_10_11_2132_29_074	1	0.965	0.507	1.34	0.0710	0.165	0.0860	1.08	0.56	0.232	0.119	0.707	0.369
10/11/2013 21:33	0913-111_A	13_10_11_2133_29_804	1	0.965	0.512	1.39	0.0680	0.162	0.0860	1.08	0.55	0.232	0.118	0.707	0.371
10/11/2013 21:34	0913-111_A	13_10_11_2134_30_584	1	0.965	0.467	1.13	0.0640	0.203	0.0830	1.08	0.54	0.232	0.107	0.707	0.338
10/11/2013 21:35	0913-111_A	13_10_11_2135_31_294	1	0.965	0.494	1.18	0.0680	0.222	0.0820	1.08	0.54	0.370	0.113	0.707	0.360
10/11/2013 21:36	0913-111_A	13_10_11_2136_32_064	1	0.965	0.495	1.11	0.0630	0.187	0.0790	1.08	0.54	0.232	0.111	0.707	0.357
10/11/2013 21:37	0913-111_A	13_10_11_2137_32_904	1	0.965	0.484	0.901	0.0680	0.165	0.0840	1.08	0.54	0.232	0.110	0.707	0.354
10/11/2013 21:38	0913-111_A	13_10_11_2138_33_604	1	0.965	0.476	0.917	0.0640	0.165	0.0820	1.08	0.55	0.232	0.109	0.707	0.345
10/11/2013 21:39	0913-111_A	13_10_11_2139_34_404	1	0.965	0.461	1.03	0.0670	0.192	0.0850	1.08	0.55	0.269	0.116	0.707	0.336
10/11/2013 21:40	0913-111_A	13_10_11_2140_35_104	1	0.965	0.495	1.12	0.0670	0.239	0.0860	1.08	0.56	0.270	0.115	0.707	0.359
10/11/2013 21:41	0913-111_A	13_10_11_2141_35_912	1	0.965	0.503	1.10	0.0670	0.272	0.0840	1.08	0.55	0.248	0.113	0.707	0.366
10/11/2013 21:42	0913-111_A	13_10_11_2142_36_712	1	0.965	0.468	1.14	0.0720	0.178	0.0850	1.08	0.55	0.333	0.118	0.707	0.350
10/11/2013 21:43	0913-111_A	13_10_11_2143_37_433	1	0.965	0.460	0.995	0.0660	0.238	0.0840	1.08	0.56	0.277	0.110	0.707	0.335
10/11/2013 21:44	0913-111_A	13_10_11_2144_38_243	1	0.965	0.471	1.03	0.0650	0.250	0.0820	1.08	0.55	0.250	0.110	0.707	0.346
10/11/2013 21:45	0913-111_A	13_10_11_2145_38_963	1	0.965	0.466	0.978	0.0690	0.217	0.0820	1.08	0.55	0.232	0.112	0.707	0.338
10/11/2013 21:46	0913-111_A	13_10_11_2146_39_663	1	0.965	0.482	1.10	0.0690	0.240	0.0830	1.08	0.55	0.255	0.113	0.707	0.349
10/11/2013 21:47	0913-111_A	13_10_11_2147_40_373	1	0.965	0.502	1.45	0.0660	0.243	0.0830	1.08	0.56	0.235	0.112	0.707	0.363
10/11/2013 21:48	0913-111_A	13_10_11_2148_41_123	1	0.965	0.431	0.693	0.0810	0.165	0.0590	1.08	0.40	0.351	0.0990	0.707	0.317
		Average Conc. (ppm):	1	0.965	0.488	1.11	0.0675	0.204	0.0839	1.08	0.55	0.263	0.113	0.707	0.356

Company: ACT
Analyst Initials: CJT
Parameters: EPA Method 320
Samples: 21 Runs

Client #: 1911
Job #: 0913-111
PO #: 3134 1911
Report Date: V0.62 13.10.18.12.58

Pellet Cooler 1 Run 1

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/12/2013 8:58	0913-111_A	13_10_12_0858_54_250	1	0.931	0.473	1.38	0.0630	0.373	0.0710	0.98	0.49	0.236	0.114	0.686	0.343
10/12/2013 8:59	0913-111_A	13_10_12_0859_55_060	1	0.931	0.451	1.43	0.0630	0.416	0.0730	0.98	0.49	0.297	0.113	0.686	0.332
10/12/2013 9:00	0913-111_A	13_10_12_0900_55_780	1	0.931	0.473	1.46	0.0650	0.440	0.0700	0.98	0.49	0.291	0.120	0.686	0.353
10/12/2013 9:01	0913-111_A	13_10_12_0901_56_540	1	0.931	0.443	1.56	0.0630	0.413	0.0710	0.98	0.49	0.337	0.114	0.686	0.327
10/12/2013 9:02	0913-111_A	13_10_12_0902_57_240	1	1.05	0.458	1.42	0.0670	0.487	0.0710	0.98	0.49	0.293	0.115	0.686	0.344
10/12/2013 9:03	0913-111_A	13_10_12_0903_58_000	1	0.931	0.447	1.38	0.0610	0.431	0.0700	0.98	0.49	0.236	0.109	0.688	0.328
10/12/2013 9:04	0913-111_A	13_10_12_0904_58_810	1	0.931	0.487	1.32	0.0660	0.495	0.0740	0.98	0.49	0.337	0.118	0.688	0.352
10/12/2013 9:05	0913-111_A	13_10_12_0905_59_520	1	1.20	0.480	1.26	0.0650	0.496	0.0700	0.98	0.49	0.236	0.118	0.688	0.351
10/12/2013 9:07	0913-111_A	13_10_12_0907_00_280	1	0.931	0.462	1.41	0.0670	0.543	0.0710	0.98	0.49	0.236	0.119	0.686	0.339
10/12/2013 9:08	0913-111_A	13_10_12_0908_01_061	1	0.931	0.477	1.50	0.0680	0.496	0.0700	0.98	0.50	0.340	0.116	0.686	0.352
10/12/2013 9:09	0913-111_A	13_10_12_0909_01_771	1	0.931	0.449	1.53	0.0590	0.483	0.0700	0.98	0.50	0.373	0.112	0.686	0.330
10/12/2013 9:10	0913-111_A	13_10_12_0910_02_501	1	0.931	0.449	1.50	0.0610	0.450	0.0720	0.98	0.50	0.236	0.114	0.686	0.330
10/12/2013 9:11	0913-111_A	13_10_12_0911_03_351	1	0.931	0.460	1.49	0.0630	0.502	0.0740	0.98	0.50	0.238	0.111	0.686	0.335
10/12/2013 9:12	0913-111_A	13_10_12_0912_04_061	1	0.931	0.461	1.45	0.0640	0.553	0.0740	0.98	0.50	0.238	0.115	0.686	0.337
10/12/2013 9:13	0913-111_A	13_10_12_0913_04_821	1	0.931	0.456	1.51	0.0650	0.543	0.0740	0.98	0.50	0.344	0.115	0.688	0.338
10/12/2013 9:14	0913-111_A	13_10_12_0914_05_631	1	1.19	0.466	1.48	0.0630	0.513	0.0750	0.98	0.50	0.306	0.115	0.688	0.344
10/12/2013 9:15	0913-111_A	13_10_12_0915_06_381	1	0.931	0.477	1.43	0.0640	0.522	0.0720	0.98	0.50	0.442	0.115	0.686	0.353
10/12/2013 9:16	0913-111_A	13_10_12_0916_06_991	1	0.931	0.459	1.47	0.0640	0.464	0.0710	0.98	0.50	0.425	0.114	0.686	0.337
10/12/2013 9:17	0913-111_A	13_10_12_0917_07_721	1	0.931	0.443	1.52	0.0700	0.624	0.0720	0.98	0.50	0.242	0.122	0.686	0.322
10/12/2013 9:18	0913-111_A	13_10_12_0918_08_531	1	0.931	0.470	1.47	0.0660	0.615	0.0720	0.98	0.51	0.257	0.117	0.686	0.345
10/12/2013 9:19	0913-111_A	13_10_12_0919_09_252	1	0.931	0.485	1.69	0.0640	0.591	0.0740	0.98	0.51	0.527	0.119	0.686	0.352
10/12/2013 9:20	0913-111_A	13_10_12_0920_09_962	1	0.931	0.473	1.50	0.0650	0.545	0.0740	0.98	0.51	0.342	0.122	0.686	0.343
10/12/2013 9:21	0913-111_A	13_10_12_0921_10_712	1	0.931	0.490	1.83	0.0620	0.634	0.0770	0.98	0.51	0.497	0.117	0.688	0.354
10/12/2013 9:22	0913-111_A	13_10_12_0922_11_562	1	0.931	0.487	1.54	0.0700	0.574	0.0750	0.98	0.51	0.356	0.123	0.686	0.368
10/12/2013 9:23	0913-111_A	13_10_12_0923_12_282	1	0.931	0.481	1.52	0.0610	0.620	0.0750	0.98	0.51	0.525	0.114	0.686	0.340
10/12/2013 9:24	0913-111_A	13_10_12_0924_12_982	1	1.31	0.472	1.51	0.0640	0.608	0.0730	0.98	0.51	0.505	0.120	0.686	0.344
10/12/2013 9:25	0913-111_A	13_10_12_0925_13_802	1	0.931	0.471	1.50	0.0670	0.601	0.0760	0.98	0.51	0.292	0.118	0.938	0.348
10/12/2013 9:26	0913-111_A	13_10_12_0926_14_512	1	1.14	0.468	1.44	0.0680	0.691	0.0760	0.98	0.51	0.291	0.121	0.686	0.340
10/12/2013 9:27	0913-111_A	13_10_12_0927_15_282	1	0.931	0.471	1.41	0.0640	0.518	0.0740	0.98	0.51	0.320	0.113	0.686	0.345
10/12/2013 9:28	0913-111_A	13_10_12_0928_15_992	1	0.931	0.457	1.51	0.0630	0.548	0.0750	0.98	0.51	0.328	0.117	0.686	0.333
10/12/2013 9:29	0913-111_A	13_10_12_0929_16_802	1	0.931	0.486	1.43	0.0660	0.505	0.0760	0.98	0.51	0.391	0.117	0.686	0.353
10/12/2013 9:30	0913-111_A	13_10_12_0930_17_552	1	0.931	0.475	1.50	0.0670	0.570	0.0750	0.98	0.51	0.236	0.122	0.686	0.355
10/12/2013 9:31	0913-111_A	13_10_12_0931_18_263	1	0.931	0.487	1.54	0.0660	0.600	0.0740	0.98	0.51	0.412	0.124	0.686	0.358
10/12/2013 9:32	0913-111_A	13_10_12_0932_19_013	1	0.931	0.471	1.39	0.0660	0.511	0.0750	0.98	0.51	0.348	0.124	0.686	0.351
10/12/2013 9:33	0913-111_A	13_10_12_0933_19_773	1	0.931	0.483	1.61	0.0650	0.626	0.0760	0.98	0.51	0.520	0.124	0.688	0.361
10/12/2013 9:34	0913-111_A	13_10_12_0934_20_553	1	0.931	0.465	1.51	0.0660	0.585	0.0770	0.98	0.52	0.478	0.123	0.686	0.340
10/12/2013 9:35	0913-111_A	13_10_12_0935_21_313	1	1.44	0.491	1.53	0.0690	0.690	0.0760	0.98	0.51	0.475	0.131	0.686	0.358
10/12/2013 9:36	0913-111_A	13_10_12_0936_22_033	1	1.06	0.466	1.49	0.0620	0.596	0.0800	0.98	0.51	0.642	0.122	0.688	0.342
10/12/2013 9:37	0913-111_A	13_10_12_0937_22_823	1	0.931	0.481	1.42	0.0670	0.565	0.0760	1.01	0.51	0.370	0.121	0.688	0.352
10/12/2013 9:38	0913-111_A	13_10_12_0938_23_533	1	0.931	0.478	1.39	0.0630	0.543	0.0780	0.99	0.51	0.519	0.118	0.686	0.346
10/12/2013 9:39	0913-111_A	13_10_12_0939_24_263	1	0.931	0.469	1.38	0.0640	0.609	0.0770	1.02	0.51	0.450	0.115	0.686	0.348
10/12/2013 9:40	0913-111_A	13_10_12_0940_25_023	1	1.13	0.476	1.39	0.0620	0.507	0.0740	1.03	0.51	0.568	0.118	0.686	0.346
10/12/2013 9:41	0913-111_A	13_10_12_0941_25_743	1	0.931	0.468	1.27	0.0630	0.612	0.0720	0.98	0.51	0.236	0.114	0.686	0.344
10/12/2013 9:42	0913-111_A	13_10_12_0942_26_543	1	0.931	0.475	1.36	0.0640	0.510	0.0760	0.99	0.51	0.480	0.118	0.686	0.351
10/12/2013 9:43	0913-111_A	13_10_12_0943_27_234	1	0.931	0.448	1.37	0.0660	0.502	0.0720	1.00	0.50	0.439	0.114	0.686	0.328
10/12/2013 9:44	0913-111_A	13_10_12_0944_27_984	1	0.931	0.464	1.48	0.0660	0.512	0.0710	0.98	0.51	0.488	0.118	0.686	0.343
10/12/2013 9:45	0913-111_A	13_10_12_0945_28_774	1	0.931	0.428	1.37	0.0610	0.502	0.0740	0.99	0.50	0.423	0.110	0.686	0.324
10/12/2013 9:46	0913-111_A	13_10_12_0946_29_534	1	0.931	0.487	1.30	0.0680	0.518	0.0730	1.05	0.51	0.352	0.121	0.686	0.358
10/12/2013 9:47	0913-111_A	13_10_12_0947_30_304	1	0.931	0.472	1.32	0.0640	0.497	0.0750	1.05	0.51	0.241	0.116	0.688	0.344
10/12/2013 9:48	0913-111_A	13_10_12_0948_30_974	1	1.12	0.487	1.27	0.0640	0.502	0.0750	1.03	0.51	0.405	0.117	0.686	0.359
10/12/2013 9:49	0913-111_A	13_10_12_0949_31_774	1	1.09	0.461	1.47	0.0600	0.528	0.0730	1.08	0.51	0.525	0.113	0.686	0.335
10/12/2013 9:50	0913-111_A	13_10_12_0950_32_484	1	0.931	0.453	1.26	0.0650	0.505	0.0750	1.06	0.51	0.348	0.117	0.686	0.329
10/12/2013 9:51	0913-111_A	13_10_12_0951_33_294	1	0.931	0.471	1.34	0.0680	0.571	0.0720	1.09	0.51	0.369	0.117	0.704	0.351
10/12/2013 9:52	0913-111_A	13_10_12_0952_34_074	1	1.20	0.470	1.30	0.0610	0.563	0.0730	1.09	0.51	0.402	0.120	0.688	0.346
10/12/2013 9:53	0913-111_A	13_10_12_0953_34_794	1	0.931	0.463	1.37	0.0630	0.527	0.0740	1.02	0.51	0.565	0.118	0.686	0.343
10/12/2013 9:54	0913-111_A	13_10_12_0954_35_514	1	0.931	0.477	1.37	0.0690	0.563	0.0720	1.03	0.51	0.238	0.123	0.686	0.352
10/12/2013 9:55	0913-111_A	13_10_12_0955_36_235	1	0.931	0.459	1.41	0.0630	0.538	0.0730	1.07	0.51	0.485	0.116	0.686	0.337
10/12/2013 9:56	0913-111_A	13_10_12_0956_36_955	1	0.931	0.446	1.33	0.0620	0.538	0.0760	1.09	0.51	0.573	0.115	0.686	0.328
10/12/2013 9:57	0913-111_A	13_10_12_0957_37_745	1	0.931	0.464	1.46	0.0640	0.523	0.0750	1.08	0.51	0.516	0.119	0.686	0.345
10/12/2013 9:58	0913-111_A	13_10_12_0958_38_355	1	0.931	0.450	1.36	0.0650	0.534	0.0750	1.10	0.51	0.448	0.121	0.686	0.330
		Average Conc. (ppm):	1	0.976	0.467	1.44	0.0646	0.537	0.0738	1.00	0.50	0.381	0.118	0.691	**0.344**

Pellet Cooler 1 Run 2

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/12/2013 10:22	0913-111_A	13_10_12_1022_56_297	1	0.931	0.480	1.36	0.0680	0.307	0.0760	0.98	0.51	0.236	0.126	0.686	0.354
10/12/2013 10:23	0913-111_A	13_10_12_1023_57_017	1	0.931	0.496	1.32	0.0660	0.317	0.0730	0.98	0.51	0.236	0.123	0.686	0.362
10/12/2013 10:24	0913-111_A	13_10_12_1024_57_717	1	0.931	0.459	1.40	0.0630	0.353	0.0770	0.98	0.51	0.413	0.118	0.686	0.335
10/12/2013 10:25	0913-111_A	13_10_12_1025_58_487	1	0.931	0.474	1.31	0.0650	0.332	0.0750	0.98	0.51	0.353	0.123	0.686	0.348
10/12/2013 10:26	0913-111_A	13_10_12_1026_59_227	1	0.931	0.454	1.30	0.0630	0.284	0.0730	0.98	0.51	0.283	0.116	0.686	0.335
10/12/2013 10:27	0913-111_A	13_10_12_1027_59_937	1	0.931	0.479	1.28	0.0640	0.370	0.0750	0.98	0.51	0.285	0.118	0.686	0.349
10/12/2013 10:29	0913-111_A	13_10_12_1029_00_757	1	0.931	0.477	1.28	0.0650	0.345	0.0740	0.98	0.51	0.236	0.120	0.686	0.347
10/12/2013 10:30	0913-111_A	13_10_12_1030_01_457	1	0.931	0.467	1.44	0.0660	0.372	0.0740	0.98	0.51	0.245	0.124	0.686	0.340
10/12/2013 10:31	0913-111_A	13_10_12_1031_02_208	1	0.931	0.484	1.28	0.0640	0.316	0.0730	0.98	0.51	0.236	0.124	0.686	0.356
10/12/2013 10:32	0913-111_A	13_10_12_1032_03_028	1	0.931	0.486	1.28	0.0640	0.306	0.0730	0.98	0.51	0.236	0.125	0.686	0.355
10/12/2013 10:33	0913-111_A	13_10_12_1033_03_728	1	0.931	0.480	1.50	0.0650	0.342	0.0740	0.98	0.51	0.236	0.125	0.686	0.350
10/12/2013 10:34	0913-111_A	13_10_12_1034_04_508	1	0.931	0.455	1.49	0.0620	0.313	0.0770	0.98	0.51	0.241	0.123	0.686	0.329
10/12/2013 10:35	0913-111_A	13_10_12_1035_05_268	1	1.05	0.475	1.41	0.0650	0.378	0.0740	0.98	0.51	0.236	0.125	0.686	0.350
10/12/2013 10:36	0913-111_A	13_10_12_1036_05_918	1	0.931	0.456	1.56	0.0590	0.326	0.0730	0.98	0.51	0.304	0.121	0.686	0.332
10/12/2013 10:37	0913-111_A	13_10_12_1037_06_678	1	0.931	0.436	1.44	0.0620	0.330	0.0750	0.98	0.51	0.311	0.122	0.686	0.326
10/12/2013 10:38	0913-111_A	13_10_12_1038_07_438	1	0.931	0.446	1.50	0.0630	0.347	0.0750	0.98	0.51	0.295	0.120	0.688	0.330
10/12/2013 10:39	0913-111_A	13_10_12_1039_08_248	1	1.03	0.486	1.48	0.0670	0.344	0.0760	0.98	0.51	0.247	0.127	0.688	0.360
10/12/2013 10:40	0913-111_A	13_10_12_1040_08_958	1	1.41	0.456	1.33	0.0620	0.369	0.0750	0.98	0.51	0.236	0.126	0.686	0.340
10/12/2013 10:41	0913-111_A	13_10_12_1041_09_588	1	0.931	0.483	1.24	0.0660	0.382	0.0740	0.98	0.50	0.367	0.120	0.686	0.356
10/12/2013 10:42	0913-111_A	13_10_12_1042_10_318	1	1.03	0.450	1.37	0.0630	0.395	0.0730	0.98	0.51	0.361	0.121	0.686	0.330
10/12/2013 10:43	0913-111_A	13_10_12_1043_11_009	1	0.958	0.474	1.44	0.0680	0.459	0.0740	0.98	0.51	0.236	0.124	0.686	0.348
10/12/2013 10:44	0913-111_A	13_10_12_1044_11_729	1	0.931	0.449	1.44	0.0630	0.374	0.0710	0.98	0.51	0.236	0.119	0.686	0.332
10/12/2013 10:45	0913-111_A	13_10_12_1045_12_469	1	0.931	0.451	1.37	0.0650	0.322	0.0740	0.98	0.50	0.341	0.118	0.686	0.331
10/12/2013 10:46	0913-111_A	13_10_12_1046_13_279	1	0.931	0.442	1.29	0.0610	0.287	0.0730	0.98	0.50	0.285	0.119	0.686	0.323
10/12/2013 10:47	0913-111_A	13_10_12_1047_13_999	1	0.931	0.474	1.23	0.0620	0.311	0.0750	0.98	0.50	0.238	0.119	0.686	0.350
10/12/2013 10:48	0913-111_A	13_10_12_1048_14_739	1	0.931	0.466	1.28	0.0660	0.388	0.0750	0.98	0.50	0.382	0.123	0.686	0.345
10/12/2013 10:49	0913-111_A	13_10_12_1049_15_489	1	1.27	0.487	1.25	0.0700	0.328	0.0760	0.98	0.50	0.324	0.124	0.686	0.359
10/12/2013 10:50	0913-111_A	13_10_12_1050_16_309	1	1.08	0.456	1.35	0.0630	0.298	0.0750	0.98	0.50	0.308	0.122	0.686	0.339
10/12/2013 10:51	0913-111_A	13_10_12_1051_17_029	1	1.21	0.455	1.45	0.0620	0.295	0.0740	0.98	0.50	0.236	0.122	0.686	0.330
10/12/2013 10:52	0913-111_A	13_10_12_1052_17_749	1	1.08	0.477	1.40	0.0650	0.392	0.0740	0.98	0.50	0.236	0.124	0.686	0.350
10/12/2013 10:53	0913-111_A	13_10_12_1053_18_449	1	0.931	0.459	1.43	0.0630	0.344	0.0720	0.98	0.50	0.401	0.120	0.686	0.344
10/12/2013 10:54	0913-111_A	13_10_12_1054_19_270	1	0.931	0.483	1.28	0.0660	0.354	0.0730	0.98	0.50	0.293	0.124	0.686	0.356
10/12/2013 10:55	0913-111_A	13_10_12_1055_19_980	1	0.931	0.477	1.33	0.0650	0.352	0.0750	0.98	0.49	0.376	0.124	0.686	0.352
10/12/2013 10:56	0913-111_A	13_10_12_1056_20_750	1	1.15	0.490	1.29	0.0640	0.361	0.0700	0.98	0.50	0.336	0.121	0.686	0.356
10/12/2013 10:57	0913-111_A	13_10_12_1057_21_510	1	0.931	0.437	1.34	0.0600	0.339	0.0690	0.98	0.50	0.238	0.116	0.686	0.319
10/12/2013 10:58	0913-111_A	13_10_12_1058_22_230	1	0.931	0.441	1.40	0.0650	0.295	0.0730	0.98	0.50	0.425	0.121	0.686	0.324
10/12/2013 10:59	0913-111_A	13_10_12_1059_23_000	1	0.931	0.453	1.29	0.0610	0.337	0.0740	0.98	0.49	0.352	0.116	0.686	0.332
10/12/2013 11:00	0913-111_A	13_10_12_1100_23_720	1	0.931	0.485	1.32	0.0640	0.330	0.0710	0.98	0.49	0.236	0.121	0.686	0.356
10/12/2013 11:01	0913-111_A	13_10_12_1101_24_530	1	0.931	0.459	1.27	0.0650	0.244	0.0700	0.98	0.50	0.236	0.118	0.753	0.338
10/12/2013 11:02	0913-111_A	13_10_12_1102_25_240	1	0.931	0.455	1.29	0.0630	0.331	0.0720	0.98	0.50	0.311	0.118	0.797	0.334
10/12/2013 11:03	0913-111_A	13_10_12_1103_26_030	1	1.30	0.463	1.30	0.0660	0.344	0.0710	0.98	0.50	0.366	0.122	0.686	0.342
10/12/2013 11:04	0913-111_A	13_10_12_1104_26_770	1	0.931	0.446	1.22	0.0620	0.294	0.0700	0.98	0.50	0.379	0.108	0.686	0.325
10/12/2013 11:05	0913-111_A	13_10_12_1105_27_570	1	0.931	0.465	1.12	0.0620	0.389	0.0720	0.98	0.49	0.236	0.106	0.686	0.339
10/12/2013 11:06	0913-111_A	13_10_12_1106_28_341	1	0.931	0.446	1.22	0.0590	0.462	0.0700	0.98	0.48	0.450	0.103	0.686	0.330
10/12/2013 11:07	0913-111_A	13_10_12_1107_29_041	1	0.931	0.472	1.12	0.0620	0.392	0.0680	0.98	0.48	0.303	0.105	0.686	0.346
10/12/2013 11:08	0913-111_A	13_10_12_1108_29_801	1	0.931	0.448	0.898	0.0620	0.301	0.0710	0.98	0.48	0.358	0.104	0.688	0.336
10/12/2013 11:09	0913-111_A	13_10_12_1109_30_621	1	0.931	0.471	0.967	0.0600	0.308	0.0700	0.98	0.47	0.312	0.104	0.686	0.347
10/12/2013 11:10	0913-111_A	13_10_12_1110_31_341	1	0.931	0.459	0.932	0.0630	0.244	0.0680	0.98	0.47	0.279	0.107	0.686	0.340
10/12/2013 11:11	0913-111_A	13_10_12_1111_32_141	1	0.931	0.435	0.898	0.0610	0.221	0.0690	0.98	0.48	0.432	0.100	0.686	0.322
10/12/2013 11:12	0913-111_A	13_10_12_1112_32_861	1	0.931	0.474	0.983	0.0630	0.233	0.0660	0.98	0.48	0.236	0.109	1.05	0.356
10/12/2013 11:13	0913-111_A	13_10_12_1113_33_621	1	1.02	0.449	0.936	0.0620	0.215	0.0700	0.98	0.49	0.236	0.104	0.686	0.335
10/12/2013 11:14	0913-111_A	13_10_12_1114_34_331	1	1.04	0.453	0.896	0.0600	0.296	0.0700	0.98	0.49	0.236	0.102	0.686	0.334
10/12/2013 11:15	0913-111_A	13_10_12_1115_35_091	1	1.85	0.471	0.977	0.0600	0.294	0.0690	0.98	0.48	0.238	0.107	0.685	0.350
10/12/2013 11:16	0913-111_A	13_10_12_1116_35_911	1	0.931	0.438	0.959	0.0580	0.228	0.0680	0.98	0.48	0.285	0.100	0.685	0.323
10/12/2013 11:17	0913-111_A	13_10_12_1117_36_621	1	1.45	0.441	1.02	0.0580	0.294	0.0690	0.98	0.48	0.236	0.102	0.688	0.324
10/12/2013 11:18	0913-111_A	13_10_12_1118_37_302	1	0.931	0.445	1.05	0.0620	0.267	0.0690	0.98	0.48	0.236	0.104	0.686	0.326
10/12/2013 11:19	0913-111_A	13_10_12_1119_38_102	1	1.11	0.435	1.02	0.0580	0.274	0.0700	0.98	0.48	0.238	0.103	0.686	0.326
10/12/2013 11:20	0913-111_A	13_10_12_1120_38_812	1	0.931	0.445	1.01	0.0630	0.352	0.0690	0.98	0.49	0.236	0.107	0.688	0.335
10/12/2013 11:21	0913-111_A	13_10_12_1121_39_572	1	0.931	0.464	1.19	0.0630	0.284	0.0710	0.98	0.49	0.272	0.105	0.685	0.339
10/12/2013 11:22	0913-111_A	13_10_12_1122_40_222	1	2.05	0.500	0.754	0.0840	0.334	0.0670	0.98	0.45	0.236	0.294	0.685	0.367
		Average Conc. (ppm):	1	1.02	**0.463**	1.25	0.0635	0.327	0.0723	0.98	0.50	**0.290**	0.119	0.695	0.341

Company ACT
Analyst Initials CJT
Parameters EPA Method 320
Samples 21 Runs

Client # 1911
Job # 0913-111
PO # 3134 1911
Report Date V0.62 13.10.18.12.58

Pellet Cooler 1 Run 3

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/12/2013 11:41	0913-111_A	13_10_12_1141_54_484	1	0.967	0.465	1.43	0.0640	0.316	0.0690	0.98	0.48	0.236	0.118	0.686	0.340
10/12/2013 11:42	0913-111_A	13_10_12_1142_55_194	1	0.931	0.471	1.18	0.0630	0.282	0.0710	0.98	0.48	0.236	0.114	0.905	0.345
10/12/2013 11:43	0913-111_A	13_10_12_1143_55_874	1	1.57	0.480	1.15	0.0600	0.327	0.0680	0.98	0.47	0.236	0.119	0.844	0.352
10/12/2013 11:44	0913-111_A	13_10_12_1144_56_674	1	1.69	0.446	1.19	0.0670	0.311	0.0700	0.98	0.48	0.236	0.120	0.686	0.329
10/12/2013 11:45	0913-111_A	13_10_12_1145_57_474	1	1.18	0.455	1.29	0.0630	0.402	0.0710	0.98	0.48	0.236	0.117	0.686	0.337
10/12/2013 11:46	0913-111_A	13_10_12_1146_58_174	1	1.31	0.467	1.15	0.0650	0.472	0.0720	0.98	0.48	0.236	0.119	0.686	0.348
10/12/2013 11:47	0913-111_A	13_10_12_1147_58_954	1	1.52	0.453	1.23	0.0630	0.368	0.0690	0.98	0.48	0.236	0.119	0.686	0.336
10/12/2013 11:48	0913-111_A	13_10_12_1148_59_614	1	1.10	0.447	1.38	0.0650	0.333	0.0710	0.98	0.48	0.236	0.118	0.686	0.333
10/12/2013 11:50	0913-111_A	13_10_12_1150_00_524	1	1.41	0.478	1.43	0.0620	0.400	0.0690	0.98	0.48	0.236	0.121	1.13	0.351
10/12/2013 11:51	0913-111_A	13_10_12_1151_01_374	1	1.64	0.467	1.33	0.0670	0.385	0.0670	0.98	0.48	0.236	0.118	0.686	0.347
10/12/2013 11:52	0913-111_A	13_10_12_1152_02_144	1	1.21	0.468	1.35	0.0650	0.361	0.0680	0.98	0.48	0.236	0.119	0.686	0.344
10/12/2013 11:53	0913-111_A	13_10_12_1153_02_904	1	1.13	0.475	1.40	0.0680	0.294	0.0700	0.98	0.48	0.236	0.127	0.686	0.353
10/12/2013 11:54	0913-111_A	13_10_12_1154_03_615	1	1.22	0.476	1.53	0.0680	0.449	0.0710	0.98	0.49	0.236	0.129	0.978	0.348
10/12/2013 11:55	0913-111_A	13_10_12_1155_04_415	1	1.43	0.472	1.51	0.0690	0.366	0.0730	0.98	0.48	0.236	0.126	0.686	0.341
10/12/2013 11:56	0913-111_A	13_10_12_1156_05_115	1	1.14	0.462	1.36	0.0670	0.419	0.0700	0.98	0.48	0.236	0.122	0.686	0.345
10/12/2013 11:57	0913-111_A	13_10_12_1157_05_925	1	0.932	0.444	1.41	0.0650	0.344	0.0700	0.98	0.48	0.236	0.119	0.686	0.330
10/12/2013 11:58	0913-111_A	13_10_12_1158_06_635	1	1.06	0.481	1.36	0.0620	0.274	0.0680	0.98	0.48	0.236	0.123	0.898	0.351
10/12/2013 11:59	0913-111_A	13_10_12_1159_07_345	1	0.931	0.461	1.32	0.0650	0.336	0.0690	0.98	0.48	0.236	0.126	0.857	0.343
10/12/2013 12:00	0913-111_A	13_10_12_1200_08_135	1	2.15	0.484	1.38	0.0680	0.316	0.0680	0.98	0.48	0.236	0.124	0.686	0.358
10/12/2013 12:01	0913-111_A	13_10_12_1201_08_905	1	1.29	0.452	1.45	0.0640	0.327	0.0730	0.98	0.48	0.236	0.118	0.686	0.335
10/12/2013 12:02	0913-111_A	13_10_12_1202_09_825	1	1.70	0.444	1.33	0.0660	0.304	0.0690	0.98	0.48	0.236	0.117	0.686	0.327
10/12/2013 12:03	0913-111_A	13_10_12_1203_10_385	1	1.24	0.434	1.22	0.0600	0.353	0.0680	0.98	0.48	0.236	0.114	0.686	0.323
10/12/2013 12:04	0913-111_A	13_10_12_1204_11_135	1	0.931	0.458	1.37	0.0650	0.304	0.0700	0.98	0.48	0.236	0.117	0.709	0.335
10/12/2013 12:05	0913-111_A	13_10_12_1205_11_785	1	2.02	0.471	1.33	0.0650	0.375	0.0710	0.98	0.48	0.236	0.123	1.10	0.345
10/12/2013 12:06	0913-111_A	13_10_12_1206_12_506	1	1.21	0.436	1.30	0.0620	0.389	0.0690	0.98	0.48	0.236	0.114	0.686	0.321
10/12/2013 12:07	0913-111_A	13_10_12_1207_13_246	1	0.931	0.485	1.44	0.0650	0.389	0.0680	0.98	0.48	0.236	0.118	0.686	0.354
10/12/2013 12:08	0913-111_A	13_10_12_1208_13_996	1	0.969	0.470	1.26	0.0680	0.316	0.0680	0.98	0.48	0.236	0.118	0.686	0.343
10/12/2013 12:09	0913-111_A	13_10_12_1209_14_766	1	1.21	0.447	1.21	0.0570	0.308	0.0680	0.98	0.48	0.236	0.114	0.780	0.331
10/12/2013 12:10	0913-111_A	13_10_12_1210_15_476	1	2.17	0.465	1.12	0.0630	0.315	0.0690	0.98	0.47	0.236	0.116	0.686	0.353
10/12/2013 12:11	0913-111_A	13_10_12_1211_16_216	1	1.08	0.471	1.15	0.0660	0.340	0.0670	0.98	0.47	0.236	0.115	0.686	0.350
10/12/2013 12:12	0913-111_A	13_10_12_1212_16_976	1	0.931	0.437	1.05	0.0620	0.356	0.0700	0.98	0.47	0.236	0.110	0.882	0.317
10/12/2013 12:13	0913-111_A	13_10_12_1213_17_736	1	0.931	0.447	1.12	0.0680	0.289	0.0670	0.98	0.47	0.236	0.118	0.874	0.331
10/12/2013 12:14	0913-111_A	13_10_12_1214_18_466	1	2.48	0.475	1.17	0.0660	0.253	0.0690	0.98	0.47	0.236	0.117	0.886	0.357
10/12/2013 12:15	0913-111_A	13_10_12_1215_19_276	1	1.74	0.455	1.13	0.0650	0.351	0.0670	0.98	0.47	0.236	0.116	0.686	0.334
10/12/2013 12:16	0913-111_A	13_10_12_1216_19_986	1	1.72	0.479	1.21	0.0700	0.294	0.0670	0.98	0.47	0.236	0.119	0.686	0.354
10/12/2013 12:17	0913-111_A	13_10_12_1217_20_746	1	1.29	0.488	1.19	0.0650	0.286	0.0700	0.98	0.47	0.236	0.118	1.06	0.349
10/12/2013 12:18	0913-111_A	13_10_12_1218_21_457	1	0.931	0.483	1.29	0.0630	0.375	0.0700	0.98	0.48	0.236	0.117	1.01	0.351
10/12/2013 12:19	0913-111_A	13_10_12_1219_22_227	1	1.31	0.491	1.24	0.0630	0.368	0.0670	0.98	0.47	0.236	0.116	0.686	0.363
10/12/2013 12:20	0913-111_A	13_10_12_1220_23_037	1	1.56	0.461	1.21	0.0650	0.408	0.0690	0.98	0.47	0.236	0.116	0.753	0.342
10/12/2013 12:21	0913-111_A	13_10_12_1221_23_767	1	0.931	0.478	1.32	0.0620	0.342	0.0670	0.98	0.47	0.236	0.114	0.775	0.350
10/12/2013 12:22	0913-111_A	13_10_12_1222_24_527	1	1.59	0.481	1.24	0.0680	0.333	0.0690	0.98	0.47	0.236	0.120	0.686	0.366
10/12/2013 12:23	0913-111_A	13_10_12_1223_25_227	1	0.931	0.477	1.07	0.0650	0.349	0.0650	0.98	0.47	0.236	0.119	0.743	0.346
10/12/2013 12:24	0913-111_A	13_10_12_1224_25_967	1	1.50	0.487	1.21	0.0630	0.453	0.0670	0.98	0.47	0.236	0.117	0.734	0.355
10/12/2013 12:25	0913-111_A	13_10_12_1225_26_797	1	1.09	0.456	1.35	0.0630	0.363	0.0690	0.98	0.47	0.236	0.116	0.686	0.341
10/12/2013 12:26	0913-111_A	13_10_12_1226_27_507	1	1.14	0.478	1.23	0.0680	0.390	0.0690	0.98	0.47	0.236	0.119	0.686	0.355
10/12/2013 12:27	0913-111_A	13_10_12_1227_28_287	1	1.80	0.477	1.11	0.0640	0.418	0.0680	0.98	0.47	0.236	0.116	0.759	0.350
10/12/2013 12:28	0913-111_A	13_10_12_1228_29_047	1	1.83	0.475	1.18	0.0650	0.456	0.0680	0.98	0.47	0.236	0.118	0.686	0.348
10/12/2013 12:29	0913-111_A	13_10_12_1229_29_787	1	1.30	0.474	1.30	0.0660	0.411	0.0690	0.98	0.47	0.236	0.115	0.790	0.350
10/12/2013 12:30	0913-111_A	13_10_12_1230_30_478	1	1.42	0.468	1.22	0.0640	0.308	0.0700	0.98	0.47	0.236	0.113	0.686	0.344
10/12/2013 12:31	0913-111_A	13_10_12_1231_31_268	1	1.20	0.471	1.20	0.0690	0.362	0.0680	0.98	0.47	0.236	0.119	0.765	0.355
10/12/2013 12:32	0913-111_A	13_10_12_1232_31_988	1	1.31	0.464	1.17	0.0620	0.328	0.0680	0.98	0.47	0.236	0.115	0.718	0.348
10/12/2013 12:33	0913-111_A	13_10_12_1233_32_748	1	1.21	0.464	1.26	0.0600	0.339	0.0680	0.98	0.47	0.236	0.113	0.686	0.336
10/12/2013 12:34	0913-111_A	13_10_12_1234_33_488	1	1.11	0.468	1.22	0.0670	0.327	0.0670	0.98	0.47	0.236	0.118	0.686	0.344
10/12/2013 12:35	0913-111_A	13_10_12_1235_34_248	1	1.26	0.462	1.22	0.0630	0.414	0.0700	0.98	0.47	0.236	0.117	1.07	0.344
10/12/2013 12:36	0913-111_A	13_10_12_1236_35_008	1	1.59	0.482	1.28	0.0650	0.370	0.0700	0.98	0.47	0.236	0.116	0.777	0.351
10/12/2013 12:38	0913-111_A	13_10_12_1238_49_630	1	2.01	0.489	1.29	0.0650	0.306	0.0680	0.98	0.47	0.236	0.118	0.686	0.366
10/12/2013 12:39	0913-111_A	13_10_12_1239_50_430	1	2.18	0.465	1.10	0.0620	0.347	0.0700	0.98	0.47	0.236	0.111	0.686	0.346
10/12/2013 12:40	0913-111_A	13_10_12_1240_51_220	1	0.931	0.461	1.18	0.0630	0.289	0.0680	0.98	0.47	0.236	0.116	0.686	0.345
10/12/2013 12:41	0913-111_A	13_10_12_1241_51_930	1	1.45	0.482	1.03	0.0670	0.350	0.0740	0.98	0.47	0.236	0.118	0.832	0.351
		Average Conc. (ppm):	**1**	**1.35**	**0.467**	**1.26**	**0.0647**	**0.351**	**0.0690**	**0.98**	**0.48**	**0.236**	**0.118**	**0.759**	**0.345**

Aspirator Run 1

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/12/2013 15:09	0913-111_A	13_10_12_1509_17_838	1	1.75	0.783	1.05	0.504	8.72	0.236	2.73	0.98	3.00	1.44	4.85	0.583
10/12/2013 15:10	0913-111_A	13_10_12_1510_18_588	1	3.53	0.815	1.05	0.498	8.61	0.233	2.73	1.02	3.00	1.43	4.37	0.609
10/12/2013 15:11	0913-111_A	13_10_12_1511_19_288	1	3.17	0.777	1.05	0.507	8.83	0.235	2.73	1.02	3.00	1.47	4.74	0.581
10/12/2013 15:12	0913-111_A	13_10_12_1512_20_018	1	2.85	0.824	1.05	0.519	8.96	0.241	2.73	0.92	3.00	1.48	4.79	0.609
10/12/2013 15:13	0913-111_A	13_10_12_1513_20_769	1	3.73	0.811	1.05	0.562	9.42	0.240	2.73	0.97	3.00	1.52	4.84	0.609
10/12/2013 15:14	0913-111_A	13_10_12_1514_21_519	1	2.74	0.788	1.05	0.506	8.85	0.233	2.73	1.40	3.00	1.44	4.72	0.586
10/12/2013 15:15	0913-111_A	13_10_12_1515_22_329	1	2.86	0.817	1.05	0.508	9.17	0.281	2.73	1.55	3.00	1.45	4.22	0.606
10/12/2013 15:16	0913-111_A	13_10_12_1516_23_039	1	2.62	0.798	1.05	0.521	8.77	0.240	2.73	1.27	3.00	1.50	5.55	0.591
10/12/2013 15:17	0913-111_A	13_10_12_1517_23_749	1	3.69	0.802	1.05	0.538	9.19	0.242	2.73	1.04	3.00	1.53	4.67	0.596
10/12/2013 15:18	0913-111_A	13_10_12_1518_24_559	1	2.90	0.786	1.05	0.522	9.23	0.238	2.73	1.05	3.00	1.49	4.49	0.581
10/12/2013 15:19	0913-111_A	13_10_12_1519_25_319	1	3.66	0.789	1.05	0.488	9.06	0.227	2.73	1.10	3.00	1.41	4.58	0.595
10/12/2013 15:20	0913-111_A	13_10_12_1520_26_049	1	3.21	0.773	1.05	0.463	8.93	0.222	2.73	1.09	3.00	1.35	4.70	0.585
10/12/2013 15:21	0913-111_A	13_10_12_1521_26_789	1	3.36	0.745	1.05	0.449	8.75	0.217	2.73	1.28	3.00	1.30	4.12	0.557
10/12/2013 15:22	0913-111_A	13_10_12_1522_27_509	1	3.72	0.762	1.05	0.452	9.10	0.269	2.73	1.46	3.00	1.29	4.22	0.562
10/12/2013 15:23	0913-111_A	13_10_12_1523_28_219	1	3.12	0.756	1.05	0.462	8.67	0.221	2.73	1.18	3.00	1.35	4.69	0.567
10/12/2013 15:24	0913-111_A	13_10_12_1524_29_019	1	2.45	0.757	1.05	0.496	8.84	0.230	2.73	0.99	3.00	1.43	4.48	0.566
10/12/2013 15:25	0913-111_A	13_10_12_1525_29_730	1	2.45	0.789	1.05	0.549	8.75	0.232	2.73	0.98	3.00	1.48	4.66	0.601
10/12/2013 15:26	0913-111_A	13_10_12_1526_30_540	1	3.63	0.795	1.05	0.530	8.61	0.239	2.73	1.04	3.00	1.51	4.31	0.595
10/12/2013 15:27	0913-111_A	13_10_12_1527_31_190	1	2.84	0.844	1.05	0.585	8.51	0.245	2.73	1.22	3.00	1.57	4.56	0.630
10/12/2013 15:28	0913-111_A	13_10_12_1528_31_790	1	2.54	0.833	1.05	0.547	8.83	0.299	2.73	1.45	3.00	1.55	5.10	0.620
10/12/2013 15:29	0913-111_A	13_10_12_1529_32_530	1	2.83	0.832	1.05	0.538	8.28	0.249	2.73	1.43	3.00	1.54	5.32	0.624
10/12/2013 15:30	0913-111_A	13_10_12_1530_33_320	1	2.84	0.799	1.05	0.532	8.31	0.245	2.73	1.29	3.00	1.51	4.02	0.597
10/12/2013 15:31	0913-111_A	13_10_12_1531_34_020	1	2.83	0.820	1.05	0.529	8.39	0.240	2.73	1.07	3.00	1.52	5.37	0.609
10/12/2013 15:32	0913-111_A	13_10_12_1532_34_800	1	3.74	0.757	1.05	0.498	8.69	0.283	2.73	1.72	3.00	1.44	3.51	0.568
10/12/2013 15:33	0913-111_A	13_10_12_1533_35_520	1	2.49	0.813	1.05	0.527	8.41	0.239	2.73	1.28	3.00	1.50	4.23	0.600
10/12/2013 15:34	0913-111_A	13_10_12_1534_36_260	1	3.14	0.823	1.05	0.536	8.41	0.246	2.73	1.15	3.00	1.52	3.93	0.617
10/12/2013 15:35	0913-111_A	13_10_12_1535_37_060	1	2.87	0.843	1.05	0.531	8.11	0.258	2.73	1.07	3.00	1.52	5.27	0.625
10/12/2013 15:36	0913-111_A	13_10_12_1536_37_770	1	2.73	0.781	1.05	0.544	8.04	0.245	2.73	0.99	3.00	1.55	4.90	0.586
10/12/2013 15:37	0913-111_A	13_10_12_1537_38_531	1	2.93	0.849	1.05	0.553	7.99	0.243	2.73	1.03	3.00	1.56	4.90	0.625
10/12/2013 15:38	0913-111_A	13_10_12_1538_39_241	1	2.77	0.856	1.05	0.555	7.67	0.241	2.73	1.08	3.00	1.58	5.25	0.638
10/12/2013 15:39	0913-111_A	13_10_12_1539_40_051	1	3.46	0.820	1.05	0.566	7.51	0.249	2.73	1.15	3.00	1.61	4.11	0.612
10/12/2013 15:40	0913-111_A	13_10_12_1540_40_771	1	3.22	0.862	1.05	0.577	7.47	0.249	2.73	1.11	3.00	1.61	4.01	0.636
10/12/2013 15:41	0913-111_A	13_10_12_1541_41_511	1	3.40	0.843	1.05	0.563	7.44	0.247	2.73	1.10	3.00	1.59	4.84	0.626
10/12/2013 15:42	0913-111_A	13_10_12_1542_42_221	1	2.86	0.814	1.05	0.546	7.39	0.240	2.73	1.09	3.00	1.53	4.43	0.601
10/12/2013 15:43	0913-111_A	13_10_12_1543_42_981	1	3.85	0.806	1.05	0.528	7.64	0.234	2.73	1.09	3.00	1.49	4.65	0.597
10/12/2013 15:44	0913-111_A	13_10_12_1544_43_741	1	3.44	0.795	1.05	0.503	7.73	0.229	2.73	1.05	3.00	1.45	4.43	0.592
10/12/2013 15:45	0913-111_A	13_10_12_1545_44_461	1	3.00	0.785	1.05	0.498	7.69	0.225	2.73	1.04	3.00	1.41	4.45	0.587
10/12/2013 15:46	0913-111_A	13_10_12_1546_45_221	1	3.09	0.794	1.05	0.497	7.68	0.227	2.73	1.11	3.00	1.42	4.72	0.589
10/12/2013 15:47	0913-111_A	13_10_12_1547_46_021	1	3.81	0.781	1.05	0.514	7.86	0.233	2.73	1.08	3.00	1.45	4.87	0.582
10/12/2013 15:48	0913-111_A	13_10_12_1548_46_832	1	3.12	0.792	1.05	0.525	8.12	0.233	2.73	1.14	3.00	1.48	5.26	0.589
10/12/2013 15:49	0913-111_A	13_10_12_1549_47_532	1	3.19	0.788	1.05	0.518	8.04	0.235	2.73	1.18	3.00	1.49	4.94	0.573
10/12/2013 15:50	0913-111_A	13_10_12_1550_48_302	1	2.79	0.831	1.05	0.536	8.19	0.237	2.73	1.10	3.00	1.51	4.33	0.619
10/12/2013 15:51	0913-111_A	13_10_12_1551_49_122	1	4.22	0.826	1.05	0.551	8.24	0.242	2.73	1.01	3.00	1.54	4.28	0.615
10/12/2013 15:52	0913-111_A	13_10_12_1552_49_832	1	3.23	0.827	1.05	0.564	8.36	0.248	2.73	1.06	3.00	1.59	4.73	0.617
10/12/2013 15:53	0913-111_A	13_10_12_1553_50_542	1	4.27	0.854	1.05	0.547	8.44	0.244	2.73	1.04	3.00	1.56	5.21	0.632
10/12/2013 15:54	0913-111_A	13_10_12_1554_51_302	1	2.66	0.800	1.05	0.502	8.64	0.273	2.73	1.85	3.00	1.41	3.86	0.598
10/12/2013 15:55	0913-111_A	13_10_12_1555_52_112	1	3.21	0.783	1.05	0.500	8.03	0.228	2.73	1.26	3.00	1.44	5.38	0.585
10/12/2013 15:56	0913-111_A	13_10_12_1556_52_822	1	3.17	0.763	1.05	0.509	8.56	0.283	2.73	1.07	3.00	1.46	4.75	0.570
10/12/2013 15:57	0913-111_A	13_10_12_1557_53_582	1	4.21	0.810	1.05	0.523	8.86	0.280	2.73	0.96	3.00	1.50	4.97	0.601
10/12/2013 15:58	0913-111_A	13_10_12_1558_54_322	1	2.85	0.815	1.05	0.521	8.33	0.226	2.73	0.96	3.00	1.49	4.55	0.608
10/12/2013 15:59	0913-111_A	13_10_12_1559_55_122	1	3.55	0.834	1.05	0.535	8.35	0.236	2.73	1.06	3.00	1.53	4.39	0.615
10/12/2013 16:00	0913-111_A	13_10_12_1600_55_823	1	3.58	0.805	1.05	0.543	8.32	0.237	2.73	1.12	3.00	1.55	5.15	0.598
10/12/2013 16:01	0913-111_A	13_10_12_1601_56_563	1	3.70	0.877	1.05	0.561	8.16	0.245	2.73	1.15	3.00	1.61	4.71	0.652
10/12/2013 16:02	0913-111_A	13_10_12_1602_57_263	1	2.63	0.862	1.05	0.574	8.06	0.246	2.73	1.15	3.00	1.61	5.23	0.635
10/12/2013 16:03	0913-111_A	13_10_12_1603_58_063	1	3.08	0.847	1.05	0.580	7.91	0.251	2.73	1.19	3.00	1.63	5.25	0.624
10/12/2013 16:04	0913-111_A	13_10_12_1604_58_833	1	3.42	0.859	1.05	0.589	7.82	0.254	2.73	1.16	3.00	1.68	5.46	0.632
10/12/2013 16:05	0913-111_A	13_10_12_1605_59_533	1	2.99	0.893	1.05	0.612	7.84	0.261	2.73	1.19	3.00	1.72	4.70	0.664
10/12/2013 16:07	0913-111_A	13_10_12_1607_00_283	1	2.81	0.931	1.05	0.622	7.76	0.267	2.73	1.20	3.00	1.76	5.40	0.690
10/12/2013 16:08	0913-111_A	13_10_12_1608_01_083	1	3.12	0.917	1.05	0.638	7.83	0.271	2.73	1.23	3.00	1.77	5.31	0.683
10/12/2013 16:09	0913-111_A	13_10_12_1609_01_833	1	3.76	1.60	1.05	0.683	5.49	0.209	2.73	0.97	3.00	2.55	1.27	1.23
		Average Conc. (ppm):	**1**	**3.16**	**0.827**	**1.05**	**0.535**	**8.30**	**0.244**	**2.73**	**1.15**	**3.00**	**1.53**	**4.65**	**0.618**

Company ACT
Analyst Initials CJT
Parameters EPA Method 320
Samples 21 Runs

Client # 1911
Job # 0913-111
PO # 3134 1911
Report Date V0.62 13.10.18.12.58

Aspirator Run 2

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/12/2013 16:36	0913-111_A	13_10_12_1636_22_016	1	2.99	0.831	1.26	0.505	8.21	0.237	2.73	1.31	3.00	1.47	4.99	0.621
10/12/2013 16:37	0913-111_A	13_10_12_1637_22_786	1	3.74	0.820	1.54	0.511	8.34	0.282	2.73	1.64	3.00	1.45	4.01	0.614
10/12/2013 16:38	0913-111_A	13_10_12_1638_23_596	1	2.83	0.843	1.44	0.553	8.87	0.299	2.73	1.43	3.00	1.56	4.72	0.630
10/12/2013 16:39	0913-111_A	13_10_12_1639_24_356	1	3.46	0.860	1.49	0.557	8.84	0.303	2.73	1.50	3.00	1.57	4.59	0.635
10/12/2013 16:40	0913-111_A	13_10_12_1640_25_056	1	3.59	0.838	1.41	0.559	8.50	0.256	2.73	1.31	3.00	1.60	5.02	0.617
10/12/2013 16:41	0913-111_A	13_10_12_1641_25_866	1	3.44	0.843	1.29	0.538	8.45	0.250	2.73	1.31	3.00	1.55	5.06	0.632
10/12/2013 16:42	0913-111_A	13_10_12_1642_26_526	1	2.96	0.785	1.36	0.502	8.81	0.287	2.73	1.36	3.00	1.44	4.99	0.587
10/12/2013 16:43	0913-111_A	13_10_12_1643_27_336	1	2.73	0.797	1.45	0.494	8.65	0.270	2.73	1.81	3.00	1.38	4.46	0.597
10/12/2013 16:44	0913-111_A	13_10_12_1644_28_086	1	3.31	0.817	1.50	0.478	8.56	0.271	2.73	1.78	3.00	1.38	3.99	0.612
10/12/2013 16:45	0913-111_A	13_10_12_1645_28_826	1	2.82	0.785	1.69	0.489	8.67	0.272	2.73	1.69	3.00	1.35	4.60	0.582
10/12/2013 16:46	0913-111_A	13_10_12_1646_29_536	1	2.91	0.795	1.55	0.479	8.99	0.292	2.73	1.60	3.00	1.37	4.65	0.587
10/12/2013 16:47	0913-111_A	13_10_12_1647_30_356	1	3.94	0.795	1.64	0.471	8.91	0.265	2.73	1.54	3.00	1.34	4.90	0.595
10/12/2013 16:48	0913-111_A	13_10_12_1648_31_017	1	4.04	0.764	1.47	0.467	8.86	0.267	2.73	1.48	3.00	1.33	4.72	0.589
10/12/2013 16:49	0913-111_A	13_10_12_1649_31_837	1	2.86	0.770	1.43	0.465	8.94	0.262	2.73	1.47	3.00	1.30	3.44	0.587
10/12/2013 16:50	0913-111_A	13_10_12_1650_32_607	1	3.01	0.803	1.46	0.466	9.04	0.262	2.73	1.55	3.00	1.33	3.86	0.594
10/12/2013 16:51	0913-111_A	13_10_12_1651_33_377	1	2.63	0.792	1.61	0.458	8.96	0.250	2.73	2.12	3.00	1.31	3.90	0.591
10/12/2013 16:52	0913-111_A	13_10_12_1652_33_977	1	3.25	0.810	1.63	0.462	9.03	0.254	2.73	1.83	3.00	1.33	3.87	0.598
10/12/2013 16:53	0913-111_A	13_10_12_1653_34_767	1	3.79	0.798	1.59	0.468	9.20	0.266	2.73	1.83	3.00	1.33	4.16	0.591
10/12/2013 16:54	0913-111_A	13_10_12_1654_35_477	1	3.78	0.797	1.52	0.481	9.20	0.263	2.73	1.92	3.00	1.35	3.91	0.594
10/12/2013 16:55	0913-111_A	13_10_12_1655_36_207	1	3.31	0.775	1.87	0.458	8.96	0.254	2.73	1.82	3.00	1.30	3.30	0.577
10/12/2013 16:56	0913-111_A	13_10_12_1656_36_947	1	3.44	0.780	1.50	0.458	9.07	0.256	2.73	1.64	3.00	1.28	3.96	0.582
10/12/2013 16:57	0913-111_A	13_10_12_1657_37_757	1	3.00	0.766	1.39	0.447	9.14	0.261	2.73	1.42	3.00	1.28	4.10	0.571
10/12/2013 16:58	0913-111_A	13_10_12_1658_38_477	1	4.04	0.786	1.32	0.450	9.13	0.261	2.73	1.35	3.00	1.28	3.88	0.585
10/12/2013 16:59	0913-111_A	13_10_12_1659_39_217	1	3.22	0.792	1.32	0.441	9.08	0.270	2.73	1.28	3.00	1.28	4.55	0.595
10/12/2013 17:00	0913-111_A	13_10_12_1700_40_018	1	2.87	0.787	1.37	0.448	8.89	0.215	2.73	1.27	3.00	1.32	4.41	0.579
10/12/2013 17:01	0913-111_A	13_10_12_1701_40_728	1	3.25	0.831	1.47	0.451	9.34	0.259	2.73	1.49	3.00	1.29	4.13	0.614
10/12/2013 17:02	0913-111_A	13_10_12_1702_41_438	1	3.27	0.779	1.65	0.451	9.18	0.252	2.73	1.67	3.00	1.28	3.90	0.578
10/12/2013 17:03	0913-111_A	13_10_12_1703_42_208	1	3.09	0.814	1.71	0.459	9.05	0.257	2.73	1.69	3.00	1.31	3.50	0.602
10/12/2013 17:04	0913-111_A	13_10_12_1704_42_928	1	3.58	0.811	1.46	0.464	8.45	0.221	2.73	1.33	3.00	1.36	4.19	0.607
10/12/2013 17:05	0913-111_A	13_10_12_1705_43_758	1	2.79	0.817	1.54	0.471	9.13	0.268	2.73	1.37	3.00	1.35	3.67	0.606
10/12/2013 17:06	0913-111_A	13_10_12_1706_44_458	1	3.01	0.782	1.63	0.477	9.01	0.289	2.73	1.41	3.00	1.38	4.20	0.589
10/12/2013 17:07	0913-111_A	13_10_12_1707_45_208	1	3.91	0.800	1.57	0.489	8.57	0.230	2.73	1.46	3.00	1.40	4.28	0.595
10/12/2013 17:08	0913-111_A	13_10_12_1708_46_018	1	3.00	0.803	1.52	0.481	8.99	0.265	2.73	1.48	3.00	1.36	4.01	0.604
10/12/2013 17:09	0913-111_A	13_10_12_1709_46_738	1	2.61	0.787	1.66	0.481	9.09	0.257	2.73	1.73	3.00	1.33	4.40	0.586
10/12/2013 17:10	0913-111_A	13_10_12_1710_47_548	1	2.65	0.813	1.97	0.442	8.88	0.247	2.73	1.99	3.00	1.26	3.63	0.599
10/12/2013 17:11	0913-111_A	13_10_12_1711_48_248	1	3.22	0.776	1.67	0.441	9.04	0.255	2.73	1.67	3.00	1.27	3.31	0.580
10/12/2013 17:12	0913-111_A	13_10_12_1712_48_989	1	3.03	0.828	1.75	0.447	9.29	0.263	2.73	1.58	3.00	1.29	3.28	0.612
10/12/2013 17:13	0913-111_A	13_10_12_1713_49_799	1	3.28	0.802	1.76	0.456	9.21	0.259	2.73	1.50	3.00	1.30	3.77	0.597
10/12/2013 17:14	0913-111_A	13_10_12_1714_50_539	1	3.39	0.772	1.72	0.450	8.84	0.262	2.73	1.46	3.00	1.31	3.84	0.576
10/12/2013 17:15	0913-111_A	13_10_12_1715_51_279	1	2.99	0.794	1.68	0.464	8.99	0.265	2.73	1.47	3.00	1.33	4.39	0.587
10/12/2013 17:16	0913-111_A	13_10_12_1716_51_989	1	3.88	0.820	1.52	0.472	8.83	0.267	2.73	1.44	3.00	1.34	4.59	0.605
10/12/2013 17:17	0913-111_A	13_10_12_1717_52_749	1	2.71	0.839	1.78	0.490	8.84	0.270	2.73	1.59	3.00	1.38	3.46	0.621
10/12/2013 17:18	0913-111_A	13_10_12_1718_53_549	1	3.25	0.828	1.78	0.481	8.89	0.247	2.73	2.10	3.00	1.37	3.25	0.617
10/12/2013 17:19	0913-111_A	13_10_12_1719_54_259	1	2.16	0.804	2.06	0.455	8.72	0.240	2.73	2.41	3.00	1.28	3.28	0.604
10/12/2013 17:20	0913-111_A	13_10_12_1720_55_079	1	2.67	0.829	2.03	0.454	9.09	0.255	2.73	1.99	3.00	1.29	3.07	0.620
10/12/2013 17:21	0913-111_A	13_10_12_1721_55_909	1	2.49	0.800	1.80	0.427	9.19	0.257	2.73	1.60	3.00	1.23	3.85	0.594
10/12/2013 17:22	0913-111_A	13_10_12_1722_56_659	1	2.88	0.787	1.57	0.433	9.28	0.258	2.73	1.45	3.00	1.26	3.74	0.582
10/12/2013 17:23	0913-111_A	13_10_12_1723_57_480	1	2.15	0.763	1.68	0.417	9.16	0.251	2.73	1.38	3.00	1.21	3.44	0.567
10/12/2013 17.24	0913-111_A	13_10_12_1724_58_220	1	3.23	0.784	1.53	0.445	9.46	0.257	2.73	1.41	3.00	1.27	3.15	0.583
10/12/2013 17:25	0913-111_A	13_10_12_1725_58_940	1	2.76	0.795	1.71	0.444	9.36	0.251	2.73	1.54	3.00	1.27	3.72	0.587
10/12/2013 17:26	0913-111_A	13_10_12_1726_59_780	1	3.25	0.778	1.79	0.428	8.94	0.236	2.73	1.92	3.00	1.24	3.22	0.578
10/12/2013 17:28	0913-111_A	13_10_12_1728_00_500	1	2.96	0.759	2.03	0.414	8.98	0.225	2.73	2.41	3.00	1.18	2.94	0.570
10/12/2013 17:29	0913-111_A	13_10_12_1729_01_300	1	3.24	0.822	1.64	0.434	9.08	0.244	2.73	1.81	3.00	1.24	3.30	0.612
10/12/2013 17:30	0913-111_A	13_10_12_1730_02_020	1	1.92	0.796	1.45	0.447	9.16	0.257	2.73	1.30	3.00	1.30	3.78	0.592
10/12/2013 17:31	0913-111_A	13_10_12_1731_02_780	1	2.36	0.812	1.29	0.455	8.71	0.213	2.73	1.29	3.00	1.33	4.28	0.597
10/12/2013 17:32	0913-111_A	13_10_12_1732_03_490	1	3.07	0.798	1.43	0.462	9.13	0.259	2.73	1.44	3.00	1.32	3.79	0.599
10/12/2013 17:33	0913-111_A	13_10_12_1733_04_310	1	3.74	0.798	1.49	0.459	8.96	0.256	2.73	1.42	3.00	1.32	3.98	0.590
10/12/2013 17:34	0913-111_A	13_10_12_1734_04_920	1	3.29	0.835	1.53	0.457	8.92	0.254	2.73	1.62	3.00	1.31	3.72	0.615
10/12/2013 17:35	0913-111_A	13_10_12_1735_05_660	1	2.95	0.815	1.88	0.448	8.75	0.232	2.73	2.24	3.00	1.25	2.63	0.606
10/12/2013 17:36	0913-111_A	13_10_12_1736_06_381	1	3.24	1.19	1.05	0.523	6.25	0.181	2.73	1.31	3.00	2.17	1.27	0.919
		Average Conc. (ppm):	1	3.12	0.808	1.58	0.467	8.90	0.256	2.73	1.60	3.00	1.35	3.92	0.602

Aspirator Run 3

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/12/2013 18:00	0913-111_A	13_10_12_1800_36_741	1	2.53	0.845	1.05	0.520	7.94	0.225	2.73	1.17	3.00	1.48	3.73	0.627
10/12/2013 18:01	0913-111_A	13_10_12_1801_37_551	1	2.85	0.859	1.05	0.504	8.15	0.224	2.73	1.03	3.00	1.45	3.52	0.631
10/12/2013 18:02	0913-111_A	13_10_12_1802_38_261	1	2.74	0.806	1.05	0.500	8.25	0.222	2.73	1.04	3.00	1.43	3.76	0.598
10/12/2013 18:03	0913-111_A	13_10_12_1803_39_032	1	2.31	0.839	1.05	0.516	8.47	0.221	2.73	1.11	3.00	1.46	3.64	0.618
10/12/2013 18:04	0913-111_A	13_10_12_1804_39_742	1	2.64	0.821	1.05	0.499	8.78	0.262	2.73	1.57	3.00	1.40	3.74	0.610
10/12/2013 18:05	0913-111_A	13_10_12_1805_40_552	1	2.05	0.846	1.21	0.471	8.30	0.236	2.73	2.36	3.00	1.34	2.88	0.629
10/12/2013 18:06	0913-111_A	13_10_12_1806_41_282	1	2.63	0.847	1.05	0.536	8.46	0.232	2.73	1.01	3.00	1.51	3.55	0.626
10/12/2013 18:07	0913-111_A	13_10_12_1807_42_072	1	3.16	0.853	1.05	0.552	8.43	0.238	2.73	0.90	3.00	1.55	4.14	0.630
10/12/2013 18:08	0913-111_A	13_10_12_1808_42_792	1	2.65	0.877	1.05	0.577	8.27	0.240	2.73	0.95	3.00	1.60	3.66	0.647
10/12/2013 18:09	0913-111_A	13_10_12_1809_43_542	1	2.55	0.909	1.05	0.546	8.16	0.273	2.73	1.65	3.00	1.54	3.27	0.675
10/12/2013 18:10	0913-111_A	13_10_12_1810_44_282	1	2.46	0.890	1.05	0.568	7.87	0.242	2.73	1.34	3.00	1.59	3.72	0.666
10/12/2013 18:11	0913-111_A	13_10_12_1811_45_102	1	1.70	0.903	1.05	0.549	8.25	0.281	2.73	1.42	3.00	1.53	3.76	0.668
10/12/2013 18:12	0913-111_A	13_10_12_1812_45_862	1	2.76	0.873	1.05	0.547	7.68	0.232	2.73	1.38	3.00	1.52	3.90	0.652
10/12/2013 18:13	0913-111_A	13_10_12_1813_46_572	1	2.04	0.862	1.05	0.553	7.83	0.236	2.73	1.26	3.00	1.56	3.27	0.644
10/12/2013 18:14	0913-111_A	13_10_12_1814_47_372	1	2.76	0.910	1.05	0.553	8.24	0.282	2.73	1.52	3.00	1.55	2.82	0.677
10/12/2013 18:15	0913-111_A	13_10_12_1815_48_083	1	1.70	0.868	1.44	0.552	7.88	0.255	2.73	2.54	3.00	1.54	3.04	0.649
10/12/2013 18:16	0913-111_A	13_10_12_1816_48_803	1	2.54	0.918	1.05	0.588	8.24	0.298	2.73	1.41	3.00	1.62	4.29	0.681
10/12/2013 18:17	0913-111_A	13_10_12_1817_49_463	1	1.70	0.944	1.05	0.620	7.87	0.258	2.73	1.13	3.00	1.74	4.18	0.696
10/12/2013 18:18	0913-111_A	13_10_12_1818_50_243	1	2.71	0.916	1.05	0.674	7.79	0.259	2.73	1.09	3.00	1.80	4.82	0.678
10/12/2013 18:19	0913-111_A	13_10_12_1819_51_043	1	1.85	0.962	1.05	0.693	7.90	0.272	2.73	1.05	3.00	1.85	4.30	0.712
10/12/2013 18:20	0913-111_A	13_10_12_1820_51_803	1	3.36	0.965	1.05	0.714	8.11	0.274	2.73	1.04	3.00	1.91	4.45	0.719
10/12/2013 18:21	0913-111_A	13_10_12_1821_52_513	1	2.27	1.00	1.05	0.711	8.07	0.273	2.73	1.12	3.00	1.89	3.76	0.743
10/12/2013 18:22	0913-111_A	13_10_12_1822_53_283	1	2.04	1.01	1.05	0.645	8.00	0.265	2.73	1.29	3.00	1.82	4.52	0.744
10/12/2013 18:23	0913-111_A	13_10_12_1823_54_043	1	2.09	0.916	1.05	0.608	7.83	0.256	2.73	1.27	3.00	1.72	4.06	0.688
10/12/2013 18:24	0913-111_A	13_10_12_1824_54_743	1	2.62	0.898	1.05	0.579	7.90	0.245	2.73	1.33	3.00	1.65	4.14	0.673
10/12/2013 18:25	0913-111_A	13_10_12_1825_55_553	1	2.00	0.926	1.05	0.578	7.79	0.243	2.73	1.31	3.00	1.62	4.33	0.691
10/12/2013 18:26	0913-111_A	13_10_12_1826_56_303	1	1.71	0.922	1.05	0.576	7.83	0.245	2.73	1.25	3.00	1.63	3.72	0.688
10/12/2013 18:27	0913-111_A	13_10_12_1827_57_024	1	1.83	0.913	1.05	0.573	7.82	0.243	2.73	1.26	3.00	1.60	3.01	0.677
10/12/2013 18:28	0913-111_A	13_10_12_1828_57_854	1	3.23	0.912	1.05	0.570	7.78	0.243	2.73	1.30	3.00	1.61	3.48	0.679
10/12/2013 18:29	0913-111_A	13_10_12_1829_58_594	1	1.70	0.919	1.05	0.570	7.77	0.246	2.73	1.25	3.00	1.61	3.76	0.681
10/12/2013 18:30	0913-111_A	13_10_12_1830_59_384	1	1.92	0.905	1.05	0.573	7.88	0.243	2.73	1.32	3.00	1.60	3.62	0.673
10/12/2013 18:32	0913-111_A	13_10_12_1832_00_094	1	2.07	0.945	1.05	0.583	8.01	0.251	2.73	1.32	3.00	1.63	3.59	0.694
10/12/2013 18:33	0913-111_A	13_10_12_1833_00_814	1	3.01	0.930	1.05	0.578	7.86	0.249	2.73	1.41	3.00	1.63	3.82	0.699
10/12/2013 18:34	0913-111_A	13_10_12_1834_01_604	1	2.05	0.953	1.05	0.597	7.89	0.255	2.73	1.39	3.00	1.66	3.22	0.708
10/12/2013 18:35	0913-111_A	13_10_12_1835_02_364	1	2.65	0.950	1.05	0.600	8.30	0.302	2.73	1.38	3.00	1.67	3.73	0.702
10/12/2013 18:36	0913-111_A	13_10_12_1836_03_104	1	1.70	0.956	1.05	0.601	8.38	0.301	2.73	1.45	3.00	1.68	4.20	0.710
10/12/2013 18:37	0913-111_A	13_10_12_1837_03_864	1	2.73	0.935	1.05	0.600	8.50	0.300	2.73	1.37	3.00	1.67	3.97	0.697
10/12/2013 18:38	0913-111_A	13_10_12_1838_04_584	1	2.71	0.921	1.05	0.569	8.55	0.292	2.73	1.35	3.00	1.59	3.54	0.687
10/12/2013 18:39	0913-111_A	13_10_12_1839_05_385	1	1.80	0.918	1.05	0.551	8.72	0.286	2.73	1.33	3.00	1.54	3.24	0.688
10/12/2013 18:40	0913-111_A	13_10_12_1840_06_145	1	2.24	0.887	1.05	0.554	8.13	0.250	2.73	1.37	3.00	1.58	3.52	0.666
10/12/2013 18:41	0913-111_A	13_10_12_1841_06_875	1	1.90	0.927	1.05	0.567	8.01	0.251	2.73	1.35	3.00	1.59	3.09	0.689
10/12/2013 18:42	0913-111_A	13_10_12_1842_07_605	1	2.22	0.909	1.05	0.550	8.29	0.286	2.73	1.37	3.00	1.53	3.87	0.674
10/12/2013 18:43	0913-111_A	13_10_12_1843_08_395	1	2.19	0.902	1.05	0.559	7.89	0.250	2.73	1.33	3.00	1.59	3.13	0.672
10/12/2013 18:44	0913-111_A	13_10_12_1844_09_185	1	1.77	0.920	1.05	0.557	7.75	0.250	2.73	1.36	3.00	1.58	3.91	0.683
10/12/2013 18:45	0913-111_A	13_10_12_1845_09_865	1	2.01	0.897	1.05	0.573	8.09	0.297	2.73	1.34	3.00	1.58	3.49	0.670
10/12/2013 18:46	0913-111_A	13_10_12_1846_10_665	1	1.70	0.942	1.05	0.584	7.95	0.299	2.73	1.36	3.00	1.60	3.33	0.695
10/12/2013 18:47	0913-111_A	13_10_12_1847_11_395	1	2.64	0.940	1.05	0.601	7.76	0.260	2.73	1.39	3.00	1.70	4.17	0.700
10/12/2013 18:48	0913-111_A	13_10_12_1848_12_195	1	2.89	0.949	1.05	0.611	8.32	0.314	2.73	1.40	3.00	1.73	3.15	0.707
10/12/2013 18:49	0913-111_A	13_10_12_1849_12_955	1	2.48	0.966	1.05	0.629	8.53	0.319	2.73	1.39	3.00	1.74	3.57	0.725
10/12/2013 18:50	0913-111_A	13_10_12_1850_13_715	1	2.23	1.01	1.05	0.628	8.78	0.317	2.73	1.52	3.00	1.75	4.47	0.742
10/12/2013 18:51	0913-111_A	13_10_12_1851_14_456	1	1.70	0.951	1.05	0.616	8.50	0.315	2.73	1.50	3.00	1.73	3.98	0.707
10/12/2013 18:52	0913-111_A	13_10_12_1852_15_206	1	2.31	0.977	1.05	0.623	8.60	0.317	2.73	1.52	3.00	1.76	3.89	0.729
10/12/2013 18:53	0913-111_A	13_10_12_1853_15_926	1	1.76	0.971	1.05	0.621	8.65	0.321	2.73	1.46	3.00	1.73	3.82	0.726
10/12/2013 18:54	0913-111_A	13_10_12_1854_16_746	1	2.71	0.993	1.05	0.618	8.11	0.273	2.73	1.37	3.00	1.75	3.74	0.738
10/12/2013 18:55	0913-111_A	13_10_12_1855_17_456	1	1.83	0.925	1.05	0.585	7.89	0.264	2.73	1.34	3.00	1.67	3.95	0.687
10/12/2013 18:56	0913-111_A	13_10_12_1856_18_246	1	1.70	0.915	1.05	0.558	7.68	0.250	2.73	1.32	3.00	1.56	3.37	0.688
10/12/2013 18:57	0913-111_A	13_10_12_1857_18_986	1	1.71	0.924	1.05	0.577	8.80	0.306	2.73	1.42	3.00	1.60	4.13	0.692
10/12/2013 18:58	0913-111_A	13_10_12_1858_19_736	1	1.73	0.941	1.05	0.599	8.83	0.263	2.73	1.25	3.00	1.69	4.85	0.697
10/12/2013 18:59	0913-111_A	13_10_12_1859_20_336	1	1.70	0.920	1.05	0.557	9.14	0.251	2.73	1.28	3.00	1.62	4.06	0.684
10/12/2013 19:00	0913-111_A	13_10_12_1900_21_086	1	1.70	0.864	1.05	0.537	8.41	0.240	2.73	1.32	3.00	1.53	3.51	0.649
		Average Conc. (ppm):	1	2.25	0.916	1.06	0.580	8.16	0.265	2.73	1.34	3.00	1.62	3.75	0.681

Company	ACT
Analyst Initials	CJT
Parameters	EPA Method 320
# Samples	21 Runs

Client #	1911
Job #	0913-111
PO #	3134 1911
Report Date	V0.62 13.10.18.12.58

Dryer 2 Run 1

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/13/2013 9:21	0913-111_A	13_10_13_0921_40_932	1	2.53	0.630	5.62	0.101	17.3	0.524	2.78	0.07	1.37	0.203	1.48	0.474
10/13/2013 9:22	0913-111_A	13_10_13_0922_41_672	1	1.61	0.616	6.08	0.103	18.4	0.551	2.78	0.08	1.70	0.199	0.985	0.455
10/13/2013 9:23	0913-111_A	13_10_13_0923_41_382	1	2.02	0.641	6.63	0.108	18.8	0.561	2.78	0.08	1.89	0.207	1.39	0.480
10/13/2013 9:24	0913-111_A	13_10_13_0924_42_103	1	1.25	0.634	6.81	0.106	18.9	0.556	2.78	0.07	1.88	0.213	1.17	0.472
10/13/2013 9:25	0913-111_A	13_10_13_0925_42_893	1	1.84	0.630	7.02	0.104	19.1	0.559	2.78	0.08	1.97	0.210	0.934	0.466
10/13/2013 9:26	0913-111_A	13_10_13_0926_43_653	1	2.09	0.648	7.27	0.109	19.3	0.565	2.78	0.07	2.02	0.216	1.24	0.486
10/13/2013 9:27	0913-111_A	13_10_13_0927_44_353	1	1.59	0.652	7.18	0.111	19.5	0.556	2.78	0.08	2.34	0.218	0.934	0.484
10/13/2013 9:28	0913-111_A	13_10_13_0928_45_093	1	1.92	0.648	7.07	0.108	19.8	0.550	2.78	0.08	2.23	0.214	0.934	0.485
10/13/2013 9:29	0913-111_A	13_10_13_0929_45_913	1	2.06	0.610	6.71	0.104	19.9	0.545	2.78	0.07	2.22	0.208	1.13	0.453
10/13/2013 9:30	0913-111_A	13_10_13_0930_46_663	1	1.25	0.620	6.81	0.108	20.0	0.544	2.78	0.08	2.28	0.210	0.934	0.461
10/13/2013 9:31	0913-111_A	13_10_13_0931_47_433	1	1.25	0.652	6.61	0.107	20.2	0.542	2.78	0.08	2.27	0.213	0.934	0.486
10/13/2013 9:32	0913-111_A	13_10_13_0932_48_143	1	1.54	0.631	6.32	0.105	20.2	0.544	2.78	1.97	1.92	0.211	0.945	0.472
10/13/2013 9:33	0913-111_A	13_10_13_0933_48_863	1	1.93	0.639	6.25	0.106	20.2	0.539	2.78	1.93	2.33	0.212	0.934	0.478
10/13/2013 9:34	0913-111_A	13_10_13_0934_49_573	1	1.25	0.625	5.96	0.109	20.5	0.547	2.78	1.81	2.36	0.215	0.934	0.465
10/13/2013 9:35	0913-111_A	13_10_13_0935_50_263	1	1.95	0.617	5.68	0.104	20.3	0.529	2.78	1.72	2.12	0.207	0.934	0.457
10/13/2013 9:36	0913-111_A	13_10_13_0936_51_104	1	2.84	0.624	5.68	0.107	19.9	0.523	2.78	1.71	2.23	0.211	0.934	0.467
10/13/2013 9:37	0913-111_A	13_10_13_0937_51_824	1	1.88	0.617	5.55	0.101	19.3	0.509	2.78	1.60	2.16	0.207	0.934	0.460
10/13/2013 9:38	0913-111_A	13_10_13_0938_52_634	1	1.86	0.614	5.38	0.104	18.8	0.513	2.78	1.62	2.11	0.206	0.934	0.457
10/13/2013 9:39	0913-111_A	13_10_13_0939_53_384	1	1.45	0.624	5.46	0.101	19.1	0.516	2.78	1.59	2.26	0.209	0.934	0.462
10/13/2013 9:40	0913-111_A	13_10_13_0940_54_084	1	1.63	0.644	5.40	0.104	19.9	0.517	2.78	1.49	2.30	0.216	0.934	0.479
10/13/2013 9:41	0913-111_A	13_10_13_0941_54_884	1	2.02	0.611	5.47	0.108	20.4	0.517	2.78	1.58	2.20	0.216	0.934	0.455
10/13/2013 9:42	0913-111_A	13_10_13_0942_55_604	1	1.97	0.624	5.40	0.107	20.9	0.511	2.78	1.61	2.26	0.213	0.934	0.465
10/13/2013 9:43	0913-111_A	13_10_13_0943_56_414	1	2.27	0.601	5.23	0.104	21.1	0.513	2.78	1.57	2.09	0.213	0.934	0.449
10/13/2013 9:44	0913-111_A	13_10_13_0944_57_124	1	1.89	0.614	5.28	0.111	21.2	0.507	2.78	1.55	2.02	0.219	0.934	0.464
10/13/2013 9:45	0913-111_A	13_10_13_0945_57_864	1	1.67	0.627	5.10	0.105	21.1	0.509	2.78	1.53	2.13	0.213	0.934	0.466
10/13/2013 9:46	0913-111_A	13_10_13_0946_58_664	1	1.91	0.621	5.13	0.108	21.4	0.514	2.78	1.46	2.32	0.215	0.934	0.462
10/13/2013 9:47	0913-111_A	13_10_13_0947_59_355	1	1.42	0.595	5.45	0.108	21.7	0.521	2.78	1.53	2.19	0.216	0.934	0.448
10/13/2013 9:49	0913-111_A	13_10_13_0949_00_105	1	1.86	0.641	5.46	0.110	21.5	0.510	2.78	1.51	2.23	0.220	0.934	0.479
10/13/2013 9:50	0913-111_A	13_10_13_0950_00_875	1	1.25	0.630	5.56	0.107	21.4	0.517	2.78	1.54	2.22	0.218	0.934	0.485
10/13/2013 9:51	0913-111_A	13_10_13_0951_01_625	1	1.89	0.645	5.83	0.116	21.4	0.536	2.78	1.39	2.25	0.224	0.934	0.485
10/13/2013 9:52	0913-111_A	13_10_13_0952_02_335	1	1.62	0.635	6.10	0.109	21.9	0.541	2.78	1.51	2.48	0.225	0.934	0.472
10/13/2013 9:53	0913-111_A	13_10_13_0953_03_175	1	1.66	0.625	5.99	0.109	21.6	0.539	2.78	1.51	2.37	0.220	0.934	0.466
10/13/2013 9:54	0913-111_A	13_10_13_0954_03_855	1	1.93	0.623	5.89	0.110	21.9	0.541	2.78	1.54	2.49	0.224	0.934	0.464
10/13/2013 9:55	0913-111_A	13_10_13_0955_04_565	1	2.47	0.633	6.09	0.110	21.8	0.540	2.78	1.64	2.52	0.222	0.934	0.474
10/13/2013 9:56	0913-111_A	13_10_13_0956_05_405	1	2.13	0.622	6.19	0.111	21.9	0.539	2.78	1.59	2.68	0.221	0.934	0.467
10/13/2013 9:57	0913-111_A	13_10_13_0957_06_075	1	1.81	0.614	6.23	0.112	21.9	0.543	2.78	1.58	2.57	0.226	0.934	0.460
10/13/2013 9:58	0913-111_A	13_10_13_0958_06_845	1	1.40	0.650	6.62	0.113	22.1	0.556	2.78	1.64	2.70	0.229	0.934	0.483
10/13/2013 9:59	0913-111_A	13_10_13_0959_07_685	1	1.79	0.618	6.83	0.113	22.1	0.585	2.78	1.65	2.62	0.230	0.934	0.467
10/13/2013 10:00	0913-111_A	13_10_13_1000_08_486	1	1.25	0.640	6.83	0.109	22.1	0.561	2.78	1.64	2.62	0.224	0.934	0.482
10/13/2013 10:01	0913-111_A	13_10_13_1001_09_226	1	1.28	0.649	7.05	0.110	21.8	0.555	2.78	1.67	2.78	0.234	0.934	0.481
10/13/2013 10:02	0913-111_A	13_10_13_1002_09_906	1	2.18	0.629	6.90	0.114	21.5	0.548	2.78	1.63	2.82	0.232	0.934	0.473
10/13/2013 10:03	0913-111_A	13_10_13_1003_10_696	1	2.08	0.678	6.91	0.118	21.2	0.543	2.78	1.54	2.87	0.239	0.934	0.507
10/13/2013 10:04	0913-111_A	13_10_13_1004_11_436	1	2.56	0.639	6.24	0.114	20.9	0.528	2.78	1.49	2.62	0.231	0.934	0.482
10/13/2013 10:05	0913-111_A	13_10_13_1005_12_196	1	1.61	0.623	5.90	0.107	20.5	0.525	2.78	1.52	2.66	0.226	0.934	0.464
10/13/2013 10:06	0913-111_A	13_10_13_1006_12_966	1	2.39	0.625	6.04	0.109	19.6	0.533	2.78	1.54	2.65	0.233	0.934	0.468
10/13/2013 10:07	0913-111_A	13_10_13_1007_13_776	1	1.78	0.625	6.36	0.111	18.8	0.542	2.78	1.62	2.53	0.228	0.934	0.472
10/13/2013 10:08	0913-111_A	13_10_13_1008_14_516	1	2.53	0.642	6.82	0.106	17.6	0.550	2.78	1.55	2.58	0.229	0.934	0.480
10/13/2013 10:09	0913-111_A	13_10_13_1009_15_276	1	2.29	0.634	7.03	0.111	16.5	0.550	2.78	1.51	2.55	0.231	0.934	0.479
10/13/2013 10:10	0913-111_A	13_10_13_1010_15_986	1	1.44	0.650	7.05	0.111	15.3	0.549	2.78	1.57	2.40	0.228	0.934	0.494
10/13/2013 10:11	0913-111_A	13_10_13_1011_16_786	1	2.51	0.631	7.36	0.109	14.0	0.549	2.78	1.55	2.54	0.228	0.934	0.476
10/13/2013 10:12	0913-111_A	13_10_13_1012_17_487	1	1.46	0.650	7.48	0.107	12.8	0.543	2.78	1.51	2.63	0.225	0.934	0.483
10/13/2013 10:13	0913-111_A	13_10_13_1013_18_297	1	2.24	0.660	7.75	0.108	11.6	0.536	2.78	1.49	2.72	0.225	0.934	0.490
10/13/2013 10:14	0913-111_A	13_10_13_1014_19_017	1	2.42	0.677	8.54	0.110	11.0	0.555	2.78	1.38	2.71	0.227	0.934	0.512
10/13/2013 10:15	0913-111_A	13_10_13_1015_19_817	1	2.16	0.619	7.71	0.106	11.0	0.543	2.78	1.24	2.71	0.225	0.934	0.470
10/13/2013 10:16	0913-111_A	13_10_13_1016_20_417	1	2.13	0.618	7.44	0.109	11.7	0.549	2.78	1.34	2.42	0.233	0.934	0.466
10/13/2013 10:17	0913-111_A	13_10_13_1017_21_227	1	1.37	0.621	7.70	0.113	12.8	0.556	2.78	1.46	2.61	0.242	0.939	0.470
10/13/2013 10:18	0913-111_A	13_10_13_1018_21_987	1	2.79	0.636	7.44	0.110	13.2	0.560	2.78	1.49	2.75	0.255	1.03	0.479
10/13/2013 10:19	0913-111_A	13_10_13_1019_22_707	1	1.95	0.634	6.71	0.107	12.9	0.550	2.78	1.53	2.64	0.256	0.934	0.471
10/13/2013 10:20	0913-111_A	13_10_13_1020_23_387	1	2.11	0.594	6.66	0.110	12.8	0.547	2.78	1.51	2.54	0.258	0.934	0.447
10/13/2013 10:21	0913-111_A	13_10_13_1021_23_197	1	3.00	0.628	6.73	0.113	12.7	0.558	2.78	1.51	2.53	0.273	0.988	0.468
		Average Conc. (ppm):	**1**	**1.90**	**0.631**	**6.40**	**0.108**	**18.8**	**0.539**	**2.78**	**1.29**	**2.37**	**0.222**	**0.967**	**0.472**

Dryer 2 Run 2

Date	Method	Filename	DF	Acrolein (ppm)	SEC (ppm)	Formaldehyde (ppm)	SEC (ppm)	Methanol (ppm)	SEC (ppm)	Phenol (ppm)	SEC (ppm)	Propionaldehyde (ppm)	SEC (ppm)	acetaldehyde (ppm)	SEC (ppm)
10/13/2013 11:04	0913-111_A	13_10_13_1104_56_401	1	2.45	0.615	6.06	0.106	10.4	0.532	2.78	1.31	1.47	0.260	3.09	0.457
10/13/2013 11:05	0913-111_A	13_10_13_1105_57_191	1	2.20	0.620	6.50	0.108	10.0	0.535	2.78	1.31	1.39	0.260	3.57	0.457
10/13/2013 11:06	0913-111_A	13_10_13_1106_57_991	1	2.54	0.621	7.03	0.104	9.92	0.542	2.78	1.31	1.54	0.254	3.34	0.458
10/13/2013 11:07	0913-111_A	13_10_13_1107_58_651	1	4.10	0.692	7.38	0.103	10.1	0.564	2.78	1.30	1.04	0.252	4.46	0.510
10/13/2013 11:08	0913-111_A	13_10_13_1108_59_481	1	2.72	0.633	7.22	0.109	10.2	0.560	2.78	1.29	1.71	0.257	3.00	0.473
10/13/2013 11:10	0913-111_A	13_10_13_1110_00_191	1	2.32	0.634	6.92	0.103	10.3	0.553	2.78	1.28	1.40	0.254	3.20	0.468
10/13/2013 11:11	0913-111_A	13_10_13_1111_01_001	1	2.71	0.646	7.81	0.112	10.7	0.582	2.78	1.28	1.67	0.262	3.57	0.485
10/13/2013 11:12	0913-111_A	13_10_13_1112_01_812	1	2.87	0.626	7.96	0.112	11.0	0.578	2.78	1.32	1.69	0.259	3.63	0.463
10/13/2013 11:13	0913-111_A	13_10_13_1113_02_502	1	3.29	0.629	6.97	0.107	10.7	0.541	2.78	2.74	1.35	0.248	3.29	0.465
10/13/2013 11:14	0913-111_A	13_10_13_1114_03_312	1	2.51	0.629	6.60	0.106	10.5	0.530	2.78	2.55	1.30	0.241	2.61	0.465
10/13/2013 11:15	0913-111_A	13_10_13_1115_04_132	1	2.24	0.610	6.53	0.102	10.4	0.538	2.78	2.10	1.56	0.248	2.57	0.448
10/13/2013 11:16	0913-111_A	13_10_13_1116_04_842	1	2.72	0.588	6.51	0.101	10.3	0.542	2.78	1.79	1.33	0.249	3.38	0.437
10/13/2013 11:17	0913-111_A	13_10_13_1117_05_582	1	1.35	0.592	6.24	0.0980	10.3	0.533	2.78	1.58	1.38	0.244	2.91	0.439
10/13/2013 11:18	0913-111_A	13_10_13_1118_06_412	1	2.07	0.621	6.11	0.103	10.3	0.527	2.78	1.47	1.40	0.258	2.98	0.457
10/13/2013 11:19	0913-111_A	13_10_13_1119_07_122	1	2.81	0.620	6.49	0.106	10.3	0.539	2.78	1.51	1.44	0.266	3.07	0.461
10/13/2013 11:20	0913-111_A	13_10_13_1120_07_922	1	2.54	0.625	6.27	0.100	10.3	0.539	2.78	1.50	1.11	0.268	3.66	0.460
10/13/2013 11:21	0913-111_A	13_10_13_1121_08_632	1	1.62	0.613	6.35	0.104	10.3	0.548	2.78	1.61	1.35	0.267	3.59	0.450
10/13/2013 11:22	0913-111_A	13_10_13_1122_09_442	1	2.45	0.627	6.14	0.108	9.82	0.565	2.78	1.45	1.36	0.275	3.62	0.460
10/13/2013 11:23	0913-111_A	13_10_13_1123_10_163	1	2.41	0.614	5.90	0.104	9.53	0.550	2.78	1.48	1.22	0.276	4.03	0.451
10/13/2013 11:24	0913-111_A	13_10_13_1124_10_923	1	2.79	0.603	6.11	0.108	9.42	0.549	2.78	1.39	1.16	0.273	3.62	0.449
10/13/2013 11:25	0913-111_A	13_10_13_1125_11_723	1	3.11	0.618	7.04	0.106	9.79	0.571	2.78	1.40	1.33	0.270	4.39	0.464
10/13/2013 11:26	0913-111_A	13_10_13_1126_12_453	1	2.80	0.623	7.04	0.105	9.81	0.551	2.78	1.39	1.45	0.268	3.32	0.458
10/13/2013 11:27	0913-111_A	13_10_13_1127_13_263	1	3.37	0.574	6.09	0.102	9.90	0.536	2.78	1.39	1.42	0.259	2.58	0.425
10/13/2013 11:28	0913-111_A	13_10_13_1128_13_963	1	2.85	0.579	5.99	0.103	10.0	0.540	2.78	1.51	1.28	0.258	2.69	0.425
10/13/2013 11:29	0913-111_A	13_10_13_1129_14_773	1	2.27	0.594	5.66	0.103	10.2	0.548	2.78	1.49	1.06	0.261	2.53	0.436
10/13/2013 11:30	0913-111_A	13_10_13_1130_15_463	1	2.34	0.605	6.18	0.105	10.7	0.572	2.78	1.43	1.35	0.271	2.57	0.450
		Average Conc. (ppm):	**1**	**2.59**	**0.617**	**6.58**	**0.105**	**10.2**	**0.649**	**2.78**	**1.56**	**1.38**	**0.260**	**3.28**	**0.457**

Company	ACT
Analyst Initials	CJT
Parameters	EPA Method 320
# Samples	21 Runs

Client #	1911
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Path Length - Path

Date	Method	FileName	ethylene (ppm)	SEC (ppm)
10/10/2013 8:12	0913-111_CTS	13_10_10_0812_04_850	8.79	0.137
10/10/2013 8:12	0913-111_CTS	13_10_10_0812_23_390	8.77	0.136
10/10/2013 8:12	0913-111_CTS	13_10_10_0812_42_040	8.78	0.137
10/10/2013 8:13	0913-111_CTS	13_10_10_0813_00_420	8.80	0.136
10/10/2013 8:13	0913-111_CTS	13_10_10_0813_18_930	8.82	0.137
10/10/2013 8:13	0913-111_CTS	13_10_10_0813_37_540	8.81	0.138
10/10/2013 8:13	0913-111_CTS	13_10_10_0813_56_040	8.82	0.137
10/10/2013 8:14	0913-111_CTS	13_10_10_0814_14_670	8.80	0.138
		Average (m)	**8.80**	**0.137**
10/10/2013 19:33	0913-111_CTS	13_10_10_1933_09_783	8.67	0.137
10/10/2013 19:33	0913-111_CTS	13_10_10_1933_28_313	8.69	0.137
10/10/2013 19:33	0913-111_CTS	13_10_10_1933_46_843	8.69	0.138
10/10/2013 19:34	0913-111_CTS	13_10_10_1934_05_353	8.71	0.137
10/10/2013 19:34	0913-111_CTS	13_10_10_1934_23_963	8.70	0.137
10/10/2013 19:34	0913-111_CTS	13_10_10_1934_42_473	8.71	0.138
10/10/2013 19:35	0913-111_CTS	13_10_10_1935_01_103	8.66	0.137
10/10/2013 19:35	0913-111_CTS	13_10_10_1935_19_513	8.67	0.139
		Average (m)	**8.69**	**0.138**
		Average Pathlength (m)	**8.74**	**0.137**
		Max (m)	8.80	
		Min (m)	8.69	
		Max % Deviation	0.62%	

Company	ACT
Analyst Initials	CJT
Parameters	EPA Method 320
# Samples	21 Runs

Client #	1911
Job #	0913-111
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Path Length - Path

Date	Method	FileName	ethylene (ppm)	SEC (ppm)
10/11/2013 9:38	0913-111_CTS	13_10_11_0938_33_970	8.13	0.130
10/11/2013 9:38	0913-111_CTS	13_10_11_0938_52_580	8.16	0.129
10/11/2013 9:39	0913-111_CTS	13_10_11_0939_11_060	8.17	0.129
10/11/2013 9:39	0913-111_CTS	13_10_11_0939_29_540	8.18	0.129
10/11/2013 9:39	0913-111_CTS	13_10_11_0939_48_180	8.19	0.130
10/11/2013 9:40	0913-111_CTS	13_10_11_0940_06_710	8.18	0.129
10/11/2013 9:40	0913-111_CTS	13_10_11_0940_25_190	8.20	0.129
10/11/2013 9:40	0913-111_CTS	13_10_11_0940_43_760	8.18	0.130
		Average (m)	**8.17**	**0.129**
10/11/2013 11:22	0913-111_CTS	13_10_11_1122_55_958	8.63	0.133
10/11/2013 11:23	0913-111_CTS	13_10_11_1123_14_479	8.66	0.133
10/11/2013 11:23	0913-111_CTS	13_10_11_1123_32_989	8.68	0.133
10/11/2013 11:23	0913-111_CTS	13_10_11_1123_51_519	8.71	0.133
10/11/2013 11:24	0913-111_CTS	13_10_11_1124_10_019	8.70	0.134
10/11/2013 11:24	0913-111_CTS	13_10_11_1124_28_559	8.73	0.134
10/11/2013 11:24	0913-111_CTS	13_10_11_1124_47_159	8.74	0.134
10/11/2013 11:25	0913-111_CTS	13_10_11_1125_05_659	8.74	0.134
		Average (m)	**8.70**	**0.134**
		Average Pathlength (m)	**8.44**	**0.131**
		Max (m)	8.70	
		Min (m)	8.17	
		Max % Deviation	3.10%	

Company	ACT
Analyst Initials	CJT
Parameters	EPA Method 320
# Samples	21 Runs

Client #	1911
Job #	0913-111
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Path Length - Path

Date	Method	FileName	ethylene (ppm)	SEC (ppm)
10/11/2013 11:22	0913-111_CTS	13_10_11_1122_55_958	8.63	0.133
10/11/2013 11:23	0913-111_CTS	13_10_11_1123_14_479	8.66	0.133
10/11/2013 11:23	0913-111_CTS	13_10_11_1123_32_989	8.68	0.133
10/11/2013 11:23	0913-111_CTS	13_10_11_1123_51_519	8.71	0.133
10/11/2013 11:24	0913-111_CTS	13_10_11_1124_10_019	8.70	0.134
10/11/2013 11:24	0913-111_CTS	13_10_11_1124_28_559	8.73	0.134
10/11/2013 11:24	0913-111_CTS	13_10_11_1124_47_159	8.74	0.134
10/11/2013 11:25	0913-111_CTS	13_10_11_1125_05_659	8.74	0.134
		Average (m)	**8.70**	**0.134**
10/11/2013 13:02	0913-111_CTS	13_10_11_1302_32_762	8.73	0.133
10/11/2013 13:02	0913-111_CTS	13_10_11_1302_51_282	8.77	0.134
10/11/2013 13:03	0913-111_CTS	13_10_11_1303_09_882	8.73	0.133
10/11/2013 13:03	0913-111_CTS	13_10_11_1303_28_382	8.71	0.133
10/11/2013 13:03	0913-111_CTS	13_10_11_1303_46_792	8.74	0.133
10/11/2013 13:04	0913-111_CTS	13_10_11_1304_05_402	8.75	0.133
10/11/2013 13:04	0913-111_CTS	13_10_11_1304_23_922	8.74	0.133
10/11/2013 13:04	0913-111_CTS	13_10_11_1304_42_382	8.73	0.133
		Average (m)	**8.74**	**0.133**
10/11/2013 17:56	0913-111_CTS	13_10_11_1756_33_272	8.44	0.129
10/11/2013 17:56	0913-111_CTS	13_10_11_1756_51_882	8.57	0.130
10/11/2013 17:57	0913-111_CTS	13_10_11_1757_10_412	8.67	0.132
10/11/2013 17:57	0913-111_CTS	13_10_11_1757_29_032	8.71	0.132
10/11/2013 17:57	0913-111_CTS	13_10_11_1757_47_542	8.75	0.132
10/11/2013 17:58	0913-111_CTS	13_10_11_1758_06_042	8.76	0.132
10/11/2013 17:58	0913-111_CTS	13_10_11_1758_24_642	8.79	0.133
10/11/2013 17:58	0913-111_CTS	13_10_11_1758_43_102	8.75	0.133
		Average (m)	**8.68**	**0.132**
10/12/2013 7:59	0913-111_CTS	13_10_12_0759_05_353	8.70	0.139
10/12/2013 7:59	0913-111_CTS	13_10_12_0759_23_963	8.74	0.139
10/12/2013 7:59	0913-111_CTS	13_10_12_0759_42_473	8.71	0.137
10/12/2013 8:00	0913-111_CTS	13_10_12_0800_01_103	8.70	0.136
10/12/2013 8:00	0913-111_CTS	13_10_12_0800_19_593	8.69	0.137
10/12/2013 8:00	0913-111_CTS	13_10_12_0800_38_103	8.75	0.136
10/12/2013 8:00	0913-111_CTS	13_10_12_0800_56_713	8.68	0.136
10/12/2013 8:01	0913-111_CTS	13_10_12_0801_15_143	8.68	0.136

Company	ACT
Analyst Initials	CJT
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# Samples	21 Runs

Client #	1911
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Path Length - Path

Date	Method	FileName	ethylene (ppm)	SEC (ppm)
		Average (m)	**8.71**	**0.137**
10/12/2013 8:15	0913-111_CTS	13_10_12_0815_33_684	8.60	0.134
10/12/2013 8:15	0913-111_CTS	13_10_12_0815_52_184	8.59	0.134
10/12/2013 8:16	0913-111_CTS	13_10_12_0816_10_704	8.58	0.134
10/12/2013 8:16	0913-111_CTS	13_10_12_0816_29_314	8.60	0.133
10/12/2013 8:16	0913-111_CTS	13_10_12_0816_47_804	8.60	0.133
10/12/2013 8:17	0913-111_CTS	13_10_12_0817_06_244	8.61	0.134
10/12/2013 8:17	0913-111_CTS	13_10_12_0817_24_834	8.62	0.133
10/12/2013 8:17	0913-111_CTS	13_10_12_0817_43_344	8.59	0.134
		Average (m)	**8.60**	**0.134**
10/12/2013 13:02	0913-111_CTS	13_10_12_1302_33_472	8.74	0.137
10/12/2013 13:02	0913-111_CTS	13_10_12_1302_52_082	8.76	0.137
10/12/2013 13:03	0913-111_CTS	13_10_12_1303_10_582	8.79	0.137
10/12/2013 13:03	0913-111_CTS	13_10_12_1303_29_082	8.79	0.138
10/12/2013 13:03	0913-111_CTS	13_10_12_1303_47_602	8.78	0.137
10/12/2013 13:04	0913-111_CTS	13_10_12_1304_06_112	8.77	0.137
10/12/2013 13:04	0913-111_CTS	13_10_12_1304_24_752	8.78	0.137
10/12/2013 13:04	0913-111_CTS	13_10_12_1304_43_242	8.78	0.138
		Average (m)	**8.78**	**0.137**
10/12/2013 19:42	0913-111_CTS	13_10_12_1942_21_772	8.68	0.133
10/12/2013 19:42	0913-111_CTS	13_10_12_1942_40_362	8.71	0.132
10/12/2013 19:42	0913-111_CTS	13_10_12_1942_58_862	8.77	0.134
10/12/2013 19:43	0913-111_CTS	13_10_12_1943_17_462	8.77	0.134
10/12/2013 19:43	0913-111_CTS	13_10_12_1943_35_992	8.80	0.134
10/12/2013 19:43	0913-111_CTS	13_10_12_1943_54_432	8.79	0.133
10/12/2013 19:44	0913-111_CTS	13_10_12_1944_13_082	8.82	0.135
10/12/2013 19:44	0913-111_CTS	13_10_12_1944_31_502	8.78	0.134
		Average (m)	**8.76**	**0.134**
10/13/2013 7:58	0913-111_CTS	13_10_13_0758_40_845	8.55	0.130
10/13/2013 7:58	0913-111_CTS	13_10_13_0758_59_345	8.50	0.129
10/13/2013 7:59	0913-111_CTS	13_10_13_0759_17_835	8.49	0.129
10/13/2013 7:59	0913-111_CTS	13_10_13_0759_36_445	8.50	0.129
10/13/2013 7:59	0913-111_CTS	13_10_13_0759_54_925	8.49	0.129
10/13/2013 8:00	0913-111_CTS	13_10_13_0800_13_565	8.51	0.130
10/13/2013 8:00	0913-111_CTS	13_10_13_0800_31_995	8.47	0.130

Company	ACT
Analyst Initials	CJT
Parameters	EPA Method 320
# Samples	21 Runs

Client #	1911
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Path Length - Path

Date	Method	FileName	ethylene (ppm)	SEC (ppm)
10/13/2013 8:00	0913-111_CTS	13_10_13_0800_50_506	8.52	0.130
		Average (m)	**8.50**	**0.130**
10/13/2013 8:16	0913-111_CTS	13_10_13_0816_09_687	8.73	0.133
10/13/2013 8:16	0913-111_CTS	13_10_13_0816_28_197	8.69	0.133
10/13/2013 8:16	0913-111_CTS	13_10_13_0816_46_707	8.71	0.134
10/13/2013 8:17	0913-111_CTS	13_10_13_0817_05_247	8.72	0.133
10/13/2013 8:17	0913-111_CTS	13_10_13_0817_23_757	8.73	0.134
10/13/2013 8:17	0913-111_CTS	13_10_13_0817_42_347	8.77	0.134
10/13/2013 8:18	0913-111_CTS	13_10_13_0818_00_857	8.70	0.133
10/13/2013 8:18	0913-111_CTS	13_10_13_0818_19_377	8.74	0.134
		Average (m)	**8.72**	**0.134**
10/13/2013 14:34	0913-111_CTS	13_10_13_1434_10_233	8.70	0.135
10/13/2013 14:34	0913-111_CTS	13_10_13_1434_28_743	8.73	0.135
10/13/2013 14:34	0913-111_CTS	13_10_13_1434_47_263	8.76	0.136
10/13/2013 14:35	0913-111_CTS	13_10_13_1435_05_884	8.75	0.135
10/13/2013 14:35	0913-111_CTS	13_10_13_1435_24_394	8.72	0.133
10/13/2013 14:35	0913-111_CTS	13_10_13_1435_42_804	8.74	0.135
10/13/2013 14:36	0913-111_CTS	13_10_13_1436_01_424	8.74	0.134
10/13/2013 14:36	0913-111_CTS	13_10_13_1436_19_934	8.72	0.134
		Average (m)	**8.73**	**0.135**
		Average Pathlength (m)	**8.69**	**0.134**
		Max (m)	8.78	
		Min (m)	8.50	
		Max % Deviation	2.17%	

APPENDIX D

Method 320 Log Sheet

FTIR Log - Enviva Wiggins

Date	Time	Filename	Method	Pressure	Notes	Run ID	
10-Oct	754	13.10.10.0753.42.969	CTS	14.7	Background		
	806	13.10.10.0806.08.036	CTS	14.7	CTS (pathlength = 8.78 m)		
	855	13.10.10.0855.00.744	0913-177A	14.6	Background		
	914	**13.10.10.0914.12.674**	**0913-177A**	**13.5**	**Sampling GHM - Run 1 (0917-1017)**	**1**	
	1036	**13.10.10.0914.12.674**	**0913-177A**	**13.3**	**Sampling GHM - Run 2 (1036-1136)**	**2**	
	1150	**13.10.10.0914.12.674**	**0913-177A**	**13.5**	**Sampling GHM - Run 3 (1150-1250)**	**3**	
	1738	**13.10.10.1429.45.242**	**0913-177A**	**13.9**	**Sampling Dryer 1 - Run 1 (1738-1838)**	**4**	
	1915	13.10.10.1915.03.541	0913-177A	14.6	Background		
	1923	**13.10.10.1923.11.342**	CTS	**14.6**	Background		
	1926	**13.10.10.1926.54.274**	CTS	**14.7**	**CTS (pathlength = 8.78 m)**		
	2005	**13.10.10.2004.59.706**	0913-177A	**14.6**	**Water Spectra (Dryer 1 - Run 1)**		
	2035	**13.10.10.2034.59.394**	0913-177A	**14.6**	**Water Spectra (GHM)**		
11-Oct	933	13.10.11.0932.48.189	CTS	14.8	Background		Background interference
	936	13.10.11.0936.57.524	CTS	14.8	CTS (pathlength = 8.18 m)		
	948	13.10.11.0948.41.630	0913-177A	14.8	Background		
	955	**13.10.11.0954.19.486**	**0913-177A**	**14.4**	**Sampling Dryer 1 - Run 2 (1000-1100)**	**5**	
	1117	13.10.11.1117.32.588	CTS	14.8	Background		
	1121	13.10.11.1121.00.310	CTS	14.8	CTS (pathlength = 8.73 m)		
	1127	13.10.11.1127.34.199	0913-177A	14.7	Background		
	1137	**13.10.11.1134.41.951**	**0913-177A**	**14.2**	**Sampling Dryer 1 - Run 3 (1137-1237)**	**6**	
	1257	13.10.11.1257.46.512	CTS	14.7	Background		
	1301	13.10.11.1301.14.338	CTS	14.7	CTS (pathlength = 8.73 m)		
	1308	13.10.11.1308.39.947	0913-177A	14.7	Background		
	1342	**13.10.11.1342.51.774**	**0913-177A**	**14.2**	**Sampling Pellet Cooler 2 - Run 1 (1343-1443)**	**7**	
	1508	**13.10.11.1342.51.774**	**0913-177A**	**14.1**	**Sampling Pellet Cooler 2 - Run 2 (1508-1608)**	**8**	
	1650	**13.10.11.1342.51.774**	**0913-177A**	**14.1**	**Sampling Pellet Cooler 2 - Run 3 (1629-1729)**	**9**	
	1752	13.10.11.1752.08.661	CTS	14.6	Background		
	1755	13.10.11.1755.37.781	CTS	14.6	CTS (pathlength = 8.7165 m)		
	1802	13.10.11.1802.37.522	0913-177A	14.6	Background		
	1342	**13.10.11.1809.44.552**	**0913-177A**	**14.3**	**Sampling Hammermill 2 - Run 1 (1811-1911)**	**10**	
	1935	**13.10.11.1809.44.552**	**0913-177A**	**14.4**	**Sampling Hammermill 2 - Run 2 (1935-2035)**	**11**	
	2048	**13.10.11.1809.44.552**	**0913-177A**	**14.5**	**Sampling Hammermill 2 - Run 3 (2048-2148)**	**12**	
	2200	13.10.11.2200.54.734	CTS	14.7	Background		
	2204	13.10.11.2204.32.940	CTS	14.8	CTS (pathlength = 8.75475 m)		
	2213	13.10.11.2213.44.875	0913-177A	14.8	Background		
	2224	**13.10.11.2224.53.772**	**0913-177A**	**14.7**	**Water Spectra (Dryer 1 - Run 2, 3)**		
	2240	**13.10.11.2240.27.896**	**0913-177A**	**14.7**	**Water Spectra (Pellet Cooler 2, Hammermill 2)**		
12-Oct	0805	13.10.12.0805.29.253	CTS	14.9	Background		
	0809	13.10.12.0809.22.964	CTS	14.9	CTS (pathlength = 8.59 m)		
	0822	13.10.12.08.22.17.097	0913-177A	14.8	Background		
	858	**13.10.12.0857.28.740**	**0913-177A**	**14.4**	**Sampling Pellet Cooler 1- Run 1 (0858-0958)**	**13**	
	1022	**13.10.12.0857.28.740**	**0913-177A**	**14.3**	**Sampling Pellet Cooler 1- Run 2 (1022-1122)**	**14**	
	1141	**13.10.12.0857.28.740**	**0913-177A**	**14.2**	**Sampling Pellet Cooler 1- Run 1 (1141-1241)**	**15**	
	1257	13.10.12.1257.12.281	CTS	14.6	Background		
	1301	13.10.12.1300.55.794	CTS	14.6	CTS (pathlength = 8.77 m)		
	1308	13.10.12.1309.21.752	0913-177A	14.6	Background		
	1509	**13.10.12.1347.50.707**	**0913-177A**	**13.8**	**Sampling Aspirator- Run 1 (1509-1609)**	**16**	
	1636	**13.10.12.1347.50.707**	**0913-177A**	**13.8**	**Sampling Aspirator- Run 2 (1636-1736)**	**17**	
	1800	**13.10.12.1347.50.707**	**0913-177A**	**13.9**	**Sampling Aspirator- Run 3 (1800-1900)**	**18**	
	1936	13.10.12.1936.27.563	CTS	14.91	Background		
	1940	13.10.12.1940.26.868	CTS	14.72	CTS (pathlength = 8.78 m)		
	1951	13.10.12.1951.39.443	0913-177A	14.75	Background		
	2003	**13.10.12.2003.07.633**	0913-177A	**14.59**	**Water Spectra (Aspirator)**		
	2023	**13.10.12.2023.12.427**	0913-177A	**14.55**	**Water Spectra (Pellet Cooler 1)**		
13-Oct	807	13.10.13.0807.16.306	0913-177A	14.77	Background		
	0810	13.10.13.0810.33.996	CTS	14.78	Background		
	0810	13.10.13.0813.37.211	CTS	14.85	CTS (pathlength = 8.71 m)		
	0921	**13.10.13.0919.17.032**	**0913-177A**	**14.24**	**Sampling Dryer 2 - Run 1 (0921-1021)**	**19**	
	1104	**13.10.13.0919.17.032**	**0913-177A**	**14.17**	**Sampling Dryer 2 - Run 2 (1104-1204)**	**20**	1130-1200 water condensation in
	1231	**13.10.13.0919.17.032**	**0913-177A**	**14.17**	**Sampling Dryer 2 - Run 3 (1231-1347); paused 1236-1252**	**21**	
	1420	13.10.13.1419.54.342	CTS	14.91	Background		
	1430	13.10.13.1425.31.173	CTS	14.85	CTS (pathlength = 8.73 m)		
	1447	13.10.13.1447.35.695	0913-177A	14.8	Background		
	1506	**13.10.13.1506.31.082**	0913-177A	**14.71**	**Water Spectra (Dryer 2)**		

APPENDIX E

Example Calculations

EXAMPLE CALCULATIONS

Run Number: Dryer 1 – Run 1

Stack Gas Temperature, °R

$T_s \quad = \quad 460 + ts$

$T_s \quad = \quad 460 + 146.3 \quad = 606.3\ °R$

Volume of Dry Gas Sampled at Standard Conditions, Dry Standard Cubic Feet

$$V_{mstd} = [17.64][\gamma][V_m]\left[\frac{\left(P_{bar} + \frac{\Delta H}{13.6}\right)}{T_m + 460}\right]$$

$$V_{mstd} = [17.64][0.9728][33.201]\left[\frac{\left(29.90 + \frac{1.00}{13.6}\right)}{541.3}\right]$$

$V_{mstd} = 31.564\ ft^3$

Volume of Water Sampled, SCF

$V_{wstd} = 0.04715$ [Weight of Condensed Moisture]

$V_{wstd} = 0.04715\ [129.5]$

$V_{wstd} = 6.106\ ft^3$

Fraction of Water Vapor in Sample Gas Stream

$$\%H_2O = \left[\frac{V_{wstd}}{V_{mstd} + V_{wstd}}\right] \times 100$$

$$\%H_2O = \left[\frac{6.106}{31.564 + 6.106}\right] \times 100$$

$\%H_2O = 16.21$

Dry Mole Fraction of Flue Gas

M_{fd} = 1-%H2O/100

M_{fd} = 1-[16.21/100]

M_{fd} = 0.838

Molecular Weight of Sample Gas, Dry

$M_d = 0.44[\%CO_2]+0.32[\%O_2]+0.28[100-\%O_2-\%CO_2]$

$M_d = 0.44[2.0]+0.32[19.0]+0.28[100-19.0-2.0]$

M_d = 29.08 pounds/pound-mole

Molecular Weight of Sample Gas, Actual Conditions

$M_s = [M_d \text{ x } M_{fd}]+[0.18 \text{ x } \%H_2O]$

M_s = [29.08 x 0.838]+[0.18 x 16.21]

M_s = 27.28 pounds/pound-mole

Average Stack Gas Velocity, Feet/second

$$vs = K_p C_p \left(\sqrt{(\Delta p)}\right)_{avg} \left[\sqrt{\frac{T_s + 460}{P_s M_s}} \right]$$

$$vs = (85.49)(0.84)\left(\sqrt{(0.1.283)}\right) \left[\sqrt{\frac{606.3}{(29.84)(27.28)}} \right]$$

vs = 70.18 feet/second

Wet Volumetric Flue Gas Flow Rate at Stack Conditions, Cubic Feet per Minute

Q_{aw} = 60 x vs x A

Q_{aw} = 60 x 70.18 x 10.56

Q_{aw} = 44,461 Actual Cubic Feet per Minute

Dry Volumetric Flue Gas Flow Rate at Standard Conditions, Cubic Feet per Minute

$$Q_{sd} = 60 \times Mfd \times vs \times A \times \left[\frac{528}{ts + 460}\right]\left[\frac{Ps}{29.92}\right]$$

$$Q_{sd} = 60 \times 0.838 \times 70.18 \times 10.56\left[\frac{528}{606.3}\right]\left[\frac{29.84}{29.92}\right]$$

Q_{sd} = 32,360 Dry Standard Cubic Feet per Minute

Average THC Dry Basis Concentration as Propane

C_{THCD} = (C_{THCW})/ (M_{fd})

Where: C_{THCd} = dry basis concentration of THC in ppm
M_{fd} = dry mole fraction from Method 4 concurrent run

C_{THCD} = 66.7 / 0.838 = 79.6 ppm THC as propane

Average THC Dry Basis Concentration as Carbon

C_{THCD} = (C_{THCW}) x (3) / (M_{fd})

Where: C_{THCd} = dry basis concentration of THC in ppm
M_{fd} = dry mole fraction from Method 4 concurrent run

C_{THCD} = (66.7) x (3) / 0.838 = 238.8 ppm THC as Carbon

VOC Emission Rate in Pounds Per Hour

E_{VOC} = (C_{VOC}) (Q_{SD}) (60 min/hr) (C_F)

Where: Q_{SD} = measured flow rate in stack in dscfm
C_F = Conversion factor in lb/scf – ppm
C_F = 3.117×10^{-8} for Carbon

E_{VOC} = (238.8) (32,360) (60 min/hr) (3.117×10^{-8}) = 14.5 lb/hr as Carbon

APPENDIX F

Gas Cylinder Certification Sheets

Airgas

Airgas Specialty Gases
630 United Drive
Durham, NC 27713
919-544-3773 Fax 919-544-3774
www.airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number	E02AI99E15A00A6	Reference Number	122-124323950-1
Cylinder Number	CC410934	Cylinder Volume	146 Cu.Ft.
Laboratory	ASG - Durham - NC	Cylinder Pressure	2015 PSIG
PGVP Number	B22012	Valve Outlet	590
Gas Code	APPVD	Analysis Date	Jul 02, 2012

Expiration Date: Jul 02, 2015

Certification performed in accordance with "EPA Traceability Protocol (Sept. 1997)" using the assay procedures listed. Analytical Methodology does not require correction for analytical interferences. 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 150 psig, i.e. 1 Mega Pascal

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration	Protocol Method	Total Relative Uncertainty
PROPANE	28.00 PPM	27.99 PPM	G1	+/- 1% NIST Traceable
Air	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	080610	CC263046	49.62PPM PROPANE/AIR	May 14, 2018

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801333 C3H8	FTIR	Jun 19, 2012

Triad Data Available Upon Request

Notes.ANW PN 781077

Approved for Release

PRAXAIR

Praxair Distribution Mid-Atlantic
145 Shimersville Rd.
Bethlehem, PA 18015
Tel. (610) 317-1608 Fax:(610) 758 8382
PGVP ID:

DocNumber: 000003740

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

CHEROKEE INSTRUMENTS INC
901 BRIDGE ST
FUQUAY VARINA NC 275260

Praxair Order Number: 13003732
Customer P. O. Number: 10429
Customer Reference Number:

Fill Date: 4/7/2010
Part Number: EV AIPR50ME-AS
Lot Number: 917009747
Cylinder Style & Outlet: AS CGA 590
Cylinder Pressure & Volume: 2000 psig 140 cu. ft.

Certified Concentration:

Expiration Date: **4/12/2018**
Cylinder Number: **CC283143**
NIST Traceable
Analytical Uncertainty:

50.0	ppm	PROPANE	± 1 %
	Balance	AIR	

Certification Information: *Certification Date:* 4/12/2010 *Term:* 96 Months *Expiration Date:* 4/12/2018

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: PROPANE**

Requested Concentration	50 ppm
Certified Concentration:	50.0 ppm
Instrument Used	VARIAN 3300 INST 023 (PROPANE)
Analytical Method	FID
Last Multipoint Calibration	3/16/2010

Reference Standard Type:	GMIS
Ref. Std. Cylinder #	CC182336
Ref. Std. Conc	50.3 PPM
Ref. Std. Traceable to SRM # :	1668b
SRM Sample # :	82-J-49
SRM Cylinder # :	XF0037348

First Analysis Data: **Date:** 4/12/2010

Z:	0	**R:**	50.39	**C:**	49.84	**Conc:**	49.777
R:	50.38	**Z:**	0	**C:**	50.21	**Conc:**	50.147
Z:	0	**C:**	50.2	**R:**	50.34	**Conc:**	50.137

UOM: PPM **Mean Test Assay:** 50.02 PPM

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: PPM **Mean Test Assay:** 0 PPM

Analyzed by: Megha Patel for
John Pribish

Certified by: for
Robin Morgan

Airgas

Airgas Specialty Gases
630 United Drive
Durham, NC 27713
(919)544-3773 Fax (919)544-3774
www.airgas.com

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Part Number	E02AI99E15A3227	Reference Number	122-124370084-1
Cylinder Number	SG9164792BAL	Cylinder Volume	146.2 CF
Laboratory	ASG - Durham - NC	Cylinder Pressure	2015 PSIG
PGVP Number	B22013	Valve Outlet	590
Gas Code	PPN	Certification Date	Apr 17, 2013

Expiration Date: Apr 17, 2021

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	86.00 PPM	86.13 PPM	G1	+/- 1% NIST Traceable	04/17/2013
AIR	Balance				

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Uncertainty	Expiration Date
NTRM	09061735	CC304058	97.82 PPM PROPANE/AIR	+/- 0.5%	Oct 02, 2013

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801333 C3H8	FTIR	Mar 20, 2013

Triad Data Available Upon Request

Notes

Approved for Release

PRAXAIR

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

DocNumber 000007981

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 12/8/2010
Part Number AI PR2602E AS
Lot Number 917034266
Cylinder Style & Outlet AS CGA 590
Cylinder Pressure & Volume 2000 psig 146 cu ft

Certified Concentration:

Expiration Date	12/13/2013	NIST Traceable
Cylinder Number	CC109519	Analytical Uncertainty
258.1 ppm	PROPANE	± 1 %
Balance	AIR	

Certification Information: Certification Date 12/13/2010 Term 36 Months Expiration Date 12/13/2013

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 PROPANE

Requested Concentration	260 ppm
Certified Concentration	258.1 ppm
Instrument Used	VARIAN 3300 INST 023 (PROPANE)
Analytical Method	FID
Last Multipoint Calibration	11/19/2010

Reference Standard Type	GMIS
Ref. Std. Cylinder #	CC138736
Ref. Std. Conc	499.9 PPM
Ref. Std. Traceable to SRM #	1669b
SRM Sample #	81-H-14
SRM Cylinder #	XF004157b

First Analysis Data: Date: 12/13/2010

Z:	0	R:	501.2	C:	258.6	Conc:	258.07
R:	501.4	Z:	0	C:	258.5	Conc:	257.97
Z:	0	C:	258.7	R:	500.2	Conc:	258.17

UOM: PPM Mean Test Assay: 258.07 PPM

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: PPM Mean Test Assay: 0 PPM

Analyzed by
John Pribish 12/28/10

Certified by Ashley Davila
Ashley Davila

PRAXAIR

Praxair Distribution Mid-Atlantic
145 Shimersville Rd
Bethlehem, PA 18015
Telephone (610) 317-1608
Facsimile (610) 758-8182

DocNumber 000009995

CERTIFICATE OF ANALYSIS / EPA PROTOCOL GAS

Customer & Order Information:

CHEROKEE INSTRUMENTS INC
901 BRIDGE ST
FUQUAY VARINA NC 275260

Praxair Order Number 16230993
Customer P. O. Number 11207
Customer Reference Number

Fill Date 3/17/2011
Part Number EV AIPR500ME-AS
Lot Number 917117668
Cylinder Style & Outlet AS CGA 590
Cylinder Pressure & Volume 2000 psig 140 cu ft

Certified Concentration:

Expiration Date		3/21/2014	NIST Traceable
Cylinder Number		SA20675	Analytical Uncertainty
507.1	ppm	PROPANE	± 1 %
	Balance	AIR	

Certification Information: Certification Date 3/21/2011 *Term* 36 Months *Expiration Date* 3/21/2014

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: PROPANE

Requested Concentration	500 ppm
Certified Concentration	507.1 ppm
Instrument Used	VARIAN 3300 INST 023 (PROPANE)
Analytical Method	FID
Last Multipoint Calibration	3/16/2011

Reference Standard Type	GMIS
Ref. Std. Cylinder #	CC103865
Ref. Std. Conc	749.3 PPM
Ref. Std. Traceable to SRM #	2646a
SRM Sample #	103 C-23
SRM Cylinder #	XF0008208

First Analysis Data: Date 3/21/2011

Z:	0	R:	749.5	C:	508.2	Conc:	507.88
R:	749.1	Z:	0	C:	507.2	Conc:	506.86
Z:	0	C:	506.8	R:	750.4	Conc:	506.46

UOM: PPM Mean Test Assay 507.06 PPM

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: PPM Mean Test Assay 0 PPM

Analyzed by
John Pribish

Certified by MK 4/1/11
Michelle Kostik

Airgas

CERTIFICATE OF ANALYSIS
Grade of Product: EPA Protocol

Airgas Specialty Gases
630 United Drive
Durham, NC 27713
919-544-3773 Fax: 919-544-3774
www.airgas.com

Part Number: E02AI99E15A0333
Cylinder Number: CC148274
Laboratory: ASG - Durham - NC
PGVP Number: B22012
Gas Code: APPVD

Reference Number: 122-124344171-1
Cylinder Volume: 146 Cu.Ft.
Cylinder Pressure: 2015 PSIG
Valve Outlet: 590
Analysis Date: Nov 05, 2012

Expiration Date: Nov 05, 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
PROPANE	850.0 PPM	836.9 PPM	G1	+/- 1% NIST Traceable
Air	Balance			

CALIBRATION STANDARDS

Type	Lot ID	Cylinder No	Concentration	Expiration Date
NTRM	110609	CC343416	1000.3PPM PROPANE/NITROGEN	Mar 04, 2017

ANALYTICAL EQUIPMENT

Instrument/Make/Model	Analytical Principle	Last Multipoint Calibration
Nicolet 6700 AHR0801333 C3H8	FTIR	Oct 11, 2012

Triad Data Available Upon Request

Notes ANW PN 781018

Approved for Release

AIR L DE Air Liquide America Specialty Gases LLC Scott

CERTIFIED WORKING CLASS

Single-Certified Calibration Standard

6141 EASTON ROAD, BLDG 1, PLUMSTEADVILLE, PA 18949-0310 Phone: 800-331-4953 Fax: 215-766-7226

CERTIFICATE OF ACCURACY: Certified Working Class Calibration Standard

Product Information
Document # : 46628943-001
Item No.: MM301080-T-30AL
P.O. No.: 06081203

Cylinder Number: ALM018055
Cylinder Size: 30AL
Certification Date: 21Jun2012
Expiration Date: 21Jun2014
Lot Number: PLU0109851

Customer

ENTHALPY ANAYTICAL, INC.
06081203
800-1 CAPITOLA DRIVE
DURHAM, NC 27703
US

CERTIFIED CONCENTRATION

Component Name	Concentration (Moles)		Accuracy (+/-%)
METHANOL	105.	PPM	5
SULFUR HEXAFLUORIDE	3.0	PPM	5
NITROGEN		BALANCE	

TRACEABILITY

Traceable To

Scott Reference Standard

APPROVED BY: D Ashnoff
DAVID ASHNOFF

DATE: 6-21-2012

Airgas

Airgas Specialty Gases
1075 Cinclare Drive
Port Allen, LA 70767
225 388 0900
FAX 225 388 0959
www.airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED STANDARD-SPEC

Part Number: X03NI99C15A1FX5
Cylinder Number: CC90659
Laboratory: ASG - Port Allen - LA
Analysis Date: Sep 30, 2013
Lot Number: 83-124390037-1A

Reference Number: 83-124390037-1A
Cylinder Volume: 144.4 CF
Cylinder Pressure: 2015 PSIG
Valve Outlet: 350S

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration (Mole %)	Analytical Uncertainty
SULFUR HEXAFLUORIDE	3.000 PPM	3.127 PPM	+/- 5%
METHANOL	100.0 PPM	91.71 PPM	+/- 2%
NITROGEN	Balance		

Notes:

Approved for Release

Airgas

Airgas Specialty Gases
630 United Drive
Durham, NC 27713
(919)544-3773 Fax, (919)544-3774
www.airgas.com

CERTIFICATE OF ANALYSIS

Grade of Product: CERTIFIED STANDARD-SPEC

Part Number: X02NI99C15A1268
Cylinder Number: CC432538
Laboratory: ASG - Durham - NC
Analysis Date: May 08, 2013
Lot Number: 122-124373993-1

Reference Number: 122-124373993-1
Cylinder Volume: 144.4 CF
Cylinder Pressure: 2015 PSIG
Valve Outlet: 350

Product composition verified by direct comparison to calibration standards traceable to N.I.S.T. weights and/or N.I.S.T. Gas Mixture reference materials.

ANALYTICAL RESULTS

Component	Requested Concentration	Actual Concentration (Mole %)	Analytical Uncertainty
ETHYLENE	100.0 PPM	99.88 PPM	+/- 2%
NITROGEN	Balance		

Notes:

Approved for Release

APPENDIX F

Equipment Calibration Sheets

APEX INSTRUMENTS METHOD 5 POST-TEST CONSOLE CALIBRATION
USING CALIBRATED CRITICAL ORIFICES
3-POINT ENGLISH UNITS

Meter Console Information	
Console Model Number	522
Console Serial Number	909033
DGM Model Number	RW 110
DGM Serial Number	961167

Calibration Conditions			
Date	**Time**	10/23/13	1030
Barometric Pressure		29.46	in Hg
Theoretical Critical Vacuum[1]		13.91	in Hg
Calibration Technician		TTB	

Factors/Conversions		
Std Temp	528	°R
Std Press	29.92	in Hg
K_1	17.647	oR/in Hg

[1] **For valid test results, the Actual Vacuum should be 1 to 2 in. Hg greater than the Theoretical Critical Vacuum shown above.**

[2] **The Critical Orifice Coefficient, K', must be entered in English units, ($ft^3{*}°R^{1/2}$)/(in.Hg*min).**

Calibration Data										
Run Time	**Metering Console**					**Critical Orifice**				
Elapsed	**DGM Orifice ΔH**	**Volume Initial**	**Volume Final**	**Outlet Temp Initial**	**Outlet Temp Final**	**Serial Number**	**Coefficient**	**Amb Temp Initial**	**Amb Temp Final**	**Actual Vacuum**
(Θ)	(P_m)	(V_{mi})	(V_{mf})	(t_{mi})	(t_{mf})	FO55	K'	(t_{amb})	(t_{amb})	
min	in H_2O	cubic feet	cubic feet	°F	°F	FO55	see above2	°F	°F	in Hg
16.0	1.20	637.000	646.659	62	63	FO55	0.4594	63	65	19.00
13.0	1.20	647.000	654.859	64	64	FO55	0.4594	65	65	19.00
13.0	1.20	655.100	662.965	64	65	FO55	0.4594	65	66	19.00

Results								
Standardized Data				**Dry Gas Meter**				
				Calibration Factor		**Flowrate**	**ΔH @**	
Dry Gas Meter		**Critical Orifice**		**Value**	**Variation**	**Std & Corr**	**0.75 SCFM**	**Variation**
$(V_{m(std)})$	$(Q_{m(std)})$	$(Vcr_{(std)})$	$(Q_{cr(std)})$	(Y)	(ΔY)	$(Q_{m(std)(corr)})$	(ΔH@)	(ΔΔH@)
cubic feet	cfm	cubic feet	cfm			cfm	in H2O	
9.639	0.602	9.460	0.591	0.981	0.000	0.591	1.934	0.001
7.821	0.602	7.679	0.591	0.982	0.000	0.591	1.933	-0.001
7.819	0.601	7.675	0.590	0.982	0.000	0.590	1.933	-0.001
Pretest Gamma	0.9828	**% Deviation**	0.1	0.982	Y Average		1.933	ΔH@ Average

Note: For Calibration Factor Y, the ratio of the reading of the calibration meter to the dry gas meter, acceptable tolerance of individual values from the average is +-0.02.

I certify that the above Dry Gas Meter was calibrated in accordance with USEPA Methods, CFR Title 40, Part 60, Appendix A-3, Method 5, 16.2.3

Signature ______ Todd Brozell

Date ______ 10/23/2013

Air Control Techniques, P.C.

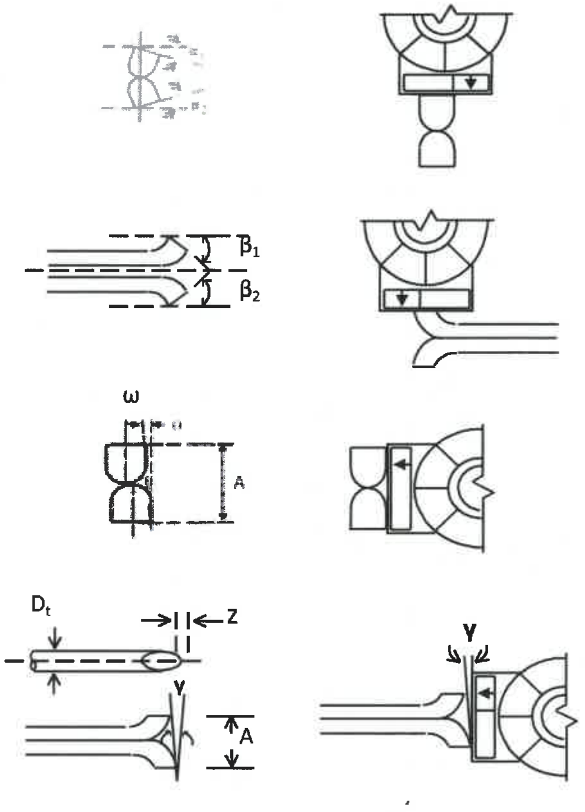
Type S Pitot Tube Inspection and Stack Thermocouple Calibration

GENERAL INFORMATION

Probe ID	4H	Personnel	DLS
Date	9/21/2011	Coefficient Value	0.84

PITOT TUBE INSPECTION

Pitot Tube assembly level? (yes/no)	yes
Pitot Tube obstruction? (yes/no)	no
Pitot Tube openings damaged? (yes/no)	no



α_1	1.4	≤ ±10°
α_2	0.4	≤ ±10°
β_1	1.9	≤ ±5°
β_2	1.2	≤ ±5°
γ	2.9	
θ	0.2	
$z = A \tan(\gamma)$	0.049	≤ ±⅛"
$\omega = A \tan(\theta)$	0.003	≤ ±1⁄32"
D_t	0.375	
	(3/16" < D_t < ⅜" Recommended)	
A	0.9375	
P_A P_B	1.29	
	(1.05 < P/D_t < 1.50 Recommended)	

STACK THERMOCOUPLE CALIBRATION

Ref. Type: Hg Thermometer

Ref. ID: Hg-1

Source	Ref., °F	Stack TC, °F	Abs. Diff.,° F
Ice bath	43	45	2
Ambient	75	75	0
Hot water	193	194	1
		Maximum Temp. Difference, °F	2

Air
Control Techniques, P.C.

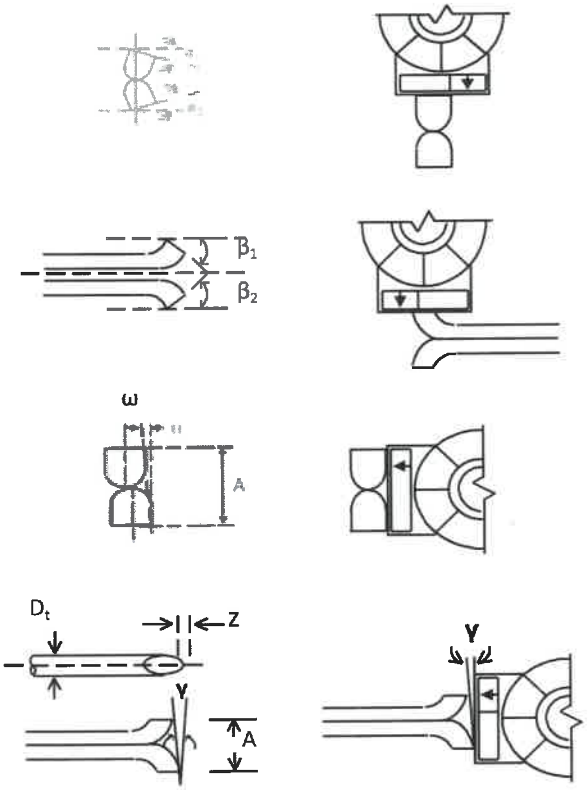
Type S Pitot Tube Inspection and Stack Thermocouple Calibration

GENERAL INFORMATION

Probe ID: 6H
Date: 9/21/2011
Personnel: DLS
Coefficient Value: 0.84

PITOT TUBE INSPECTION

Pitot Tube assembly level? (yes/no)	yes
Pitot Tube obstruction? (yes/no)	no
Pitot Tube openings damaged? (yes/no)	no



α_1	1.4	≤ ±10°
α_2	0.4	≤ ±10°
β_1	1.9	≤ ±5°
β_2	1.2	≤ ±5°
γ	2.9	
θ	0.2	
$z = A \tan(\gamma)$	0.049	$\leq \pm \frac{1}{8}$"
$\omega = A \tan(\theta)$	0.003	$\leq \pm \frac{1}{32}$"
D_t	0.375	
A	0.9375	
P_A P_B	1.29	

($3/16" < D_t < \frac{3}{8}"$ Recommended)

($1.05 < P/D_t < 1.50$ Recommended)

STACK THERMOCOUPLE CALIBRATION

Ref. Type: Hg Thermometer
Ref. ID: Hg-1

Source	Ref., °F	Stack TC, °F	Abs. Diff.,° F
Ice bath	43	45	2
Ambient	75	75	0
Hot water	193	192	1
		Maximum Temp. Difference, °F	2

ATTACHMENT C

Air
Control Techniques, P.C.

301 East Durham Road
Cary, North Carolina 27513

Office (919) 460-7811
Fax (919) 460-7897

February 23, 2015

Sent via email: Mike.doniger@envivabiomass.com

Mr. Mike Doniger
Corporate Development
Enviva Biomass, L. P.
7200 Wisconsin Ave, Suite 1000
Bethesda, MD 20814 USA

Re: Benzene, Acrolein, and Phenol Emissions
Air Control Techniques, P.C. files 1909, 1912

Dear Mike,

I have prepared a summary of the technical basis for our conclusion that benzene, acrolein, and phenol are not present in the air emissions from dryers, dry hammermills, and pellet coolers of Enviva Biomass, L.P. facilities.

This conclusion is based on (1) our technical review of published literature concerning pellet production process air emissions, (2) our laboratory studies conducted to identify variables affecting emissions and types of organic compounds emitted, (3) our work with Dr. Grant Plummer of Enthalpy Analytical, Inc. concerning Method 320 data analyses, and (4) Method 320 testing at Enviva facilities. Work areas 1 through 3 were part of our pretest program to determine the most appropriate testing procedures for the pellet production industry. Work area 4 involved tests at two Enviva Biomass, L.P. facilities with quite different hardwood/softwood ratios.

1. Technical Review of Published Literature

Air Control Techniques, P.C. has obtained and reviewed peer-reviewed and internet-available technical articles concerning pellet production process air emissions. A list of the references that we reviewed is provided as an Attachment to this letter.

None of these articles listed benzene, acrolein, or phenol as significant components of the air emission streams. These articles published in the 2000 through 2010 period indicated that the air emissions consist primarily of mono-terpenes, di-terpenes and acetone. Organic hazardous air pollutants (HAPs) listed in these papers and articles indicate that methanol and formaldehyde are also present.

2. Laboratory Studies

Air Control Techniques, P.C. conducted a number of laboratory tests to evaluate the variables potentially affecting organic compound emissions and the specific compounds present in the air streams. We conducted these tests using equipment that simulated the conditions in Enviva wood dryers and pellet coolers.

We conducted more than 20 separate tests to evaluate the characteristics of emissions. These tests involved both U.S. EPA Reference Method 18 (gas canister, activated carbon tubes, and impinger solution) and NCASI Method 98.01 tests of the effluent gas stream. Benzene and phenol were not detected in any of these laboratory tests. Acrolein at very low concentrations was above the limit of quantification in one test; therefore, this compound was included as a possible compound in the effluent gas streams.

3. Method 320 Application to Pellet Production Facilities

One of the primary conclusions of the literature review and the laboratory study was that Method 25A was appropriate for measuring total VOCs and that Method 320 (FTIR) was appropriate for measuring organic HAP emissions.

The literature data and laboratory studies clearly indicated that the air emission streams from pellet production facilities were composed of a large number of mono- and di-terpenes, acetone, methanol, and formaldehyde. High concentrations of moisture and carbon dioxide, both major FTIR interferents, are in the dryer exhaust. Collectively, this mixture of compounds creates a complex matrix for conducting Method 320 analyses.

After the first test at the Enviva Northampton, LLC plant in the fall of 2013, Air Control Techniques, P.C. began an intensive data evaluation modeling program to identify the most accurate set of FTIR spectral analysis peaks to quantify organic HAPS, terpenes, acetone, and other compounds while minimizing interferences in this complex matrix. Air Control Techniques, P.C. consulted with Dr. Grant Plummer of Enthalpy, Inc. concerning this FTIR application. Dr. Plummer is co-developer of U.S. EPA Method 320 and is a recognized expert in this field. Based on work conducted by Dr. Plummer and by David Goshaw, P.E., QSTI (Air Control Techniques, P.C.'s FTIR expert), we developed an accurate FTIR model and data evaluation approach for each process emission source at Enviva. Based on these Method 320 procedures we analyzed the Northampton samples and laboratory samples. We did not observe benzene, acrolein, and phenol in these analyses after the evaluation program was refined to avoid interferences from terpene compounds, water, and carbon dioxide.

4. Northampton and Amory Test Programs

Air Control Techniques, P.C. has conducted Method 320 air emission testing at the Enviva Amory LLC facility using the Method 320 procedures developed after the tests at Northampton. Benzene, acrolein, and phenol were not detected in these tests.

If it is of interest to DENR, we can provide the FTIR files for these tests programs as a separate submission. Each test program generated over 1,500 separate files with a total size exceeding

400 megabytes for each test program. We can also supply the instrument specific data and quality assurance information relevant to these test programs.

5. Conclusions

I do not believe that benzene, acrolein, or phenol are present in significant concentrations in pellet production facility air emission streams. This conclusion is based on (1) the technical review of relevant literature, (2) a comprehensive set of laboratory studies, (3) guidance provided by Dr. Plummer on Method 320 data analyses, and (4) tests performed at Enviva facilities.

This conclusion is logical considering the specific characteristics and operating conditions of the Enviva processes. Specificially, the Enviva dryers operate at substantially lower temperatures and with high dryer-exit wood moisture levels. Both the literature data and laboratory data clearly indicated that both factors are related to substantially lower emissions than some other pellet processes.

Pellet production does not involve the use of resins similar to those used in particleboard and MDF processes. The thermal breakdown products of these additives are responsible for some, and perhaps all of the benzene from these quite different processes. Emission factors for particleboard and MDF processes are not relevant to Enviva pellet production facilities.

For the reasons stated in this letter, I believe that benzene, acrolein, and phenol are not present at significant concentrations in the air emission gas streams from Enviva facilities. If anyone at DENR has any questions, please have them contact David Goshaw or me.

Regards,

John Richards

John Richards, Ph.D., P.E., QSTI
President, Air Control Techniques, P.C.

ATTACHMENT
LITERATURE REFERENCES

1. Beauchemin, P. and M. Tampier. "Emissions and Air Pollution Control for the Biomass Pellet Manufacturing Industry." Report submitted to the British Columbia Ministry of the Environment. May 12, 2010.

2. Granström, K. "Emissions of Volatile Organic Compounds from Wood." Dissertation, Karlstad University, Karlstad, Sweden. June 2005.

3. Granström, K, and B. Månsoon. "Volatile Organic Compounds Emitted from Hardwood Drying as a Function of Processing Parameters." Journal of Environmental Science and Technology, Volume 5, Number 2, Pages 141-148. 2008.

4. Milota, M.R. "Emissions from Wood Drying" Forest Projects Journal, Volume 50, Number 6, Pages 10-19, June 2000.

5. Milota, M. and P. Mosher. "Emissions of Hazardous Air Pollutants from Lumber Drying." Forest Products Journal, Volume 58, No. 7/8, Pages 50-55, July/August 2008.

6. Kung, X. T. et al. "Rate and Peak Concentrations of Off-Gas Emissions in Stored Wood Pellets—Sensitivities to Temperature, Relative Humidity, and Headspace Volume." Annual of Occupational Hygiene, Volume 53, No. 89, Pages 789-796, 2009.

7. Arshadi, M. P., Geladi, R. Gref, and P. Fjallstrom. "Emission of Volatile Aldehydes and Ketones from Wood Pellets Under Controlled Conditions." Annuals of Occupational Hygiene, Vol. 53, No. 8, pp 797-805. 2009.

DIVISION OF AIR QUALITY
March 25, 2015

MEMORANDUM

To: Robert Fisher, Washington Regional Office

From: Shannon Vogel, Stationary Source Compliance Branch SMVogel

Subject: Enviva Pellets Ahoskie, LLC
Ahoskie, Hertford County, North Carolina
Facility ID 4600107, Permit No. 10121R02
VOC Emissions Testing Performed by Air Control Techniques, Inc.
Tracking No. 2014-115st - Dry Hammermill ES-DHM-2 (6/25/14)
Tracking No. 2014-116st - Dryer ES-DRYER (7/2-3/14)
Tracking No. 2014-117st – Pellet Cooler ES-CLR2 (6/26/14)

Air Control Techniques, Inc. (ACT) performed EPA Method 25A on June 25-26 and July 2-3, 2014 in order to determine the VOC emissions from the wood pellet processes while operating at a higher softwood/hardwood ratio. The EPA Method 25A results are acceptable for VOC "emission factors" in pounds of alpha-pinene per oven dry tons pulp (lb/ODT).

ES-DRYER is a direct heat wood-fired dryer controlled by simple cyclone CD-DC and wet electrostatic precipitator CD-WESP. ES-CLR1, CLR2, CLR3, and CLR 4 are four pellet coolers controlled by two multicyclones CD-CLR-C1 and CD-CLR-C2. ES-DHM-1 through 4 are four dry wood hammermills controlled by four simple cyclones CD-DHM-C1 through C4 and two fabric filter CD-DHM-FF1 and CD-DHM-FF2.
77778888
The test report included transcription errors in the results and reported production rates. The VOC as propane and VOC as alpha-pinene test results are acceptable only as tabulated below.

Source ID/Date	Softwood	Production	VOC as propane	**VOC as α-pinene**
Hammermill 6/25/14	33%	10.1 ODT/hr	1.01 lb/hr	0.94 lb/hr
			0.101 lb/ODT	**0.093 lb/ODT**
Pellet Cooler 6/26/14	45%	22.4 ODT/hr	11.02 lb/hr	10.24 lb/hr
			0.492 lb/ODT	**0.457 lb/ODT**
Dryer 7/2-3/14	30%	40.9 ODT/hr[1]	34.4 lb/hr	32.0 lb/hr
			0.844 lb/ODT	**0.784 lb/ODT**

1. Runs 1, 2, and 4 average from reported rates of 41.5, 41.9 and 39.3 ODT/hr, respectively.

If you have any questions regarding the results of this review, please contact me at (919) 707-8416 or Shannon.vogel@ncdenr.gov.

cc: Central Files, Hertford County
IBEAM Documents 4600107

DIVISION OF AIR QUALITY
March 25, 2015

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To: Robert Fisher, Washington Regional Office

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			0.101 lb/ODT	**0.093 lb/ODT**
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			0.492 lb/ODT	**0.457 lb/ODT**
Dryer 7/2-3/14	30%	40.9 ODT/hr	11.02 lb/hr	10.24 lb/hr
			0.844 lb/ODT	**0.784 lb/ODT**

If you have any questions regarding the results of this review, please contact me at (919) 707-8416 or Shannon.vogel@ncdenr.gov.

cc: Central Files, Hertford County
IBEAM Documents 4600107

NCDENR
North Carolina Department of Environment and Natural Resources

Pat McCrory
Governor

John E. Skvarla, III
Secretary

Hertford

April 9, 2014

Alan H. McConnell
Council to Enviva Pellets, Ahoskie, LP
Kilpatrick Townsend & Stockton LLP
Suite 1400, 4208 Six Forks Road
Raleigh, NC 27609

RE: Request for Pine Trial, Enviva Pellets, Ahoskie, LP. AQ Permit #10121R01

Dear Mr. McConnell:

The Division is in receipt of your letter dated March 14, 2014 regarding the subject request to increase the percentage of softwood used as a raw material at the Ahoskie facility on a trial basis.

We understand that the Ahoskie facility will use the trial period to determine VOC emission factors resulting from higher softwood percentages in the raw material. While Enviva's permit does not limit the percentage of softwood in the raw material, the existing PSD avoidance limit is based on an emission factor derived from a 10% softwood content. At no time is the Ahoskie facility allowed to exceed any existing permitted limits related to emissions or throughput in order to conduct the trial.

Under the above conditions, the Division approves Enviva Pellets, Ahoskie, LP to conduct a 12-month trial to determine emission factors for the increased percentage of softwood in the raw material used at the facility. Prior to the use of such emission factors in future permitting decisions, Enviva shall submit a testing protocol and reference test method results to the Division for evaluation.

Please contact William Willets at 919-707-8726 with any questions.

Sincerely,

Mark Cuilla

Mark Cuilla, CPM, Acting Chief, Permitting Section
Division of Air Quality, NCDENR

cc: Michael Pjetraj, Supervisor, Stationary Source Compliance Branch