APPENDIX B

Total Hydrocarbon Emissions Calculations / Field Data

1. Auto Waste – Scrubber/Cyclone 1
2. Auto Waste – Cyclone 2
3. Auto Waste – Cyclone 3
4. [redacted] – Scrubber/Cyclone 1
5. [redacted] – Cyclone 2
6. [redacted] – Cyclone 3
7. Blended Waste – Scrubber/Cyclone 1
8. Blended Waste – Cyclone 2
9. Blended Waste – Cyclone 3

B1. Auto Waste – Scrubber/Cyclone 1

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Auto-C1-R1**
Source:	**Scrubber/Cyclone 1 - Auto**	**Date:**	**18-Nov-15**

START TIME :	9:59	END TIME :	10:59

Avg. VOC Concentration (as methane)	**58.16**	PPMwv
Average Volumetric Flow Rate	2,349,398	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	2.09	%

Non-Methane VOC as methane (PPM wet volume)	=	**58.155**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**59.394**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**2.47E-06**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**5.797**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Auto-C1-R2**
Source:	**Scrubber/Cyclone 1 - Auto**	**Date:**	**18-Nov-15**

START TIME :	12:28	END TIME :	13:28

Avg. VOC Concentration (as methane)	**81.30**	PPMwv
Average Volumetric Flow Rate	2,273,077	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	2.10	%

Non-Methane VOC as methane (PPM wet volume)	=	**81.302**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**83.046**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**3.45E-06**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**7.842**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Auto-C1-R4**
Source:	**Scrubber/Cyclone 1 - Auto**	**Date:**	**19-Nov-16**

START TIME :	7:39	END TIME :	8:39

Avg. VOC Concentration (as methane)	**82.79**	PPMwv
Average Volumetric Flow Rate	2,190,033	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	2.82	%

Non-Methane VOC as methane (PPM wet volume)	=	**82.793**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**85.193**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**3.54E-06**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**7.751**	lb/hr

Method 25A Calibration Data Sheet - THC

Source Summary	
Client:/Site:	wTe Recycling
Source:/Location:	Scrubber/Cyclone 1 - Auto
Test Date:	18-Nov-15

Field Crew Summary	
Crew Member 1 -	AMS, ARS
Crew Member 2 -	JB, MB
Crew Member 3 -	JC, TS

THC Analyzer Data			
Manufacturer -	TECO		
Model/Serial Number -	51 / THC51-2		
Fuel Pressure -	20		
Combustion Air Pressure -	33		
Sample Pressure -	9		
Range -	0	-	1,000
Calibrant (choose one, x in box)	Propane		
	Methane	x	
Program Molecular Weight:	**16.04**	**g/mol**	

Calibration Error Test Data		
Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.3
High Gas	830.0	830.8
Response Line	1.001	

Response Line = (Ha-Za)/(Hc-Zc)

Run Summary			
Run No.	1	2	
Start Time	9:59	12:28	
Stop Time	10:59	13:28	

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	275.0	275.2	283.7	3.1	< 5% of cylinder concentration
Mid Gas	505.0	505.3	495.2	2.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria	
Test Run 1 Zero	0.0	0.3	3.2	0.3	< 3% of the measurement range	
Test Run 1 Upscale	275.0	283.7	297.2	1.4	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	58.2
Test Run 2 Zero	0.0	0.3	5.0	0.5	< 3% of the measurement range	
Test Run 2 Upscale	275.0	283.7	293.1	0.9	< 3% of the measurement range	
					Test Run 2 Avg. Conc.	81.3
Test Run 3 Zero	0.0	0.3	VOID		< 3% of the measurement range	
Test Run 3 Upscale	275.0	283.7	VOID		< 3% of the measurement range	
					Test Run 3 Avg. Conc.	

Where:

$$\text{Calibration Drift} = \frac{(\text{Final Test Response} - \text{Initial Test Response})}{\text{Measurement Range}} * 100$$

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2			N/A
Combustion Air			UHP Air			
Zero Gas	0	0	UHP Air			0.0%
Low Gas	25-35	275.0	CH4/Air	EB0023533	6/7/2021	27.5%
Mid Gas	45-55	505.0	CH4/Air	SG9166156	8/5/2023	50.5%
High Gas	80-90	830.0	CH4/Air	EB0058020	7/21/2023	83.0%

Method 25A Calibration Data Sheet - THC

Source Summary	
Client:/Site:	wTe Recycling
Source:/Location:	Scrubber/Cyclone 1 - Auto
Test Date:	19-Nov-16

Field Crew Summary	
Crew Member 1 -	AMS, ARS
Crew Member 2 -	JB, MB
Crew Member 3 -	JC, TS

THC Analyzer Data			
Manufacturer -	TECO		
Model/Serial Number -	51 / THC51-2		
Fuel Pressure -	20		
Combustion Air Pressure -	34		
Sample Pressure -	9		
Range -	0	-	1,000
Calibrant (choose one, x in box)	Propane		
	Methane	x	
Program Molecular Weight:	**16.04**	**g/mol**	

Run Summary			
Run No.	4		
Start Time	7:39		
Stop Time	8:39		

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	1.3
High Gas	830.0	833.4
Response Line	1.003	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	275.0	275.7	285.6	3.6	< 5% of cylinder concentration
Mid Gas	505.0	506.3	496.3	2.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria	
Test Run 4 Zero	0.0	1.3	5.2	0.4	< 3% of the measurement range	
Test Run 4 Upscale	275.0	285.6	286.5	0.1	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	82.8
					< 3% of the measurement range	
					< 3% of the measurement range	
					Test Run 2 Avg. Conc.	
					< 3% of the measurement range	
					< 3% of the measurement range	
					Test Run 3 Avg. Conc.	

Where:

$$\text{Calibration Drift} = \frac{(\text{Final Test Response} - \text{Initial Test Response})}{\text{Measurement Range}} * 100$$

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2			N/A
Combustion Air			UHP Air			
Zero Gas	0	0	UHP Air			0.0%
Low Gas	25-35	275.0	CH4/Air	EB0023533	6/7/2021	27.5%
Mid Gas	45-55	505.0	CH4/Air	SG9166156	8/5/2023	50.5%
High Gas	80-90	830.0	CH4/Air	EB0058020	7/21/2023	83.0%

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/18/15
Source:	Scrubber/Cyclone 1 -	**Start Time:**	9:59
Run No.:	Auto-C1-R1	**Stop Time:**	10:59

Date/time	THC ppmvw			
11/18/2015 9:59:00 AM	11.1			
11/18/2015 10:00:00 AM	14.7			
11/18/2015 10:01:00 AM	57.5			
11/18/2015 10:02:00 AM	94.8			
11/18/2015 10:03:00 AM	30.9			
11/18/2015 10:04:00 AM	18.3			
11/18/2015 10:05:00 AM	24.9			
11/18/2015 10:06:00 AM	19.3			
11/18/2015 10:07:00 AM	28.3			
11/18/2015 10:08:00 AM	18.6			
11/18/2015 10:09:00 AM	26.7			
11/18/2015 10:10:00 AM	35.7			
11/18/2015 10:11:00 AM	30.2			
11/18/2015 10:12:00 AM	22.8			
11/18/2015 10:13:00 AM	21.0			
11/18/2015 10:14:00 AM	18.9			
11/18/2015 10:15:00 AM	44.9			
11/18/2015 10:16:00 AM	74.8			
11/18/2015 10:17:00 AM	113.3			
11/18/2015 10:18:00 AM	116.0			
11/18/2015 10:19:00 AM	61.6			
11/18/2015 10:20:00 AM	100.6			
11/18/2015 10:21:00 AM	54.3			
11/18/2015 10:22:00 AM	37.4			
11/18/2015 10:23:00 AM	42.2			
11/18/2015 10:24:00 AM	47.8			
11/18/2015 10:25:00 AM	33.0			
11/18/2015 10:26:00 AM	36.8			
11/18/2015 10:27:00 AM	39.1			
11/18/2015 10:28:00 AM	123.5			
11/18/2015 10:29:00 AM	47.1			
11/18/2015 10:30:00 AM	106.1			
11/18/2015 10:31:00 AM	98.6			
11/18/2015 10:32:00 AM	61.6			
11/18/2015 10:33:00 AM	46.6			
11/18/2015 10:34:00 AM	56.0			
11/18/2015 10:35:00 AM	75.1			
11/18/2015 10:36:00 AM	42.0			
11/18/2015 10:37:00 AM	29.8			
11/18/2015 10:38:00 AM	45.1			
11/18/2015 10:39:00 AM	87.6			
11/18/2015 10:40:00 AM	112.3			
11/18/2015 10:41:00 AM	62.6			
11/18/2015 10:42:00 AM	57.4			
11/18/2015 10:43:00 AM	63.5			
11/18/2015 10:44:00 AM	97.7			
11/18/2015 10:45:00 AM	86.3			
11/18/2015 10:46:00 AM	45.6			
11/18/2015 10:47:00 AM	33.5			
11/18/2015 10:48:00 AM	34.4			
11/18/2015 10:49:00 AM	47.4			
11/18/2015 10:50:00 AM	62.7			
11/18/2015 10:51:00 AM	153.6			
11/18/2015 10:52:00 AM	77.4			
11/18/2015 10:53:00 AM	102.6			
11/18/2015 10:54:00 AM	59.6			
11/18/2015 10:55:00 AM	46.7			
11/18/2015 10:56:00 AM	122.0			
11/18/2015 10:57:00 AM	86.2			
11/18/2015 10:58:00 AM	43.2			
Run Averages:	**58.2**			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/18/15
Source:	Scrubber/Cyclone 1 -	**Start Time:**	12:28
Run No.:	Auto-C1-R2	**Stop Time:**	13:28

Date/time	THC ppmvw			
11/18/2015 12:28:00 PM	11.0			
11/18/2015 12:29:00 PM	11.6			
11/18/2015 12:30:00 PM	12.2			
11/18/2015 12:31:00 PM	27.7			
11/18/2015 12:32:00 PM	37.5			
11/18/2015 12:33:00 PM	20.3			
11/18/2015 12:34:00 PM	67.4			
11/18/2015 12:35:00 PM	100.8			
11/18/2015 12:36:00 PM	115.9			
11/18/2015 12:37:00 PM	95.2			
11/18/2015 12:38:00 PM	70.8			
11/18/2015 12:39:00 PM	134.4			
11/18/2015 12:40:00 PM	60.2			
11/18/2015 12:41:00 PM	54.2			
11/18/2015 12:42:00 PM	81.4			
11/18/2015 12:43:00 PM	110.5			
11/18/2015 12:44:00 PM	80.8			
11/18/2015 12:45:00 PM	56.4			
11/18/2015 12:46:00 PM	78.5			
11/18/2015 12:47:00 PM	110.8			
11/18/2015 12:48:00 PM	156.1			
11/18/2015 12:49:00 PM	134.1			
11/18/2015 12:50:00 PM	96.5			
11/18/2015 12:51:00 PM	131.0			
11/18/2015 12:52:00 PM	61.5			
11/18/2015 12:53:00 PM	103.1			
11/18/2015 12:54:00 PM	71.7			
11/18/2015 12:55:00 PM	156.3			
11/18/2015 12:56:00 PM	299.9			
11/18/2015 12:57:00 PM	114.1			
11/18/2015 12:58:00 PM	77.8			
11/18/2015 12:59:00 PM	76.6			
11/18/2015 1:00:00 PM	49.0			
11/18/2015 1:01:00 PM	40.2			
11/18/2015 1:02:00 PM	51.1			
11/18/2015 1:03:00 PM	68.5			
11/18/2015 1:04:00 PM	60.0			
11/18/2015 1:05:00 PM	93.8			
11/18/2015 1:06:00 PM	62.2			
11/18/2015 1:07:00 PM	50.5			
11/18/2015 1:08:00 PM	82.7			
11/18/2015 1:09:00 PM	87.4			
11/18/2015 1:10:00 PM	150.8			
11/18/2015 1:11:00 PM	120.2			
11/18/2015 1:12:00 PM	75.6			
11/18/2015 1:13:00 PM	47.9			
11/18/2015 1:14:00 PM	40.4			
11/18/2015 1:15:00 PM	64.9			
11/18/2015 1:16:00 PM	68.1			
11/18/2015 1:17:00 PM	37.4			
11/18/2015 1:18:00 PM	74.7			
11/18/2015 1:19:00 PM	95.2			
11/18/2015 1:20:00 PM	110.5			
11/18/2015 1:21:00 PM	74.5			
11/18/2015 1:22:00 PM	55.3			
11/18/2015 1:23:00 PM	37.8			
11/18/2015 1:24:00 PM	42.3			
11/18/2015 1:25:00 PM	99.1			
11/18/2015 1:26:00 PM	77.7			
11/18/2015 1:27:00 PM	144.0			
Run Averages:	**81.3**			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/19/16
Source:	Scrubber/Cyclone 1 -	**Start Time:**	7:39
Run No.:	Auto-C1-R4	**Stop Time:**	8:39

Date/time	THC ppmvw			
11/19/2015 7:39:08 AM	285.2			
11/19/2015 7:40:08 AM	284.9			
11/19/2015 7:41:08 AM	86.5			
11/19/2015 7:42:08 AM	27.5			
11/19/2015 7:43:08 AM	202.5			
11/19/2015 7:44:08 AM	54.0			
11/19/2015 7:45:08 AM	28.1			
11/19/2015 7:46:08 AM	22.3			
11/19/2015 7:47:08 AM	83.0			
11/19/2015 7:48:08 AM	110.0			
11/19/2015 7:49:08 AM	53.5			
11/19/2015 7:50:08 AM	50.2			
11/19/2015 7:51:08 AM	85.0			
11/19/2015 7:52:08 AM	181.5			
11/19/2015 7:53:08 AM	94.2			
11/19/2015 7:54:08 AM	119.2			
11/19/2015 7:55:08 AM	106.3			
11/19/2015 7:56:08 AM	105.9			
11/19/2015 7:57:08 AM	53.6			
11/19/2015 7:58:08 AM	48.3			
11/19/2015 7:59:08 AM	54.1			
11/19/2015 8:00:08 AM	56.8			
11/19/2015 8:01:08 AM	172.3			
11/19/2015 8:02:08 AM	62.9			
11/19/2015 8:03:08 AM	38.8			
11/19/2015 8:04:08 AM	45.1			
11/19/2015 8:05:08 AM	33.7			
11/19/2015 8:06:08 AM	46.5			
11/19/2015 8:07:08 AM	61.7			
11/19/2015 8:08:08 AM	65.7			
11/19/2015 8:09:08 AM	37.7			
11/19/2015 8:10:08 AM	30.9			
11/19/2015 8:11:08 AM	101.2			
11/19/2015 8:12:08 AM	67.4			
11/19/2015 8:13:08 AM	54.2			
11/19/2015 8:14:08 AM	53.2			
11/19/2015 8:15:08 AM	49.2			
11/19/2015 8:16:08 AM	70.5			
11/19/2015 8:17:08 AM	89.4			
11/19/2015 8:18:08 AM	136.9			
11/19/2015 8:19:08 AM	177.7			
11/19/2015 8:20:08 AM	88.6			
11/19/2015 8:21:08 AM	83.7			
11/19/2015 8:22:08 AM	75.2			
11/19/2015 8:23:08 AM	53.8			
11/19/2015 8:24:08 AM	79.1			
11/19/2015 8:25:08 AM	94.8			
11/19/2015 8:26:08 AM	106.3			
11/19/2015 8:27:08 AM	92.4			
11/19/2015 8:28:08 AM	53.2			
11/19/2015 8:29:08 AM	171.9			
11/19/2015 8:30:08 AM	91.7			
11/19/2015 8:31:08 AM	51.3			
11/19/2015 8:32:08 AM	50.0			
11/19/2015 8:33:08 AM	65.7			
11/19/2015 8:34:08 AM	58.4			
11/19/2015 8:35:08 AM	36.7			
11/19/2015 8:36:08 AM	35.2			
11/19/2015 8:37:08 AM	38.4			
11/19/2015 8:38:08 AM	53.6			
Run Averages:	**82.8**			

Method 25A Data Sheet (THC)

Auto Condition

Client	WTE
Facility	Greenfield, MA
Source ID	Cyclone #1
Test Location	Stack
Date	18 NOV 2015

THC Analyzer Data

Manufacturer	TECO
Model/Serial Number	Model 51 / THC51-2
Fuel Pressure	20
Combustion Air Pressure	33
Sample Pressure	9
Measurement Range	0-1000 as CH4
Response Time	75 sec

Test Data

Test Number:	1	2	3
Start Time:	959		
Stop Time:	1059		
Testers:			

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.3
High Gas	830	830.8
Response Line		

Response Line = (Ha/Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	275.0		283.7		< 5% of cylinder concentration
Mid Gas	505		495.2		< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance	
Test Run 1 Zero	0.0	0.3	3.2		< 3% of the measurement range	
Test Run 1 Upscale	275.0	283.7	297.2		< 3% of the measurement range	
					Test Run 1 Avg. Conc.	
Test Run 2 Zero	0.0	0.3	5.0		< 3% of the measurement range	
Test Run 2 Upscale	275.0	283.7	293.1		< 3% of the measurement range	
					Test Run 2 Avg. Conc.	
Test Run 3 Zero	0.0	0.3	2.2		< 3% of the measurement range	
Test Run 3 Upscale	275.0	283.7	293.4		< 3% of the measurement range	
Calibration Drift = (Actual Response - CE Test Response) / Measurement Range * 100					Test Run 3 Avg. Conc.	

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2			
Combustion Air			UHP Air			
Zero Gas			UHP Air			
Low Gas	25 - 35	275.0	CH4/Air	EB0023513	6-7-21	
Mid Gas	45 - 55	505	CH4/Air	X916615C	8-5-23	
High Gas	80 - 90	830	CH4/Air	EB0053520	7-21-23	

Method 25A Data Sheet (THC)

Auto Condition

Client	WTE
Facility	Greenfield, MA
Source ID	Cyclone #1
Test Location	Stack
Date	18 19 NOV 2015

THC Analyzer Data

Manufacturer	TECO
Model/Serial Number	Model 51 / THC51-2
Fuel Pressure	20
Combustion Air Pressure	34
Sample Pressure	9
Measurement Range	0-1000 as CH4
Response Time	75 sec

Test Data

Test Number:	4	2	3
Start Time:	739	/	/
Stop Time:	839	/	/
Testers:			

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	1.3
High Gas	830	833.4
Response Line	1.003	

Response Line = (Ha/Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	275.0	275.7	285.6	3.6	< 5% of cylinder concentration
Mid Gas	505	506.3	496.3	2.0	< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance
Test Run 4 Zero	0.0	1.3	5.2	0.4	< 3% of the measurement range
Test Run 4 Upscale	275.0	285.6	286.5	0.1	< 3% of the measurement range
					Test Run 1 Avg. Conc.
Test Run 2 Zero	0.0				< 3% of the measurement range
Test Run 2 Upscale					< 3% of the measurement range
					Test Run 2 Avg. Conc.
Test Run 3 Zero	0.0				< 3% of the measurement range
Test Run 3 Upscale					< 3% of the measurement range
					Test Run 3 Avg. Conc.

Calibration Drift = (Actual Response - CE Test Response) * 100 / Measurement Range

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2	N/A		
Combustion Air			UHP Air			
Zero Gas			UHP Air			
Low Gas	25 - 35	275	CH4/Air	EB0023533	6/7/21	27.5
Mid Gas	45 - 55	505	CH4/Air	SG9166156	8/5/23	50.5
High Gas	80 - 90	830	CH4/Air	EB0058020	7/6/23	83.0

B2. Auto Waste – Cyclone 2

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Auto-C2-R1**
Source:	**Cyclone 2 - Auto**	**Date:**	**18-Nov-15**

START TIME :	10:01	END TIME :	11:01

Avg. VOC Concentration (as methane)	**3.97**	PPMwv
Average Volumetric Flow Rate	1,105,216	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	1.12	%

Non-Methane VOC as methane (PPM wet volume)	=	**3.975**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**4.020**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.67E-07**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**0.185**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Auto-C2-R2**
Source:	**Cyclone 2 - Auto**	**Date:**	**18-Nov-15**

START TIME :	12:28	END TIME :	13:28

Avg. VOC Concentration (as methane)	**4.63**	PPMwv
Average Volumetric Flow Rate	1,059,263	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	1.30	%

Non-Methane VOC as methane (PPM wet volume)	=	**4.628**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**4.689**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.95E-07**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**0.206**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Auto-C2-R4**
Source:	**Cyclone 2 - Auto**	**Date:**	**19-Nov-16**

START TIME :	7:39	END TIME :	8:39

Avg. VOC Concentration (as methane)	**3.09**	PPMwv
Average Volumetric Flow Rate	1,056,931	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	1.48	%

Non-Methane VOC as methane (PPM wet volume)	=	**3.093**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**3.139**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.30E-07**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**0.138**	lb/hr

Method 25A Calibration Data Sheet - THC

Source Summary	
Client:/Site:	wTe Recycling
Source:/Location:	Cyclone 2 - Auto
Test Date:	18-Nov-15

Field Crew Summary	
Crew Member 1 -	AMS, ARS
Crew Member 2 -	JB, MB
Crew Member 3 -	JC, TS

THC Analyzer Data			
Manufacturer -	TECO		
Model/Serial Number -	51 / THC51-3		
Fuel Pressure -	24		
Combustion Air Pressure -	31		
Sample Pressure -	9		
Range -	0	-	100
Calibrant (choose one, x in box)	Propane		
	Methane	x	
Program Molecular Weight:	**16.04**	**g/mol**	

Run Summary			
Run No.	1	2	
Start Time	10:01	12:28	
Stop Time	11:01	13:28	

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.3
High Gas	85.7	85.9
Response Line	0.999	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	29.1	29.1	28.4	2.3	< 5% of cylinder concentration
Mid Gas	52.2	52.1	50.5	3.1	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria	
Test Run 1 Zero	0.0	0.3	0.1	0.2	< 3% of the measurement range	
Test Run 1 Upscale	29.1	28.4	28.5	0.1	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	4.0
Test Run 2 Zero	0.0	0.3	0.0	0.3	< 3% of the measurement range	
Test Run 2 Upscale	29.1	28.4	28.9	0.5	< 3% of the measurement range	
					Test Run 2 Avg. Conc.	4.6
					< 3% of the measurement range	
					< 3% of the measurement range	
					Test Run 3 Avg. Conc.	

Where:

$$\text{Calibration Drift} = \frac{(\text{Final Test Response} - \text{Initial Test Response})}{\text{Measurement Range}} * 100$$

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2			N/A
Combustion Air			UHP Air			
Zero Gas	0	0	UHP Air			0.0%
Low Gas	25-35	29.1	CH4/Air	EB0057655	9/11/2022	29.1%
Mid Gas	45-55	52.2	CH4/Air	EB0051398	12/9/2021	52.2%
High Gas	80-90	85.7	CH4/Air	EB0017083	8/11/2023	85.7%

Method 25A Calibration Data Sheet - THC

Source Summary	
Client:/Site:	wTe Recycling
Source:/Location:	Cyclone 2 - Auto
Test Date:	19-Nov-16

Field Crew Summary	
Crew Member 1 -	AMS, ARS
Crew Member 2 -	JB, MB
Crew Member 3 -	JC, TS

THC Analyzer Data			
Manufacturer -	TECO		
Model/Serial Number -	51 / THC51-3		
Fuel Pressure -	22		
Combustion Air Pressure -	29		
Sample Pressure -	9		
Range -	0	-	100
Calibrant (choose one, x in box)	Propane		
	Methane	x	
Program Molecular Weight:	**16.04**	**g/mol**	

Run Summary			
Run No.	4		
Start Time	7:39		
Stop Time	8:39		

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.5
Response Line	0.996	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	29.1	29.0	28.5	1.7	< 5% of cylinder concentration
Mid Gas	52.2	52.0	50.7	2.5	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria	
Test Run 4 Zero	0.0	0.1	0.1	0.0	< 3% of the measurement range	
Test Run 4 Upscale	29.1	28.5	29.0	0.5	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	3.1
					< 3% of the measurement range	
					< 3% of the measurement range	
					Test Run 2 Avg. Conc.	
					< 3% of the measurement range	
					< 3% of the measurement range	
					Test Run 3 Avg. Conc.	

Where:

$$\text{Calibration Drift} = \frac{(\text{Final Test Response} - \text{Initial Test Response})}{\text{Measurement Range}} * 100$$

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2			N/A
Combustion Air			UHP Air			
Zero Gas	0	0	UHP Air			0.0%
Low Gas	25-35	29.1	CH4/Air	EB0057655	9/11/2022	29.1%
Mid Gas	45-55	52.2	CH4/Air	EB0051398	12/9/2021	52.2%
High Gas	80-90	85.7	CH4/Air	EB0017083	8/11/2023	85.7%

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/18/15
Source:	Cyclone 2 - Auto	**Start Time:**	10:01
Run No.:	Auto-C2-R1	**Stop Time:**	11:01

Date/time	THC ppmvw			
11/18/2015 9:59:00 AM	1.92			
11/18/2015 10:00:00 AM	2.48			
11/18/2015 10:01:00 AM	2.88			
11/18/2015 10:02:00 AM	2.50			
11/18/2015 10:03:00 AM	2.08			
11/18/2015 10:04:00 AM	1.89			
11/18/2015 10:05:00 AM	2.29			
11/18/2015 10:06:00 AM	2.13			
11/18/2015 10:07:00 AM	2.23			
11/18/2015 10:08:00 AM	2.59			
11/18/2015 10:09:00 AM	2.74			
11/18/2015 10:10:00 AM	2.58			
11/18/2015 10:11:00 AM	2.32			
11/18/2015 10:12:00 AM	2.38			
11/18/2015 10:13:00 AM	2.10			
11/18/2015 10:14:00 AM	3.86			
11/18/2015 10:15:00 AM	4.65			
11/18/2015 10:16:00 AM	6.96			
11/18/2015 10:17:00 AM	5.71			
11/18/2015 10:18:00 AM	5.07			
11/18/2015 10:19:00 AM	5.04			
11/18/2015 10:20:00 AM	3.52			
11/18/2015 10:21:00 AM	3.30			
11/18/2015 10:22:00 AM	3.65			
11/18/2015 10:23:00 AM	4.17			
11/18/2015 10:24:00 AM	3.34			
11/18/2015 10:25:00 AM	3.05			
11/18/2015 10:26:00 AM	4.68			
11/18/2015 10:27:00 AM	3.72			
11/18/2015 10:28:00 AM	2.96			
11/18/2015 10:29:00 AM	3.79			
11/18/2015 10:30:00 AM	4.60			
11/18/2015 10:31:00 AM	3.63			
11/18/2015 10:32:00 AM	3.38			
11/18/2015 10:33:00 AM	4.32			
11/18/2015 10:34:00 AM	4.33			
11/18/2015 10:35:00 AM	2.99			
11/18/2015 10:36:00 AM	2.95			
11/18/2015 10:37:00 AM	3.47			
11/18/2015 10:38:00 AM	3.44			
11/18/2015 10:39:00 AM	3.45			
11/18/2015 10:40:00 AM	3.01			
11/18/2015 10:41:00 AM	3.68			
11/18/2015 10:42:00 AM	3.27			
11/18/2015 10:43:00 AM	5.12			
11/18/2015 10:44:00 AM	4.46			
11/18/2015 10:45:00 AM	3.44			
11/18/2015 10:46:00 AM	2.88			
11/18/2015 10:47:00 AM	2.54			
11/18/2015 10:48:00 AM	3.09			
11/18/2015 10:49:00 AM	5.42			
11/18/2015 10:50:00 AM	5.55			
11/18/2015 10:51:00 AM	10.79			
11/18/2015 10:52:00 AM	11.87			
11/18/2015 10:53:00 AM	7.94			
11/18/2015 10:54:00 AM	5.57			
11/18/2015 10:55:00 AM	6.26			
11/18/2015 10:56:00 AM	5.49			
11/18/2015 10:57:00 AM	4.66			
11/18/2015 10:58:00 AM	4.31			
Run Averages:	**4.0**			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	Date:	11/18/15
Source:	Cyclone 2 - Auto	Start Time:	12:28
Run No.:	Auto-C2-R2	Stop Time:	13:28

Date/time	THC ppmvw			
11/18/2015 12:28:00 PM	2.05			
11/18/2015 12:29:00 PM	2.12			
11/18/2015 12:30:00 PM	2.90			
11/18/2015 12:31:00 PM	2.86			
11/18/2015 12:32:00 PM	2.50			
11/18/2015 12:33:00 PM	4.56			
11/18/2015 12:34:00 PM	4.60			
11/18/2015 12:35:00 PM	5.00			
11/18/2015 12:36:00 PM	4.40			
11/18/2015 12:37:00 PM	4.86			
11/18/2015 12:38:00 PM	4.49			
11/18/2015 12:39:00 PM	3.33			
11/18/2015 12:40:00 PM	4.54			
11/18/2015 12:41:00 PM	4.41			
11/18/2015 12:42:00 PM	5.55			
11/18/2015 12:43:00 PM	4.85			
11/18/2015 12:44:00 PM	4.66			
11/18/2015 12:45:00 PM	5.44			
11/18/2015 12:46:00 PM	4.51			
11/18/2015 12:47:00 PM	5.30			
11/18/2015 12:48:00 PM	3.80			
11/18/2015 12:49:00 PM	4.64			
11/18/2015 12:50:00 PM	4.29			
11/18/2015 12:51:00 PM	4.30			
11/18/2015 12:52:00 PM	4.65			
11/18/2015 12:53:00 PM	4.96			
11/18/2015 12:54:00 PM	8.57			
11/18/2015 12:55:00 PM	7.46			
11/18/2015 12:56:00 PM	5.54			
11/18/2015 12:57:00 PM	4.69			
11/18/2015 12:58:00 PM	3.97			
11/18/2015 12:59:00 PM	3.67			
11/18/2015 1:00:00 PM	3.20			
11/18/2015 1:01:00 PM	3.40			
11/18/2015 1:02:00 PM	3.32			
11/18/2015 1:03:00 PM	4.70			
11/18/2015 1:04:00 PM	3.38			
11/18/2015 1:05:00 PM	3.49			
11/18/2015 1:06:00 PM	3.45			
11/18/2015 1:07:00 PM	4.12			
11/18/2015 1:08:00 PM	4.97			
11/18/2015 1:09:00 PM	6.39			
11/18/2015 1:10:00 PM	6.12			
11/18/2015 1:11:00 PM	5.18			
11/18/2015 1:12:00 PM	4.03			
11/18/2015 1:13:00 PM	3.93			
11/18/2015 1:14:00 PM	4.99			
11/18/2015 1:15:00 PM	4.08			
11/18/2015 1:16:00 PM	3.67			
11/18/2015 1:17:00 PM	4.41			
11/18/2015 1:18:00 PM	4.91			
11/18/2015 1:19:00 PM	6.00			
11/18/2015 1:20:00 PM	5.43			
11/18/2015 1:21:00 PM	4.27			
11/18/2015 1:22:00 PM	3.15			
11/18/2015 1:23:00 PM	4.77			
11/18/2015 1:24:00 PM	6.45			
11/18/2015 1:25:00 PM	5.46			
11/18/2015 1:26:00 PM	7.97			
11/18/2015 1:27:00 PM	8.96			
Run Averages:	4.6			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	Date:	11/19/16
Source:	Cyclone 2 - Auto	Start Time:	7:39
Run No.:	Auto-C2-R4	Stop Time:	8:39

Date/time	THC ppmvw			
11/19/2015 7:39:44 AM	1.13			
11/19/2015 7:40:44 AM	1.16			
11/19/2015 7:41:44 AM	4.05			
11/19/2015 7:42:44 AM	2.12			
11/19/2015 7:43:44 AM	1.31			
11/19/2015 7:44:44 AM	1.62			
11/19/2015 7:45:44 AM	4.69			
11/19/2015 7:46:44 AM	5.37			
11/19/2015 7:47:44 AM	3.17			
11/19/2015 7:48:44 AM	2.38			
11/19/2015 7:49:44 AM	2.95			
11/19/2015 7:50:44 AM	3.37			
11/19/2015 7:51:44 AM	3.35			
11/19/2015 7:52:44 AM	4.27			
11/19/2015 7:53:44 AM	5.45			
11/19/2015 7:54:44 AM	4.56			
11/19/2015 7:55:44 AM	2.65			
11/19/2015 7:56:44 AM	2.54			
11/19/2015 7:57:44 AM	2.26			
11/19/2015 7:58:44 AM	2.06			
11/19/2015 7:59:44 AM	5.26			
11/19/2015 8:00:44 AM	3.69			
11/19/2015 8:01:44 AM	2.41			
11/19/2015 8:02:44 AM	1.83			
11/19/2015 8:03:44 AM	1.76			
11/19/2015 8:04:44 AM	6.31			
11/19/2015 8:05:44 AM	4.21			
11/19/2015 8:06:44 AM	2.96			
11/19/2015 8:07:44 AM	2.36			
11/19/2015 8:08:44 AM	1.26			
11/19/2015 8:09:44 AM	4.44			
11/19/2015 8:10:44 AM	2.36			
11/19/2015 8:11:44 AM	1.61			
11/19/2015 8:12:44 AM	1.68			
11/19/2015 8:13:44 AM	1.34			
11/19/2015 8:14:44 AM	2.06			
11/19/2015 8:15:44 AM	2.46			
11/19/2015 8:16:44 AM	7.82			
11/19/2015 8:17:44 AM	7.83			
11/19/2015 8:18:44 AM	4.43			
11/19/2015 8:19:44 AM	2.90			
11/19/2015 8:20:44 AM	2.20			
11/19/2015 8:21:44 AM	1.66			
11/19/2015 8:22:44 AM	2.43			
11/19/2015 8:23:44 AM	3.71			
11/19/2015 8:24:44 AM	3.92			
11/19/2015 8:25:44 AM	3.17			
11/19/2015 8:26:44 AM	2.69			
11/19/2015 8:27:44 AM	4.32			
11/19/2015 8:28:44 AM	3.49			
11/19/2015 8:29:44 AM	2.73			
11/19/2015 8:30:44 AM	2.20			
11/19/2015 8:31:44 AM	2.32			
11/19/2015 8:32:44 AM	2.19			
11/19/2015 8:33:44 AM	1.10			
11/19/2015 8:34:44 AM	1.09			
11/19/2015 8:35:44 AM	1.15			
11/19/2015 8:36:44 AM	3.10			
11/19/2015 8:37:44 AM	6.28			
11/19/2015 8:38:44 AM	4.39			
Run Averages:	3.1			

Method 25A Data Sheet

Auto Condition

Client	wTe
Facility	Greenfield, MA
Source	Cyclone #2
Test Location	Outlet
Date	11/18/15
Calibration For	(THC) Methane

THC Analyzer Data

Manufacturer	TECO
Model/Serial Number	51 / THC 51-3
Fuel Pressure	24
Combustion Air Pressure	31
Sample Pressure	4
Measurement Range	0-100 CH4 (0-1,000 range)
Response Time	75 sec

Test Data

Test Number	1	2	3
Start Time	959	1228	1432
Stop Time	1059	1328	1532
Testers	AS		

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.3
High Gas	85.7	85.4
Response Line	0.999	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	29.1	29.1	28.4	2.3	< 5% of cylinder concentration
Mid Gas	52.2	52.1	50.5	3.1	< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance	
Test Run 1 Zero	0.0	0.3	0.1	0.2	< 3% of the measurement range	
Test Run 1 Mid	29.1	28.4	28.5	0.1	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	
Test Run 2 Zero	0.0	0.3	0.0	0.3	< 3% of the measurement range	
Test Run 2 Mid	29.1	28.4	28.9	0.5	< 3% of the measurement range	
					Test Run 2 Avg. Conc.	
Test Run 3 Zero	0.0	0.3	0.1	0.2	< 3% of the measurement range	
Test Run 3 Mid	29.1	28.4	~~29.5~~ 28.9	0.5	< 3% of the measurement range	
Calibration Drift = (Actual Response - CE Test Response) / Measurement Range * 100					Test Run 3 Avg. Conc.	

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2	n/a	n/a	
Combustion Air			UHP Air	n/a	na	
Low Gas	25 - 35	29.1	CH4/Air	EB0057655	7/11/2022	29.1
Mid Gas	45 - 55	52.2	CH4/Air	EB0051398	12/9/2021	52.2
High Gas	80 - 90	85.7	CH4/Air	EB0017089	8/10/2023	85.7

Method 25A Data Sheet

Auto Condition

Client	wTe
Facility	Greenfield, MA
Source	Cyclone #2
Test Location	Outlet
Date	11/19/15
Calibration For	(THC) Methane

THC Analyzer Data

Manufacturer	TECO
Model/Serial Number	51 / THC 51-3
Fuel Pressure	22
Combustion Air Pressure	29
Sample Pressure	9
Measurement Range	0 - 100 CH_4 (0-1000 scale)
Response Time	75 sec

Test Data

Test Number	4	2	3
Start Time	739	/	/
Stop Time	839	/	/
Testers	As		

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	(M) ~~86.4~~ 85.5
Response Line	0.996	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	29.1	29.0	28.5	1.7	< 5% of cylinder concentration
Mid Gas	52.2	52.0	50.7	2.5	< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance	
Test Run 1 Zero	0.0	0.1	0.1	0.0	< 3% of the measurement range	
Test Run 1 Mid	29.1	28.5	29.0	0.5	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	
Test Run 2 Zero					< 3% of the measurement range	
Test Run 2 Mid					< 3% of the measurement range	
					Test Run 2 Avg. Conc.	
Test Run 3 Zero					< 3% of the measurement range	
Test Run 3 Mid					< 3% of the measurement range	
					Test Run 3 Avg. Conc.	

Calibration Drift = (Actual Response - CE Test Response) / Measurement Range * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2	n/a	n/a	
Combustion Air			UHP Air	n/a	na	
Low Gas	25 - 35	29.1	CH_4/Air	EB0057655	9/11/22	29.1
Mid Gas	45 - 55	52.2		EB0051398	12/9/21	52.2
High Gas	80 - 90	85.7		EB0017088	8/10/23	85.7

B3. Auto Waste – Cyclone 3

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Auto-C3-R1**
Source:	**Cyclone 3 - Auto**	**Date:**	**18-Nov-15**

START TIME :	9:59	END TIME :	10:59

Avg. VOC Concentration (as methane)	**3.02**	PPMwv
Average Volumetric Flow Rate	1,119,675	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	9.66	%

Non-Methane VOC as methane (PPM wet volume)	=	**3.023**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**3.346**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.39E-07**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**0.156**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Auto-C3-R2**
Source:	**Cyclone 3 - Auto**	**Date:**	**18-Nov-15**

START TIME :	12:28	END TIME :	13:28

Avg. VOC Concentration (as methane)	**3.29**	PPMwv
Average Volumetric Flow Rate	1,132,915	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	0.58	%

Non-Methane VOC as methane (PPM wet volume)	=	**3.289**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**3.308**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.37E-07**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**0.156**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Auto-C3-R4**
Source:	**Cyclone 3 - Auto**	**Date:**	**19-Nov-16**

START TIME :	7:39	END TIME :	8:39

Avg. VOC Concentration (as methane)	**3.86**	PPMwv
Average Volumetric Flow Rate	1,098,462	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	1.39	%

Non-Methane VOC as methane (PPM wet volume)	=	**3.858**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**3.913**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.63E-07**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**0.179**	lb/hr

Method 25A Calibration Data Sheet - THC

Source Summary	
Client:/Site:	wTe Recycling
Source:/Location:	Cyclone 3 - Auto
Test Date:	18-Nov-15

Field Crew Summary	
Crew Member 1 -	AMS, ARS
Crew Member 2 -	JB, MB
Crew Member 3 -	JC, TS

THC Analyzer Data			
Manufacturer -	TECO		
Model/Serial Number -	51 / THC51-2		
Fuel Pressure -	24		
Combustion Air Pressure -	31		
Sample Pressure -	9		
Range -	0	-	1,000
Calibrant (choose one, x in box)	Propane		
	Methane		x
Program Molecular Weight:	16.04	g/mol	

Run Summary			
Run No.	1	2	
Start Time	9:59	12:28	
Stop Time	10:59	13:28	

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.8
Response Line	1.000	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	29.1	29.1	28.8	1.0	< 5% of cylinder concentration
Mid Gas	52.2	52.2	50.9	2.5	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria	
Test Run 1 Zero	0.0	0.1	0.1	0.0	< 3% of the measurement range	
Test Run 1 Upscale	29.1	28.8	29.3	0.1	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	3.0
Test Run 2 Zero	0.0	0.1	0.1	0.0	< 3% of the measurement range	
Test Run 2 Upscale	29.1	28.8	29.9	0.1	< 3% of the measurement range	
					Test Run 2 Avg. Conc.	3.3
					< 3% of the measurement range	
					< 3% of the measurement range	
					Test Run 3 Avg. Conc.	

Where:

$$\text{Calibration Drift} = \frac{(\text{Final Test Response} - \text{Initial Test Response})}{\text{Measurement Range}} * 100$$

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2			N/A
Combustion Air			UHP Air			
Zero Gas	0	0	UHP Air			0.0%
Low Gas	25-35	29.1	CH4/Air	EB0057655	9/11/2022	2.9%
Mid Gas	45-55	52.2	CH4/Air	EB0051398	12/9/2021	5.2%
High Gas	80-90	85.7	CH4/Air	EB0017083	8/11/2023	8.6%

Method 25A Calibration Data Sheet - THC

Source Summary	
Client:/Site:	wTe Recycling
Source:/Location:	Cyclone 3 - Auto
Test Date:	19-Nov-16

Field Crew Summary	
Crew Member 1 -	AMS, ARS
Crew Member 2 -	JB, MB
Crew Member 3 -	JC, TS

THC Analyzer Data			
Manufacturer -	TECO		
Model/Serial Number -	51 / THC51-2		
Fuel Pressure -	22		
Combustion Air Pressure -	32		
Sample Pressure -	9		
Range -	0	-	1,000
Calibrant (choose one, x in box)	Propane		
	Methane	x	
Program Molecular Weight:	16.04	g/mol	

Run Summary			
Run No.	4		
Start Time	7:39		
Stop Time	8:39		

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.6
Response Line	0.998	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	29.1	29.0	29.1	0.2	< 5% of cylinder concentration
Mid Gas	52.2	52.1	50.9	2.3	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria	
Test Run 4 Zero	0.0	0.1	0.1	0.0	< 3% of the measurement range	
Test Run 4 Upscale	29.1	29.1	29.0	0.0	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	3.9
					< 3% of the measurement range	
					< 3% of the measurement range	
					Test Run 2 Avg. Conc.	
					< 3% of the measurement range	
					< 3% of the measurement range	
					Test Run 3 Avg. Conc.	

Where:

$$\text{Calibration Drift} = \frac{(\text{Final Test Response} - \text{Initial Test Response})}{\text{Measurement Range}} * 100$$

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2			N/A
Combustion Air			UHP Air			
Zero Gas	0	0	UHP Air			0.0%
Low Gas	25-35	29.1	CH4/Air	EB0057655	9/11/2022	2.9%
Mid Gas	45-55	52.2	CH4/Air	EB0051398	12/9/2021	5.2%
High Gas	80-90	85.7	CH4/Air	EB0017083	8/11/2023	8.6%

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/18/15
Source:	Cyclone 3 - Auto	**Start Time:**	9:59
Run No.:	Auto-C3-R1	**Stop Time:**	10:59

Date/time	THC ppmvw			
11/18/2015 9:59:00 AM	2.02			
11/18/2015 10:00:00 AM	2.04			
11/18/2015 10:01:00 AM	2.39			
11/18/2015 10:02:00 AM	2.52			
11/18/2015 10:03:00 AM	2.15			
11/18/2015 10:04:00 AM	2.02			
11/18/2015 10:05:00 AM	2.01			
11/18/2015 10:06:00 AM	2.35			
11/18/2015 10:07:00 AM	2.08			
11/18/2015 10:08:00 AM	2.30			
11/18/2015 10:09:00 AM	2.55			
11/18/2015 10:10:00 AM	2.49			
11/18/2015 10:11:00 AM	2.52			
11/18/2015 10:12:00 AM	2.45			
11/18/2015 10:13:00 AM	2.37			
11/18/2015 10:14:00 AM	2.42			
11/18/2015 10:15:00 AM	2.88			
11/18/2015 10:16:00 AM	3.60			
11/18/2015 10:17:00 AM	4.07			
11/18/2015 10:18:00 AM	3.57			
11/18/2015 10:19:00 AM	3.88			
11/18/2015 10:20:00 AM	3.44			
11/18/2015 10:21:00 AM	3.01			
11/18/2015 10:22:00 AM	2.93			
11/18/2015 10:23:00 AM	2.96			
11/18/2015 10:24:00 AM	2.86			
11/18/2015 10:25:00 AM	2.95			
11/18/2015 10:26:00 AM	2.86			
11/18/2015 10:27:00 AM	3.06			
11/18/2015 10:28:00 AM	2.67			
11/18/2015 10:29:00 AM	2.69			
11/18/2015 10:30:00 AM	3.04			
11/18/2015 10:31:00 AM	3.05			
11/18/2015 10:32:00 AM	2.93			
11/18/2015 10:33:00 AM	2.95			
11/18/2015 10:34:00 AM	3.55			
11/18/2015 10:35:00 AM	2.93			
11/18/2015 10:36:00 AM	2.75			
11/18/2015 10:37:00 AM	2.94			
11/18/2015 10:38:00 AM	2.95			
11/18/2015 10:39:00 AM	2.95			
11/18/2015 10:40:00 AM	2.66			
11/18/2015 10:41:00 AM	2.88			
11/18/2015 10:42:00 AM	2.90			
11/18/2015 10:43:00 AM	3.00			
11/18/2015 10:44:00 AM	3.28			
11/18/2015 10:45:00 AM	3.05			
11/18/2015 10:46:00 AM	2.92			
11/18/2015 10:47:00 AM	2.50			
11/18/2015 10:48:00 AM	2.63			
11/18/2015 10:49:00 AM	3.03			
11/18/2015 10:50:00 AM	4.08			
11/18/2015 10:51:00 AM	4.10			
11/18/2015 10:52:00 AM	7.21			
11/18/2015 10:53:00 AM	5.26			
11/18/2015 10:54:00 AM	4.06			
11/18/2015 10:55:00 AM	3.65			
11/18/2015 10:56:00 AM	3.47			
11/18/2015 10:57:00 AM	3.47			
11/18/2015 10:58:00 AM	3.08			
Run Averages:	3.0			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/18/15
Source:	Cyclone 3 - Auto	**Start Time:**	12:28
Run No.:	Auto-C3-R2	**Stop Time:**	13:28

Date/time	THC ppmvw			
11/18/2015 12:28:00 PM	2.06			
11/18/2015 12:29:00 PM	2.28			
11/18/2015 12:30:00 PM	2.52			
11/18/2015 12:31:00 PM	2.52			
11/18/2015 12:32:00 PM	2.41			
11/18/2015 12:33:00 PM	2.80			
11/18/2015 12:34:00 PM	3.01			
11/18/2015 12:35:00 PM	3.28			
11/18/2015 12:36:00 PM	3.59			
11/18/2015 12:37:00 PM	3.07			
11/18/2015 12:38:00 PM	3.73			
11/18/2015 12:39:00 PM	3.15			
11/18/2015 12:40:00 PM	3.00			
11/18/2015 12:41:00 PM	3.32			
11/18/2015 12:42:00 PM	3.27			
11/18/2015 12:43:00 PM	3.58			
11/18/2015 12:44:00 PM	3.72			
11/18/2015 12:45:00 PM	3.71			
11/18/2015 12:46:00 PM	3.45			
11/18/2015 12:47:00 PM	3.51			
11/18/2015 12:48:00 PM	3.46			
11/18/2015 12:49:00 PM	3.19			
11/18/2015 12:50:00 PM	3.46			
11/18/2015 12:51:00 PM	3.42			
11/18/2015 12:52:00 PM	3.49			
11/18/2015 12:53:00 PM	3.53			
11/18/2015 12:54:00 PM	4.12			
11/18/2015 12:55:00 PM	4.22			
11/18/2015 12:56:00 PM	3.99			
11/18/2015 12:57:00 PM	3.78			
11/18/2015 12:58:00 PM	3.41			
11/18/2015 12:59:00 PM	3.23			
11/18/2015 1:00:00 PM	2.92			
11/18/2015 1:01:00 PM	2.96			
11/18/2015 1:02:00 PM	2.89			
11/18/2015 1:03:00 PM	2.94			
11/18/2015 1:04:00 PM	2.82			
11/18/2015 1:05:00 PM	2.91			
11/18/2015 1:06:00 PM	2.88			
11/18/2015 1:07:00 PM	2.92			
11/18/2015 1:08:00 PM	2.89			
11/18/2015 1:09:00 PM	3.35			
11/18/2015 1:10:00 PM	3.52			
11/18/2015 1:11:00 PM	3.70			
11/18/2015 1:12:00 PM	3.42			
11/18/2015 1:13:00 PM	2.98			
11/18/2015 1:14:00 PM	3.06			
11/18/2015 1:15:00 PM	3.43			
11/18/2015 1:16:00 PM	3.00			
11/18/2015 1:17:00 PM	3.05			
11/18/2015 1:18:00 PM	3.27			
11/18/2015 1:19:00 PM	3.51			
11/18/2015 1:20:00 PM	3.67			
11/18/2015 1:21:00 PM	3.54			
11/18/2015 1:22:00 PM	2.96			
11/18/2015 1:23:00 PM	3.01			
11/18/2015 1:24:00 PM	3.91			
11/18/2015 1:25:00 PM	4.16			
11/18/2015 1:26:00 PM	3.87			
11/18/2015 1:27:00 PM	4.52			
Run Averages:	**3.29**			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/19/16
Source:	Cyclone 3 - Auto	**Start Time:**	7:39
Run No.:	Auto-C3-R4	**Stop Time:**	8:39

Date/time	THC ppmvw			
11/19/2015 7:39:44 AM	4.22			
11/19/2015 7:40:44 AM	3.69			
11/19/2015 7:41:44 AM	3.97			
11/19/2015 7:42:44 AM	3.66			
11/19/2015 7:43:44 AM	3.33			
11/19/2015 7:44:44 AM	3.49			
11/19/2015 7:45:44 AM	4.06			
11/19/2015 7:46:44 AM	4.42			
11/19/2015 7:47:44 AM	4.11			
11/19/2015 7:48:44 AM	3.92			
11/19/2015 7:49:44 AM	3.75			
11/19/2015 7:50:44 AM	4.14			
11/19/2015 7:51:44 AM	4.82			
11/19/2015 7:52:44 AM	4.51			
11/19/2015 7:53:44 AM	4.61			
11/19/2015 7:54:44 AM	5.07			
11/19/2015 7:55:44 AM	4.98			
11/19/2015 7:56:44 AM	4.35			
11/19/2015 7:57:44 AM	4.27			
11/19/2015 7:58:44 AM	4.04			
11/19/2015 7:59:44 AM	4.21			
11/19/2015 8:00:44 AM	4.49			
11/19/2015 8:01:44 AM	4.00			
11/19/2015 8:02:44 AM	3.69			
11/19/2015 8:03:44 AM	3.41			
11/19/2015 8:04:44 AM	4.60			
11/19/2015 8:05:44 AM	4.70			
11/19/2015 8:06:44 AM	4.47			
11/19/2015 8:07:44 AM	3.55			
11/19/2015 8:08:44 AM	3.39			
11/19/2015 8:09:44 AM	4.06			
11/19/2015 8:10:44 AM	4.30			
11/19/2015 8:11:44 AM	3.89			
11/19/2015 8:12:44 AM	3.48			
11/19/2015 8:13:44 AM	3.41			
11/19/2015 8:14:44 AM	3.31			
11/19/2015 8:15:44 AM	3.49			
11/19/2015 8:16:44 AM	3.74			
11/19/2015 8:17:44 AM	5.38			
11/19/2015 8:18:44 AM	4.48			
11/19/2015 8:19:44 AM	4.03			
11/19/2015 8:20:44 AM	3.69			
11/19/2015 8:21:44 AM	3.37			
11/19/2015 8:22:44 AM	3.20			
11/19/2015 8:23:44 AM	3.70			
11/19/2015 8:24:44 AM	4.17			
11/19/2015 8:25:44 AM	4.13			
11/19/2015 8:26:44 AM	3.65			
11/19/2015 8:27:44 AM	3.66			
11/19/2015 8:28:44 AM	3.50			
11/19/2015 8:29:44 AM	3.23			
11/19/2015 8:30:44 AM	2.92			
11/19/2015 8:31:44 AM	2.95			
11/19/2015 8:32:44 AM	3.26			
11/19/2015 8:33:44 AM	2.97			
11/19/2015 8:34:44 AM	2.93			
11/19/2015 8:35:44 AM	2.82			
11/19/2015 8:36:44 AM	2.71			
11/19/2015 8:37:44 AM	3.40			
11/19/2015 8:38:44 AM	3.75			
Run Averages:	**3.9**			

Method 25A Data Sheet

Auto Condition

Client	wTe
Facility	Greenfield, MA
Source	Cyclone ~~#2~~ 3
Test Location	Outlet
Date	11/18/15
Calibration For	THC Methane

THC Analyzer Data

Manufacturer	TECO
Model/Serial Number	51 / THC51-1
Fuel Pressure	22
Combustion Air Pressure	32
Sample Pressure	9
Measurement Range	0 - 100 CH4 (0-1,000 scale)
Response Time	75

Test Data

Test Number	1	2	3
Start Time	959	1228	1432
Stop Time	1059	1328	1532
Testers	AS		

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.8
Response Line	1.000	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	29.1	29.1	28.8	1.0	< 5% of cylinder concentration
Mid Gas	52.2	49.7	50.9	2.4	< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance	
Test Run 1 Zero	0.0	0.1	0.1	0.0	< 3% of the measurement range	
Test Run 1 Mid	29.1	28.8	29.3	0.5	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	
Test Run 2 Zero	0.0	0.1	0.1	0.0	< 3% of the measurement range	
Test Run 2 Mid	29.1	28.8	29.8	1.0	< 3% of the measurement range	
					Test Run 2 Avg. Conc.	
Test Run 3 Zero	0.0	0.1	0.1	0.0	< 3% of the measurement range	
Test Run 3 Mid	29.1	28.8	29.5	0.7	< 3% of the measurement range	
Calibration Drift = (Actual Response - CE Test Response) * 100 / Measurement Range					Test Run 3 Avg. Conc.	

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2	n/a	n/a	
Combustion Air			UHP Air	n/a	na	
Low Gas	25 - 35	29.1	CH4/Air	EB0057655	9/11/2022	29.1
Mid Gas	45 - 55	52.2		EB0051398	12/9/2021	52.2
High Gas	80 - 90	85.7		EB0017088	8/10/2023	85.7

Method 25A Data Sheet

Auto Condition

Client	wTe
Facility	Greenfield, MA
Source	Cyclone #3
Test Location	Outlet
Date	11/19/15
Calibration For	THC Methane

THC Analyzer Data

Manufacturer	TECO
Model/Serial Number	51 / THC 51-1
Fuel Pressure	22
Combustion Air Pressure	32
Sample Pressure	9
Measurement Range	0-100 CH_4 (0-1000 scale)
Response Time	75 sec

Test Data

Test Number	4	2	3
Start Time	739		
Stop Time	839		
Testers	AS		

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.6
Response Line	0.998	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	29.1	29.0	29.1	0.2	< 5% of cylinder concentration
Mid Gas	52.2	(AS) ~~49~~ 52.1	50.9	(AS) 2.63	< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance	
Test Run 1 Zero	0.0	0.1	0.1	0.0	< 3% of the measurement range	
Test Run 1 Mid	29.1	29.1	29.0	0.1	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	
Test Run 2 Zero					< 3% of the measurement range	
Test Run 2 Mid					< 3% of the measurement range	
					Test Run 2 Avg. Conc.	
Test Run 3 Zero					< 3% of the measurement range	
Test Run 3 Mid					< 3% of the measurement range	
Calibration Drift = (Actual Response - CE Test Response) / Measurement Range * 100					Test Run 3 Avg. Conc.	

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2	n/a	n/a	
Combustion Air			UHP Air	n/a	na	
Low Gas	25 - 35	29.1	CH_4/Air	EB0057655	9/11/22	29.1
Mid Gas	45 - 55	52.2		EB0051398	12/9/21	52.2
High Gas	80 - 90	85.7		EB0017098	8/10/23	85.7

B4. [redacted] – Scrubber/Cyclone 1

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**[redacted]-C1-R1**
Source:	**Scrubber/Cyclone 1 - [redacted]**	**Date:**	**19-Nov-15**

START TIME :	9:51	END TIME :	10:51

Avg. VOC Concentration (as methane)	**1,161.49**	PPMwv
Average Volumetric Flow Rate	2,165,559	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	3.40	%

Non-Methane VOC as methane (PPM wet volume)	=	**1161.493**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**1202.390**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**5.00E-05**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**108.173**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**[redacted]-C1-R2**
Source:	**Scrubber/Cyclone 1 - [redacted]**	**Date:**	**19-Nov-15**

START TIME :	12:32	END TIME :	13:32

Avg. VOC Concentration (as methane)	**1,227.22**	PPMwv
Average Volumetric Flow Rate	2,139,012	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	3.04	%

Non-Methane VOC as methane (PPM wet volume)	=	**1227.220**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**1265.761**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**5.26E-05**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**112.478**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	[redacted]**-C1-R3**
Source:	**Scrubber/Cyclone 1 -**[redacted]	**Date:**	**19-Nov-15**

START TIME :	14:38	END TIME :	15:38

Avg. VOC Concentration (as methane)	**1,218.20**	PPMwv
Average Volumetric Flow Rate	2,174,960	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	3.25	%

Non-Methane VOC as methane (PPM wet volume)	=	**1218.203**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**1259.080**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**5.23E-05**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**113.765**	lb/hr

Method 25A Calibration Data Sheet - THC

Source Summary	
Client:/Site:	wTe Recycling
Source:/Location:	Scrubber/Cyclone 1 [redacted]
Test Date:	19-Nov-15

Field Crew Summary	
Crew Member 1 -	AMS, ARS
Crew Member 2 -	JB, MB
Crew Member 3 -	JC, TS

THC Analyzer Data			
Manufacturer -	TECO		
Model/Serial Number -	51 / THC51-2		
Fuel Pressure -	20		
Combustion Air Pressure -	32		
Sample Pressure -	9		
Range -	0	-	1,000
Calibrant (choose one, x in box)	Propane		
	Methane	x	
Program Molecular Weight:	**16.04**	**g/mol**	

Calibration Error Test Data		
Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	1.3
High Gas	830.0	833.4
Response Line	1.003	

Response Line = (Ha-Za)/(Hc-Zc)

Run Summary			
Run No.	1	2	3
Start Time	9:51	12:32	14:38
Stop Time	10:51	13:32	15:38

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	275.0	275.7	285.6	3.6	< 5% of cylinder concentration
Mid Gas	505.0	506.3	496.3	2.0	< 5% of cylinder concentration
X-High Gas	2981.8	2989.3	2928.3	2.0	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria	
Test Run 1 Zero	0.0	1.3	13.7	1.2	< 3% of the measurement range	
Test Run 1 Upscale	830.0	833.4	839.5	0.6	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	1,161.5
Test Run 2 Zero	0.0	1.3	12.2	1.1	< 3% of the measurement range	
Test Run 2 Upscale	830.0	833.4	831.8	0.2	< 3% of the measurement range	
					Test Run 2 Avg. Conc.	1,227.2
Test Run 3 Zero	0.0	1.3	6.2	0.5	< 3% of the measurement range	
Test Run 3 Upscale	830.0	833.4	827.2	0.6	< 3% of the measurement range	
					Test Run 3 Avg. Conc.	1,218.2

Where:

$$\text{Calibration Drift} = \frac{(\text{Final Test Response} - \text{Initial Test Response})}{\text{Measurement Range}} * 100$$

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2			N/A
Combustion Air			UHP Air			
Zero Gas	0	0	UHP Air			0.0%
Low Gas	25-35	275.0	CH4/Air	EB0023533	6/7/2021	27.5%
Mid Gas	45-55	505.0	CH4/Air	SG9166156	8/5/2023	50.5%
High Gas	80-90	830.0	CH4/Air	EB0058020	7/21/2023	83.0%

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/19/15
Source:	Scrubber/Cyclone 1 -	**Start Time:**	9:51
Run No.:	[redacted]C1-R1	**Stop Time:**	10:51

Date/time	THC ppmvw			
11/19/2015 9:51:08 AM	11.7			
11/19/2015 9:52:08 AM	12.1			
11/19/2015 9:53:08 AM	11.2			
11/19/2015 9:54:08 AM	156.0			
11/19/2015 9:55:08 AM	558.9			
11/19/2015 9:56:08 AM	772.3			
11/19/2015 9:57:08 AM	788.5			
11/19/2015 9:58:08 AM	808.5			
11/19/2015 9:59:08 AM	877.1			
11/19/2015 10:00:08 AM	742.0			
11/19/2015 10:01:08 AM		over range		
11/19/2015 10:02:08 AM		over range		
11/19/2015 10:03:08 AM		over range		
11/19/2015 10:04:08 AM		over range		
11/19/2015 10:05:08 AM		over range		
11/19/2015 10:06:08 AM		over range		
11/19/2015 10:07:08 AM		over range		
11/19/2015 10:08:08 AM		over range		
11/19/2015 10:09:08 AM		over range.	Switched to 0-5000 ppm	
11/19/2015 10:10:08 AM	1534.2			
11/19/2015 10:11:08 AM	1537.2			
11/19/2015 10:12:08 AM	1039.8			
11/19/2015 10:13:08 AM	1063.1			
11/19/2015 10:14:08 AM	1599.4			
11/19/2015 10:15:08 AM	1784.1			
11/19/2015 10:16:08 AM	1717.7			
11/19/2015 10:17:08 AM	1299.7			
11/19/2015 10:18:08 AM	1288.3			
11/19/2015 10:19:08 AM	1210.0			
11/19/2015 10:20:08 AM	1013.8			
11/19/2015 10:21:08 AM	1090.9			
11/19/2015 10:22:08 AM	1071.6			
11/19/2015 10:23:08 AM	913.1			
11/19/2015 10:24:08 AM	878.1			
11/19/2015 10:25:08 AM	1000.8			
11/19/2015 10:26:08 AM	978.8			
11/19/2015 10:27:08 AM	1053.1			
11/19/2015 10:28:08 AM	901.4			
11/19/2015 10:29:08 AM	1010.8			
11/19/2015 10:30:08 AM	993.7			
11/19/2015 10:31:08 AM	1308.2			
11/19/2015 10:32:08 AM	1504.9			
11/19/2015 10:33:08 AM	1158.5			
11/19/2015 10:34:08 AM	1117.1			
11/19/2015 10:35:08 AM	1251.0			
11/19/2015 10:36:08 AM	1601.7			
11/19/2015 10:37:08 AM	1525.5			
11/19/2015 10:38:08 AM	1477.1			
11/19/2015 10:39:08 AM	979.5			
11/19/2015 10:40:08 AM	1153.7			
11/19/2015 10:41:08 AM	1316.1			
11/19/2015 10:42:08 AM	1287.9			
11/19/2015 10:43:08 AM	1288.8			
11/19/2015 10:44:08 AM	1196.2			
11/19/2015 10:45:08 AM	1621.9			
11/19/2015 10:46:08 AM	1643.9			
11/19/2015 10:47:08 AM	1319.0			
11/19/2015 10:48:08 AM	1128.7			
11/19/2015 10:49:08 AM	1337.1			
11/19/2015 10:50:08 AM	1167.9			
11/19/2015 10:51:08 AM	1055.8			
11/19/2015 10:52:08 AM	1189.0			
11/19/2015 10:53:08 AM	2016.1			
11/19/2015 10:54:08 AM	1170.6			
11/19/2015 10:55:08 AM	1096.2			
11/19/2015 10:56:08 AM	1965.9			
11/19/2015 10:57:08 AM	1845.0			
11/19/2015 10:58:08 AM	1605.3			
11/19/2015 10:59:08 AM	1643.1			
Run Averages:	**1161.5**			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	Date:	11/19/15
Source:	Scrubber/Cyclone 1 -	Start Time:	12:32
Run No.:	[redacted]C1-R2	Stop Time:	13:32

Date/time	THC ppmvw			
11/19/2015 12:32:08 PM	27.9			
11/19/2015 12:33:08 PM	32.2			
11/19/2015 12:34:08 PM	37.3			
11/19/2015 12:35:08 PM	603.3			
11/19/2015 12:36:08 PM	1127.9			
11/19/2015 12:37:08 PM	1017.3			
11/19/2015 12:38:08 PM	1097.2			
11/19/2015 12:39:08 PM	1117.8			
11/19/2015 12:40:08 PM	916.1			
11/19/2015 12:41:08 PM	1387.2			
11/19/2015 12:42:08 PM	1625.7			
11/19/2015 12:43:08 PM	1547.0			
11/19/2015 12:44:08 PM	1179.6			
11/19/2015 12:45:08 PM	1084.2			
11/19/2015 12:46:08 PM	1115.2			
11/19/2015 12:47:08 PM	1101.0			
11/19/2015 12:48:08 PM	1442.8			
11/19/2015 12:49:08 PM	1019.0			
11/19/2015 12:50:08 PM	1034.2			
11/19/2015 12:51:08 PM	1159.9			
11/19/2015 12:52:08 PM	1319.0			
11/19/2015 12:53:08 PM	1202.5			
11/19/2015 12:54:08 PM	1315.9			
11/19/2015 12:55:08 PM	1791.6			
11/19/2015 12:56:08 PM	1182.5			
11/19/2015 12:57:08 PM	1516.9			
11/19/2015 12:58:08 PM	1107.4			
11/19/2015 12:59:08 PM	1022.8			
11/19/2015 1:00:08 PM	1547.9			
11/19/2015 1:01:08 PM	1547.6			
11/19/2015 1:02:08 PM	1188.6			
11/19/2015 1:03:08 PM	1370.4			
11/19/2015 1:04:08 PM	1301.0			
11/19/2015 1:05:08 PM	1542.2			
11/19/2015 1:06:08 PM	1437.5			
11/19/2015 1:07:08 PM	1432.6			
11/19/2015 1:08:08 PM	1545.0			
11/19/2015 1:09:08 PM	1838.1			
11/19/2015 1:10:08 PM	1206.9			
11/19/2015 1:11:08 PM	1496.1			
11/19/2015 1:12:08 PM	1547.9			
11/19/2015 1:13:08 PM	1121.3			
11/19/2015 1:14:08 PM	996.5			
11/19/2015 1:15:08 PM	1661.5			
11/19/2015 1:16:08 PM	964.9			
11/19/2015 1:17:08 PM	1110.6			
11/19/2015 1:18:08 PM	2522.6			
11/19/2015 1:19:08 PM	1303.5			
11/19/2015 1:20:08 PM	1311.3			
11/19/2015 1:21:08 PM	1320.8			
11/19/2015 1:22:08 PM	1759.3			
11/19/2015 1:23:08 PM	1445.4			
11/19/2015 1:24:08 PM	1308.4			
11/19/2015 1:25:08 PM	721.1			
11/19/2015 1:26:08 PM	1199.1			
11/19/2015 1:27:08 PM	1073.4			
11/19/2015 1:28:08 PM	954.1			
11/19/2015 1:29:08 PM	1213.7			
11/19/2015 1:30:08 PM	1322.3			
11/19/2015 1:31:08 PM	1190.2			
Run Averages:	1227.2			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/19/15
Source:	Scrubber/Cyclone 1 -	**Start Time:**	14:38
Run No.:	[redacted]C1-R3	**Stop Time:**	15:38

Date/time	THC ppmvw
11/19/2015 2:38:08 PM	55.5
11/19/2015 2:39:08 PM	57.2
11/19/2015 2:40:08 PM	64.3
11/19/2015 2:41:08 PM	1416.3
11/19/2015 2:42:08 PM	1026.9
11/19/2015 2:43:08 PM	895.4
11/19/2015 2:44:08 PM	1842.9
11/19/2015 2:45:08 PM	1532.5
11/19/2015 2:46:08 PM	1340.0
11/19/2015 2:47:08 PM	988.1
11/19/2015 2:48:08 PM	1295.3
11/19/2015 2:49:08 PM	1483.3
11/19/2015 2:50:08 PM	1290.6
11/19/2015 2:51:08 PM	1181.1
11/19/2015 2:52:08 PM	1105.3
11/19/2015 2:53:08 PM	1551.0
11/19/2015 2:54:08 PM	1495.9
11/19/2015 2:55:08 PM	1493.3
11/19/2015 2:56:08 PM	1920.4
11/19/2015 2:57:08 PM	937.8
11/19/2015 2:58:08 PM	949.8
11/19/2015 2:59:08 PM	986.1
11/19/2015 3:00:08 PM	939.4
11/19/2015 3:01:08 PM	966.0
11/19/2015 3:02:08 PM	836.6
11/19/2015 3:03:08 PM	759.3
11/19/2015 3:04:08 PM	1035.2
11/19/2015 3:05:08 PM	1471.2
11/19/2015 3:06:08 PM	902.4
11/19/2015 3:07:08 PM	937.7
11/19/2015 3:08:08 PM	858.4
11/19/2015 3:09:08 PM	1058.5
11/19/2015 3:10:08 PM	1367.9
11/19/2015 3:11:08 PM	1147.5
11/19/2015 3:12:08 PM	1645.4
11/19/2015 3:13:08 PM	1724.0
11/19/2015 3:14:08 PM	1075.4
11/19/2015 3:15:08 PM	1524.7
11/19/2015 3:16:08 PM	919.6
11/19/2015 3:17:08 PM	975.3
11/19/2015 3:18:08 PM	1049.0
11/19/2015 3:19:08 PM	1138.6
11/19/2015 3:20:08 PM	1214.2
11/19/2015 3:21:08 PM	1773.2
11/19/2015 3:22:08 PM	1186.8
11/19/2015 3:23:08 PM	1675.3
11/19/2015 3:24:08 PM	1557.5
11/19/2015 3:25:08 PM	1618.0
11/19/2015 3:26:08 PM	1529.3
11/19/2015 3:27:08 PM	1342.3
11/19/2015 3:28:08 PM	1575.7
11/19/2015 3:29:08 PM	1167.9
11/19/2015 3:30:08 PM	2017.0
11/19/2015 3:31:08 PM	1241.2
11/19/2015 3:32:08 PM	944.5
11/19/2015 3:33:08 PM	1162.1
11/19/2015 3:34:08 PM	1201.7
11/19/2015 3:35:08 PM	1070.0
11/19/2015 3:36:08 PM	1918.9
11/19/2015 3:37:08 PM	1655.5
Run Averages:	**1218.2**

Method 25A Data Sheet (THC)

Client	WTE
Facility	Greenfield, MA
Source ID	Scrubber #1 – [redacted]
Test Location	Outlet
Date	19 NOV 2015

THC Analyzer Data

Manufacturer	TECO
Model/Serial Number	Model 51 / 74C51-2
Fuel Pressure	20
Combustion Air Pressure	32
Sample Pressure	9
Measurement Range	0-1,000 as CH4 (500m scale
Response Time	75 sec

Test Data

Test Number:	1	2	3
Start Time:	951		
Stop Time:	1100		
Testers:	AS		

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	1.3
High Gas	830	833.4
Response Line		

Response Line = (Ha/Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	275.0		285.6		< 5% of cylinder concentration
Mid Gas	505.0		496.3		< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance
Test Run 1 Zero	0.0	1.3	13.7		< 3% of the measurement range
Test Run 1 Upscale	830	833.4	839.5		< 3% of the measurement range
					Test Run 1 Avg. Conc.
Test Run 2 Zero	0.0	1.3	12.2		< 3% of the measurement range
Test Run 2 Upscale	830	833.4	831.8		< 3% of the measurement range
	2981.8		2928.3		Test Run 2 Avg. Conc.
Test Run 3 Zero	0.0	1.3	6.2		< 3% of the measurement range
Test Run 3 Upscale	830	833.4	827.2		< 3% of the measurement range
Calibration Drift = (Actual Response - CE Test Response) / Measurement Range * 100					Test Run 3 Avg. Conc.
	2981		2915.5		

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2	N/A		
Combustion Air			UHP Air			
Zero Gas			UHP Air			
Low Gas	25 - 35	275	CH4/Air	EB0023533	6/7/21	22.5
Mid Gas	45 - 55	505	CH4/Air	SG9166156	8/5/23	50.5
High Gas	80 - 90	830	CH4/Air	EB0056020	7/6/23	83.0

B5. [redacted] – Cyclone 2

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**[redacted]C2-R1**
Source:	**Cyclone 2 -[redacted]**	**Date:**	**19-Nov-15**

START TIME :	9:51	END TIME :	10:51

Avg. VOC Concentration (as methane)	**91.06**	PPMwv
Average Volumetric Flow Rate	1,025,352	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	1.94	%

Non-Methane VOC as methane (PPM wet volume)	=	**91.058**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**92.859**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**3.86E-06**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**3.955**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	[redacted]**-C2-R2**
Source:	**Cyclone 2 -** [redacted]	**Date:**	**19-Nov-15**

START TIME :	12:32	END TIME :	13:32

Avg. VOC Concentration (as methane)	**91.73**	PPMwv
Average Volumetric Flow Rate	908,541	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	2.25	%

Non-Methane VOC as methane (PPM wet volume)	=	**91.728**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**93.841**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**3.90E-06**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**3.542**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**[redacted]-C2-R3**
Source:	**Cyclone 2 - [redacted]**	**Date:**	**19-Nov-15**

START TIME :	14:39	END TIME :	15:38

Avg. VOC Concentration (as methane)	**79.29**	PPMwv
Average Volumetric Flow Rate	1,012,937	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	2.16	%

Non-Methane VOC as methane (PPM wet volume)	=	**79.288**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**81.041**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**3.37E-06**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**3.410**	lb/hr

Method 25A Calibration Data Sheet - THC

Source Summary	
Client:/Site:	wTe Recycling
Source:/Location:	Cyclone 2 - [redacted]
Test Date:	19-Nov-15

Field Crew Summary	
Crew Member 1 -	AMS, ARS
Crew Member 2 -	JB, MB
Crew Member 3 -	JC, TS

THC Analyzer Data			
Manufacturer -	TECO		
Model/Serial Number -	51 / THC51-3		
Fuel Pressure -	22		
Combustion Air Pressure -	32		
Sample Pressure -	9		
Range -	0	-	100
Calibrant (choose one, x in box)	Propane		
	Methane	x	
Program Molecular Weight:	16.04	g/mol	

Run Summary			
Run No.	1	2	3
Start Time	9:51	12:32	14:39
Stop Time	10:51	13:32	15:38

Calibration Error Test Data		
Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.5
Response Line	0.996	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	29.1	29.0	28.5	1.7	< 5% of cylinder concentration
Mid Gas	52.2	52.0	50.7	2.5	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria	
Test Run 1 Zero	0.0	0.1	1.4	1.3	< 3% of the measurement range	
Test Run 1 Upscale	85.7	85.5	86.4	0.9	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	91.1
Test Run 2 Zero	0.0	0.1	2.1	2.0	< 3% of the measurement range	
Test Run 2 Upscale	85.7	85.5	87.5	2.0	< 3% of the measurement range	
					Test Run 2 Avg. Conc.	91.7
Test Run 3 Zero	0.0	0.1	2.4	2.3	< 3% of the measurement range	
Test Run 3 Upscale	85.7	85.5	85.5	0.0	< 3% of the measurement range	
					Test Run 3 Avg. Conc.	79.3

Where:

$$\text{Calibration Drift} = \frac{(\text{Final Test Response} - \text{Initial Test Response})}{\text{Measurement Range}} * 100$$

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2			N/A
Combustion Air			UHP Air			
Zero Gas	0	0	UHP Air			0.0%
Low Gas	25-35	29.1	CH4/Air	EB0057655	9/11/2022	29.1%
Mid Gas	45-55	52.2	CH4/Air	EB0051398	12/9/2021	52.2%
High Gas	80-90	85.7	CH4/Air	EB0017088	8/11/2023	85.7%

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	Date:	11/19/15
Source:	Cyclone 2 - [redacted]	Start Time:	9:51
Run No.:	[redacted]-C2-R1	Stop Time:	10:51

Date/time	THC ppmvw			
11/19/2015 9:51:44 AM	2.03			
11/19/2015 9:52:44 AM	9.42			
11/19/2015 9:53:44 AM	41.24			
11/19/2015 9:54:44 AM	60.12			
11/19/2015 9:55:44 AM	68.35			
11/19/2015 9:56:44 AM	70.72			
11/19/2015 9:57:44 AM	58.75			
11/19/2015 9:58:44 AM	55.05			
11/19/2015 9:59:44 AM	53.75			
11/19/2015 10:00:44 AM	78.25			
11/19/2015 10:01:44 AM	86.98			
11/19/2015 10:02:44 AM	83.60			
11/19/2015 10:03:44 AM	70.03			
11/19/2015 10:04:44 AM	71.94			
11/19/2015 10:05:44 AM	101.91			
11/19/2015 10:06:44 AM	101.49			
11/19/2015 10:07:44 AM	96.07			
11/19/2015 10:08:44 AM	85.96			
11/19/2015 10:09:44 AM	101.27			
11/19/2015 10:10:44 AM	77.55			
11/19/2015 10:11:44 AM	86.81			
11/19/2015 10:12:44 AM	160.12			
11/19/2015 10:13:44 AM	129.50			
11/19/2015 10:14:44 AM	108.24			
11/19/2015 10:15:44 AM	111.70			
11/19/2015 10:16:44 AM	91.91			
11/19/2015 10:17:44 AM	95.75			
11/19/2015 10:18:44 AM	96.28			
11/19/2015 10:19:44 AM	98.59			
11/19/2015 10:20:44 AM	129.87			
11/19/2015 10:21:44 AM	122.49			
11/19/2015 10:22:44 AM	99.62			
11/19/2015 10:23:44 AM	91.66			
11/19/2015 10:24:44 AM	93.16			
11/19/2015 10:25:44 AM	85.47			
11/19/2015 10:26:44 AM	86.71			
11/19/2015 10:27:44 AM	92.85			
11/19/2015 10:28:44 AM	89.59			
11/19/2015 10:29:44 AM	98.70			
11/19/2015 10:30:44 AM	83.93			
11/19/2015 10:31:44 AM	86.68			
11/19/2015 10:32:44 AM	72.43			
11/19/2015 10:33:44 AM	82.59			
11/19/2015 10:34:44 AM	102.42			
11/19/2015 10:35:44 AM	113.71			
11/19/2015 10:36:44 AM	90.77			
11/19/2015 10:37:44 AM	97.23			
11/19/2015 10:38:44 AM	97.41			
11/19/2015 10:39:44 AM	89.57			
11/19/2015 10:40:44 AM	101.04			
11/19/2015 10:41:44 AM	113.99			
11/19/2015 10:42:44 AM	109.73			
11/19/2015 10:43:44 AM	127.12			
11/19/2015 10:44:44 AM	129.35			
11/19/2015 10:45:44 AM	110.94			
11/19/2015 10:46:44 AM	111.55			
11/19/2015 10:47:44 AM	107.45			
11/19/2015 10:48:44 AM	105.82			
11/19/2015 10:49:44 AM	89.04			
11/19/2015 10:50:44 AM	97.20			
Run Averages:	91.1			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	Date:	11/19/15
Source:	Cyclone 2 - [redacted]	Start Time:	12:32
Run No.:	[redacted] C2-R2	Stop Time:	13:32

Date/time	THC ppmvw			
11/19/2015 12:32:44 PM	4.45			
11/19/2015 12:33:44 PM	24.58			
11/19/2015 12:34:44 PM	76.75			
11/19/2015 12:35:44 PM	86.29			
11/19/2015 12:36:44 PM	96.31			
11/19/2015 12:37:44 PM	93.39			
11/19/2015 12:38:44 PM	69.54			
11/19/2015 12:39:44 PM	74.68			
11/19/2015 12:40:44 PM	84.06			
11/19/2015 12:41:44 PM	97.42			
11/19/2015 12:42:44 PM	96.03			
11/19/2015 12:43:44 PM	85.47			
11/19/2015 12:44:44 PM	87.44			
11/19/2015 12:45:44 PM	102.87			
11/19/2015 12:46:44 PM	103.28			
11/19/2015 12:47:44 PM	88.89			
11/19/2015 12:48:44 PM	103.89			
11/19/2015 12:49:44 PM	105.79			
11/19/2015 12:50:44 PM	105.99			
11/19/2015 12:51:44 PM	97.41			
11/19/2015 12:52:44 PM	90.65			
11/19/2015 12:53:44 PM	90.89			
11/19/2015 12:54:44 PM	100.52			
11/19/2015 12:55:44 PM	83.08			
11/19/2015 12:56:44 PM	80.56			
11/19/2015 12:57:44 PM	81.39			
11/19/2015 12:58:44 PM	120.51			
11/19/2015 12:59:44 PM	101.29			
11/19/2015 1:00:44 PM	106.66			
11/19/2015 1:01:44 PM	118.18			
11/19/2015 1:02:44 PM	100.35			
11/19/2015 1:03:44 PM	107.41			
11/19/2015 1:04:44 PM	102.63			
11/19/2015 1:05:44 PM	117.93			
11/19/2015 1:06:44 PM	117.13			
1:07:45 PM	114.88			
1:08:45 PM	93.25			
1:09:45 PM	130.56			
1:10:45 PM	107.97			
1:11:45 PM	85.97			
1:12:45 PM	85.18			
1:13:45 PM	80.09			
1:14:45 PM	75.09			
1:15:45 PM	93.19			
1:16:45 PM	80.47			
1:17:45 PM	93.97			
1:18:45 PM	97.21			
1:19:45 PM	105.86			
1:20:45 PM	100.54			
1:21:45 PM	89.89			
1:22:45 PM	87.65			
1:23:45 PM	66.47			
1:24:45 PM	93.39			
1:25:45 PM	81.20			
1:26:45 PM	78.52			
1:27:45 PM	100.27			
1:28:45 PM	99.34			
1:29:45 PM	90.52			
1:30:45 PM	88.76			
1:31:45 PM	79.70			
Run Averages:	**91.7**			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:		wTe Recycling		Date: 11/19/15	
Source:		Cyclone 2 - [redacted]		Start Time: 14:39	
Run No.:		[redacted]-C2-R3		Stop Time: 15:38	
Date/time		THC ppmvw			
11/19/2015	2:39:45 PM	74.97			
11/19/2015	2:40:45 PM	71.70			
11/19/2015	2:41:45 PM	86.64			
11/19/2015	2:42:45 PM	154.36			
11/19/2015	2:43:45 PM	105.87			
11/19/2015	2:44:45 PM	101.91			
11/19/2015	2:45:45 PM	82.79			
11/19/2015	2:46:45 PM	98.63			
11/19/2015	2:47:45 PM	121.30			
11/19/2015	2:48:45 PM	98.47			
11/19/2015	2:49:45 PM	115.99			
11/19/2015	2:50:45 PM	97.75			
11/19/2015	2:51:45 PM	79.32			
11/19/2015	2:52:45 PM	95.32			
11/19/2015	2:53:45 PM	97.84			
11/19/2015	2:54:45 PM	72.87			
11/19/2015	2:55:45 PM	17.22			
11/19/2015	Lost power to analyzer				
11/19/2015	Lost power to analyzer				
11/19/2015	Lost power to analyzer				
11/19/2015	Lost power to analyzer				
11/19/2015	3:00:45 PM	35.30			
11/19/2015	3:01:45 PM	26.68			
11/19/2015	3:02:45 PM	67.05			
11/19/2015	3:03:45 PM	73.68			
11/19/2015	3:04:45 PM	70.31			
11/19/2015	3:05:45 PM	75.90			
11/19/2015	3:06:45 PM	63.08			
11/19/2015	3:07:45 PM	77.10			
11/19/2015	3:08:45 PM	84.16			
11/19/2015	3:09:45 PM	65.82			
11/19/2015	3:10:45 PM	102.51			
11/19/2015	3:11:45 PM	85.47			
11/19/2015	3:12:45 PM	81.86			
11/19/2015	3:13:45 PM	87.12			
11/19/2015	3:14:45 PM	70.70			
11/19/2015	3:15:45 PM	77.14			
11/19/2015	3:16:45 PM	74.89			
11/19/2015	3:17:45 PM	90.55			
11/19/2015	3:18:45 PM	88.61			
11/19/2015	3:19:45 PM	79.43			
11/19/2015	3:20:45 PM	76.57			
11/19/2015	3:21:45 PM	76.53			
11/19/2015	3:22:45 PM	73.66			
11/19/2015	3:23:45 PM	68.03			
11/19/2015	3:24:45 PM	86.37			
11/19/2015	3:25:45 PM	90.51			
11/19/2015	Lost power to analyzer				
11/19/2015	Lost power to analyzer				
11/19/2015	Lost power to analyzer				
11/19/2015	Lost power to analyzer				
11/19/2015	Lost power to analyzer				
11/19/2015	3:31:47 PM	80.86			
11/19/2015	3:32:47 PM	85.11			
11/19/2015	3:33:47 PM	78.91			
11/19/2015	3:34:47 PM	92.78			
11/19/2015	3:35:47 PM	74.20			
11/19/2015	3:36:47 PM	64.43			
11/19/2015	3:37:47 PM	55.13			
11/19/2015	3:38:47 PM	64.84			
11/19/2015	3:39:47 PM	64.23			
11/19/2015	3:40:47 PM	64.19			
11/19/2015	3:41:47 PM	69.49			
11/19/2015	3:42:47 PM	77.37			
11/19/2015	3:43:47 PM	101.99			
11/19/2015	3:44:47 PM	70.14			
11/19/2015	3:45:47 PM	66.15			
11/19/2015	3:46:47 PM	66.88			
11/19/2015	3:47:47 PM	58.6			
Run Averages:		79.3			

Method 25A Data Sheet

Client	wTe
Facility	Greenfield, MA
Source	Cyclone #2 — [redacted]
Test Location	Outlet
Date	11/19/2015
Calibration For	THC Methane

THC Analyzer Data

Manufacturer	TECO
Model/Serial Number	51 / THC 51-3
Fuel Pressure	22
Combustion Air Pressure	32
Sample Pressure	9
Measurement Range	0-100 (0-1,000 scale) CH_4
Response Time	75 sec

Test Data

Test Number	1	2	3
Start Time	951	1232	1438
Stop Time	1051	1332	1546
Testers			

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.5
Response Line	0.996	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	29.1	29.0	28.5	1.7	< 5% of cylinder concentration
Mid Gas	52.2	52.0	50.7	1.5	< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance
Test Run 1 Zero	0.0	0.1	(A) ~~2.4~~ 1.4	1.3	< 3% of the measurement range
Test Run 1 Mid	85.7	85.5	86.4	0.9	< 3% of the measurement range
					Test Run 1 Avg. Conc.
Test Run 2 Zero	0.0	0.1	2.1	2.0	< 3% of the measurement range
Test Run 2 Mid	85.7	85.5	87.5	2.0	< 3% of the measurement range
					Test Run 2 Avg. Conc.
Test Run 3 Zero	0.0	0.1	2.4	2.3	< 3% of the measurement range
Test Run 3 Mid	85.7	85.5	85.5	0.0	< 3% of the measurement range
					Test Run 3 Avg. Conc.

Calibration Drift = (Actual Response - CE Test Response) / Measurement Range * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2	n/a	n/a	
Combustion Air			UHP Air	n/a	na	
Low Gas	25 - 35	29.1	CH4/Air	EB0057655	9/11/2022	29.1
Mid Gas	45 - 55	52.2	CH4/Air	EB0051398	12/9/2021	52.2
High Gas	80 - 90	85.7	CH4/Air	EB0017088	8/10/2023	85.7

B6. [redacted] – Cyclone 3

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	[redacted]**-C3-R1**
Source:	**Cyclone 3 -** [redacted]	**Date:**	**19-Nov-15**

START TIME :	9:51	END TIME :	10:51

Avg. VOC Concentration (as methane)	**31.82**	PPMwv
Average Volumetric Flow Rate	1,120,348	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	1.44	%

Non-Methane VOC as methane (PPM wet volume)	=	**31.820**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**32.285**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.34E-06**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**1.503**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	[redacted]**-C3-R2**
Source:	**Cyclone 3 -** [redacted]	**Date:**	**19-Nov-15**

START TIME :	12:32	END TIME :	13:32

Avg. VOC Concentration (as methane)	**42.14**	PPMwv
Average Volumetric Flow Rate	947,868	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	2.10	%

Non-Methane VOC as methane (PPM wet volume)	=	**42.144**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**43.049**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.79E-06**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**1.695**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	[redacted]**-C3-R3**
Source:	**Cyclone 3 -** [redacted]	**Date:**	**19-Nov-15**

START TIME :	14:38	END TIME :	15:38

Avg. VOC Concentration (as methane)	**29.96**	PPMwv
Average Volumetric Flow Rate	1,048,346	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	1.56	%

Non-Methane VOC as methane (PPM wet volume)	=	**29.960**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**30.435**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.26E-06**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**1.326**	lb/hr

Method 25A Calibration Data Sheet - THC

Source Summary	
Client:/Site:	wTe Recycling
Source:/Location:	Cyclone 3 - [redacted]
Test Date:	19-Nov-15

Field Crew Summary	
Crew Member 1 -	AMS, ARS
Crew Member 2 -	JB, MB
Crew Member 3 -	JC, TS

THC Analyzer Data			
Manufacturer -	TECO		
Model/Serial Number -	51 / THC51-2		
Fuel Pressure -	22		
Combustion Air Pressure -	31		
Sample Pressure -	9		
Range -	0	-	100
Calibrant (choose one, x in box)	Propane		
	Methane	x	
Program Molecular Weight:	16.04	g/mol	

Run Summary			
Run No.	1	2	
Start Time	9:51	12:32	14:38
Stop Time	10:51	13:32	15:38

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.6
Response Line	0.998	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	29.1	29.0	29.1	0.2	< 5% of cylinder concentration
Mid Gas	52.2	52.1	50.9	2.3	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria	
Test Run 1 Zero	0.0	0.1	2.0	1.9	< 3% of the measurement range	
Test Run 1 Upscale	85.7	85.6	86.6	1.0	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	31.8
Test Run 2 Zero	0.0	0.1	1.7	1.6	< 3% of the measurement range	
Test Run 2 Upscale	85.7	85.6	86.4	0.8	< 3% of the measurement range	
					Test Run 2 Avg. Conc.	42.1
Test Run 3 Zero	0.0	0.1	1.4	1.3	< 3% of the measurement range	
Test Run 3 Upscale	85.7	85.6	85.1	0.5	< 3% of the measurement range	
					Test Run 3 Avg. Conc.	30.0

Where:

$$\text{Calibration Drift} = \frac{(\text{Final Test Response} - \text{Initial Test Response})}{\text{Measurement Range}} * 100$$

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2			N/A
Combustion Air			UHP Air			
Zero Gas	0	0	UHP Air			0.0%
Low Gas	25-35	29.1	CH4/Air	EB0057655	9/11/2022	29.1%
Mid Gas	45-55	52.2	CH4/Air	EB0051398	12/9/2021	52.2%
High Gas	80-90	85.7	CH4/Air	EB0017088	8/11/2023	85.7%

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/19/15
Source:	Cyclone 3 - [redacted]	**Start Time:**	9:51
Run No.:	[redacted]-C3-R1	**Stop Time:**	10:51

Date/time	THC ppmvw
11/19/2015 9:51:44 AM	2.5
11/19/2015 9:52:44 AM	2.7
11/19/2015 9:53:44 AM	4.7
11/19/2015 9:54:44 AM	7.3
11/19/2015 9:55:44 AM	11.3
11/19/2015 9:56:44 AM	14.1
11/19/2015 9:57:44 AM	16.4
11/19/2015 9:58:44 AM	16.8
11/19/2015 9:59:44 AM	17.5
11/19/2015 10:00:44 AM	17.8
11/19/2015 10:01:44 AM	20.0
11/19/2015 10:02:44 AM	23.3
11/19/2015 10:03:44 AM	24.0
11/19/2015 10:04:44 AM	23.1
11/19/2015 10:05:44 AM	24.7
11/19/2015 10:06:44 AM	29.5
11/19/2015 10:07:44 AM	31.8
11/19/2015 10:08:44 AM	31.4
11/19/2015 10:09:44 AM	32.3
11/19/2015 10:10:44 AM	32.9
11/19/2015 10:11:44 AM	30.9
11/19/2015 10:12:44 AM	32.7
11/19/2015 10:13:44 AM	37.9
11/19/2015 10:14:44 AM	40.3
11/19/2015 10:15:44 AM	38.8
11/19/2015 10:16:44 AM	38.9
11/19/2015 10:17:44 AM	36.3
11/19/2015 10:18:44 AM	35.8
11/19/2015 10:19:44 AM	33.0
11/19/2015 10:20:44 AM	35.2
11/19/2015 10:21:44 AM	36.7
11/19/2015 10:22:44 AM	37.7
11/19/2015 10:23:44 AM	36.1
11/19/2015 10:24:44 AM	35.6
11/19/2015 10:25:44 AM	35.4
11/19/2015 10:26:44 AM	34.8
11/19/2015 10:27:44 AM	33.9
11/19/2015 10:28:44 AM	34.6
11/19/2015 10:29:44 AM	33.7
11/19/2015 10:30:44 AM	34.0
11/19/2015 10:31:44 AM	32.9
11/19/2015 10:32:44 AM	30.9
11/19/2015 10:33:44 AM	30.3
11/19/2015 10:34:44 AM	31.5
11/19/2015 10:35:44 AM	35.9
11/19/2015 10:36:44 AM	36.1
11/19/2015 10:37:44 AM	33.2
11/19/2015 10:38:44 AM	44.0
11/19/2015 10:39:44 AM	41.3
11/19/2015 10:40:44 AM	42.5
11/19/2015 10:41:44 AM	41.0
11/19/2015 10:42:44 AM	43.3
11/19/2015 10:43:44 AM	43.5
11/19/2015 10:44:44 AM	48.5
11/19/2015 10:45:44 AM	46.0
11/19/2015 10:46:44 AM	50.6
11/19/2015 10:47:44 AM	48.7
11/19/2015 10:48:44 AM	45.8
11/19/2015 10:49:44 AM	45.1
11/19/2015 10:50:44 AM	42.1
Run Averages:	**31.8**

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/19/15
Source:	Cyclone 3 - [redacted]	**Start Time:**	12:32
Run No.:	[redacted]C3-R2	**Stop Time:**	13:32

Date/time	THC ppmvw			
11/19/2015 12:32:44 PM	5.8			
11/19/2015 12:33:44 PM	5.9			
11/19/2015 12:34:44 PM	12.6			
11/19/2015 12:35:44 PM	21.6			
11/19/2015 12:36:44 PM	27.9			
11/19/2015 12:37:44 PM	33.0			
11/19/2015 12:38:44 PM	33.2			
11/19/2015 12:39:44 PM	31.8			
11/19/2015 12:40:44 PM	33.5			
11/19/2015 12:41:44 PM	35.0			
11/19/2015 12:42:44 PM	39.6			
11/19/2015 12:43:44 PM	41.3			
11/19/2015 12:44:44 PM	39.1			
11/19/2015 12:45:44 PM	41.2			
11/19/2015 12:46:44 PM	47.0			
11/19/2015 12:47:44 PM	48.3			
11/19/2015 12:48:44 PM	46.2			
11/19/2015 12:49:44 PM	50.8			
11/19/2015 12:50:44 PM	50.7			
11/19/2015 12:51:44 PM	50.0			
11/19/2015 12:52:44 PM	46.2			
11/19/2015 12:53:44 PM	47.1			
11/19/2015 12:54:44 PM	45.0			
11/19/2015 12:55:44 PM	47.2			
11/19/2015 12:56:44 PM	43.4			
11/19/2015 12:57:44 PM	44.1			
11/19/2015 12:58:44 PM	43.3			
11/19/2015 12:59:44 PM	50.0			
11/19/2015 1:00:44 PM	46.2			
11/19/2015 1:01:44 PM	49.3			
11/19/2015 1:02:44 PM	55.0			
11/19/2015 1:03:44 PM	48.7			
11/19/2015 1:04:44 PM	48.7			
11/19/2015 1:05:44 PM	48.2			
11/19/2015 1:06:44 PM	50.5			
1:07:45 PM	53.4			
1:08:45 PM	54.4			
1:09:45 PM	47.6			
1:10:45 PM	51.9			
1:11:45 PM	50.3			
1:12:45 PM	45.5			
1:13:45 PM	44.0			
1:14:45 PM	41.3			
1:15:45 PM	40.2			
1:16:45 PM	41.9			
1:17:45 PM	42.4			
1:18:45 PM	43.7			
1:19:45 PM	43.0			
1:20:45 PM	46.0			
1:21:45 PM	42.9			
1:22:45 PM	43.6			
1:23:45 PM	42.1			
1:24:45 PM	41.4			
1:25:45 PM	41.1			
1:26:45 PM	40.9			
1:27:45 PM	41.2			
1:28:45 PM	47.1			
1:29:45 PM	47.7			
1:30:45 PM	44.3			
1:31:45 PM	43.7			
Run Averages:	**42.14**			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/19/15
Source:	Cyclone 3 - [redacted]	**Start Time:**	14:38
Run No.:	[redacted]C3-R3	**Stop Time:**	15:38

Date/time	THC ppmvw
11/19/2015 2:39:45 PM	8.4
11/19/2015 2:40:45 PM	25.5
11/19/2015 2:41:45 PM	24.9
11/19/2015 2:42:45 PM	48.4
11/19/2015 2:43:45 PM	57.0
11/19/2015 2:44:45 PM	42.1
11/19/2015 2:45:45 PM	37.7
11/19/2015 2:46:45 PM	34.4
11/19/2015 2:47:45 PM	38.3
11/19/2015 2:48:45 PM	40.7
11/19/2015 2:49:45 PM	40.0
11/19/2015 2:50:45 PM	44.9
11/19/2015 2:51:45 PM	41.2
11/19/2015 2:52:45 PM	38.2
11/19/2015 2:53:45 PM	41.0
11/19/2015 2:54:45 PM	34.2
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 3:03:45 PM	25.7
11/19/2015 3:04:45 PM	29.0
11/19/2015 3:05:45 PM	27.8
11/19/2015 3:06:45 PM	27.8
11/19/2015 3:07:45 PM	25.6
11/19/2015 3:08:45 PM	27.9
11/19/2015 3:09:45 PM	26.5
11/19/2015 3:10:45 PM	26.1
11/19/2015 3:11:45 PM	30.5
11/19/2015 3:12:45 PM	28.5
11/19/2015 3:13:45 PM	30.1
11/19/2015 3:14:45 PM	30.1
11/19/2015 3:15:45 PM	27.6
11/19/2015 3:16:45 PM	28.2
11/19/2015 3:17:45 PM	28.4
11/19/2015 3:18:45 PM	27.4
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 3:22:45 PM	13.0
11/19/2015 3:23:45 PM	6.6
11/19/2015 3:24:45 PM	20.3
11/19/2015 3:25:45 PM	29.8
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 Lost power to analyzer	
11/19/2015 3:36:47 PM	20.7
11/19/2015 3:37:47 PM	28.1
11/19/2015 3:38:47 PM	27.6
11/19/2015 3:39:47 PM	4.6
11/19/2015 3:40:47 PM	57.9
11/19/2015 3:41:47 PM	9.0
11/19/2015 3:42:47 PM	27.3
11/19/2015 3:43:47 PM	30.0
11/19/2015 3:44:47 PM	33.4
11/19/2015 3:45:47 PM	29.7
11/19/2015 3:46:47 PM	27.5
11/19/2015 3:47:47 PM	28.4
Run Averages:	**30.0**

Method 25A Data Sheet

Client	wTe
Facility	Greenfield, MA
Source	Cyclone #3 – [redacted]
Test Location	Outlet
Date	11/19/2015
Calibration For	THC Methane

THC Analyzer Data

Manufacturer	TECO
Model/Serial Number	51 / THC51-1
Fuel Pressure	22
Combustion Air Pressure	31
Sample Pressure	9
Measurement Range	0-100 CH4 (0-1,000 range)
Response Time	75 sec

Test Data

Test Number	1	2	3
Start Time	951	1232	1438
Stop Time	1051	1332	1538
Testers			

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.6
Response Line	0.998	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	29.1	29.0	29.1	0.2	< 5% of cylinder concentration
Mid Gas	52.2	52.1	50.9	2.3	< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance
Test Run 1 Zero	0.0	0.1	2.0	1.9	< 3% of the measurement range
Test Run 1 Mid	85.7	85.6	86.6	1.0	< 3% of the measurement range
					Test Run 1 Avg. Conc.
Test Run 2 Zero	0.0	0.1	1.7	1.6	< 3% of the measurement range
Test Run 2 Mid	85.7	85.6	86.4	0.8	< 3% of the measurement range
					Test Run 2 Avg. Conc.
Test Run 3 Zero	0.0	0.1	1.4	1.3	< 3% of the measurement range
Test Run 3 Mid	85.7	85.6	85.1	0.5	< 3% of the measurement range
					Test Run 3 Avg. Conc.

Calibration Drift = (Actual Response - CE Test Response) / Measurement Range * 100

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2	n/a	n/a	
Combustion Air			UHP Air	n/a	na	
Low Gas	25 - 35	29.1	CH4/Air	EB0057655	9/11/2022	29.1
Mid Gas	45 - 55	52.2	CH4/Air	EB0051398	12/9/2021	52.2
High Gas	80 - 90	85.7	CH4/Air	EB0017088	8/10/2023	85.7

B7. Blended Waste – Scrubber/Cyclone 1

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Blend-C1-R1**
Source:	**Scrubber/Cyclone 1 - Blend**	**Date:**	**20-Nov-15**

START TIME :	8:09	END TIME :	9:09

Avg. VOC Concentration (as methane)	**68.82**	PPMwv
Average Volumetric Flow Rate	2,167,466	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	2.90	%

Non-Methane VOC as methane (PPM wet volume)	=	**68.820**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**70.878**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**2.94E-06**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**6.382**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Blend-C1-R2**
Source:	**Scrubber/Cyclone 1 - Blend**	**Date:**	**20-Nov-15**

START TIME :	10:16	END TIME :	11:21

Avg. VOC Concentration (as methane)	**51.93**	PPMwv
Average Volumetric Flow Rate	2,158,777	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	2.82	%

Non-Methane VOC as methane (PPM wet volume)	=	**51.931**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**53.436**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**2.22E-06**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**4.792**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Blend-C1-R3**
Source:	**Scrubber/Cyclone 1 - Blend**	**Date:**	**20-Nov-15**

START TIME :	12:16	END TIME :	13:16

Avg. VOC Concentration (as methane)	**68.54**	PPMwv
Average Volumetric Flow Rate	2,133,763	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	3.33	%

Non-Methane VOC as methane (PPM wet volume)	=	**68.543**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**70.906**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**2.95E-06**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**6.285**	lb/hr

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/20/15
Source:	Scrubber/Cyclone 1 -	**Start Time:**	8:09
Run No.:	Blend-C1-R1	**Stop Time:**	9:09

Date/time	THC ppmvw			
11/20/2015 8:09:16 AM	24.0			
11/20/2015 8:10:16 AM	19.6			
11/20/2015 8:11:16 AM	19.7			
11/20/2015 8:12:16 AM	22.7			
11/20/2015 8:13:16 AM	57.6			
11/20/2015 8:14:16 AM	49.0			
11/20/2015 8:15:16 AM	36.5			
11/20/2015 8:16:16 AM	36.2			
11/20/2015 8:17:16 AM	49.2			
11/20/2015 8:18:16 AM	57.9			
11/20/2015 8:19:16 AM	62.0			
11/20/2015 8:20:16 AM	41.8			
11/20/2015 8:21:16 AM	38.4			
11/20/2015 8:22:16 AM	39.7			
11/20/2015 8:23:16 AM	157.4			
11/20/2015 8:24:16 AM	97.7			
11/20/2015 8:25:16 AM	89.6			
11/20/2015 8:26:16 AM	110.0			
11/20/2015 8:27:16 AM	67.2			
11/20/2015 8:28:16 AM	52.2			
11/20/2015 8:29:16 AM	50.5			
11/20/2015 8:30:16 AM	51.4			
11/20/2015 8:31:16 AM	49.9			
11/20/2015 8:32:16 AM	44.3			
11/20/2015 8:33:16 AM	42.9			
11/20/2015 8:34:16 AM	42.1			
11/20/2015 8:35:16 AM	67.8			
11/20/2015 8:36:16 AM	68.5			
11/20/2015 8:37:16 AM	40.9			
11/20/2015 8:38:16 AM	36.8			
11/20/2015 8:39:16 AM	36.5			
11/20/2015 8:40:16 AM	33.9			
11/20/2015 8:41:16 AM	33.9			
11/20/2015 8:42:16 AM	40.7			
11/20/2015 8:43:16 AM	42.4			
11/20/2015 8:44:16 AM	33.9			
11/20/2015 8:45:16 AM	48.9			
11/20/2015 8:46:16 AM	86.5			
11/20/2015 8:47:16 AM	262.0			
11/20/2015 8:48:16 AM	61.7			
11/20/2015 8:49:16 AM	227.2			
11/20/2015 8:50:16 AM	190.5			
11/20/2015 8:51:16 AM	189.3			
11/20/2015 8:52:16 AM	114.6			
11/20/2015 8:53:16 AM	55.0			
11/20/2015 8:54:16 AM	62.3			
11/20/2015 8:55:16 AM	66.3			
11/20/2015 8:56:16 AM	44.4			
11/20/2015 8:57:16 AM	39.8			
11/20/2015 8:58:16 AM	105.5			
11/20/2015 8:59:16 AM	157.2			
11/20/2015 9:00:16 AM	52.4			
11/20/2015 9:01:16 AM	39.5			
11/20/2015 9:02:16 AM	55.2			
11/20/2015 9:03:16 AM	98.6			
11/20/2015 9:04:16 AM	68.4			
11/20/2015 9:05:16 AM	58.2			
11/20/2015 9:06:16 AM	46.6			
11/20/2015 9:07:16 AM	93.7			
11/20/2015 9:08:16 AM	60.6			
Run Averages:	**68.8**			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	Date:	11/20/15
Source:	Scrubber/Cyclone 1 -	Start Time:	10:16
Run No.:	Blend-C1-R2	Stop Time:	11:21

Date/time	THC ppmvw			
11/20/2015 10:16:16 AM	14.5			
11/20/2015 10:17:16 AM	14.5			
11/20/2015 10:18:16 AM	14.5			
11/20/2015 10:19:16 AM	14.5			
11/20/2015 10:20:16 AM	16.1			
11/20/2015 10:21:16 AM	162.2			
11/20/2015 10:22:16 AM	50.3			
11/20/2015 10:23:16 AM	25.9			
11/20/2015 10:24:16 AM	21.2			
11/20/2015 10:25:16 AM	19.6			
11/20/2015 10:26:16 AM	19.6			
11/20/2015 10:27:16 AM	19.8			
11/20/2015 10:28:16 AM	124.0			
11/20/2015 10:29:16 AM	56.7			
11/20/2015 10:30:16 AM	31.3			
11/20/2015 10:31:16 AM	29.1			
11/20/2015 10:32:16 AM	26.5			
11/20/2015 10:33:16 AM	29.2			
11/20/2015 10:34:16 AM	35.5			
11/20/2015 10:35:16 AM	69.6			
11/20/2015 10:36:16 AM	40.6			
11/20/2015 10:37:16 AM	29.7			
11/20/2015 10:38:16 AM	42.3			
11/20/2015 10:39:16 AM	35.8			
11/20/2015 10:40:16 AM	31.8			
11/20/2015 10:41:16 AM	29.9			
11/20/2015 10:42:16 AM	30.4			
11/20/2015 10:43:16 AM	29.6			
11/20/2015 10:44:16 AM	42.0			
11/20/2015 10:45:16 AM	34.3			
11/20/2015 10:46:16 AM	29.2			
11/20/2015 10:47:16 AM	29.1			
11/20/2015 10:48:16 AM	58.8			
11/20/2015 10:49:16 AM	42.1			
11/20/2015 10:50:16 AM	34.1			
11/20/2015 10:51:16 AM	66.1			
11/20/2015 10:52:16 AM	46.2			
11/20/2015 10:53:16 AM	47.7			
11/20/2015 10:54:16 AM	43.1			
11/20/2015 10:55:16 AM	76.6			
11/20/2015 10:56:16 AM	115.1			
11/20/2015 10:57:16 AM	61.6			
11/20/2015 10:58:16 AM	83.1			
11/20/2015 10:59:16 AM	76.2			
11/20/2015 11:00:16 AM	56.9			
11/20/2015 11:01:16 AM	63.7			
11/20/2015 11:02:16 AM	56.8			
11/20/2015 11:03:16 AM	37.2			
11/20/2015 11:04:16 AM	32.6			
11/20/2015 11:05:16 AM	51.0			
11/20/2015 11:06:16 AM	38.5			
11/20/2015 11:07:16 AM	33.9			
11/20/2015 11:08:16 AM	36.8			
11/20/2015 11:09:16 AM	67.6			
11/20/2015 11:10:16 AM	124.4			
11/20/2015 11:11:16 AM	41.8			
11/20/2015 11:12:16 AM	34.0			
11/20/2015 11:13:16 AM	55.4			
11/20/2015 11:14:16 AM	45.5			
11/20/2015 11:15:16 AM	44.0			
11/20/2015 11:16:16 AM	39.5			
11/20/2015 11:17:16 AM	150.9			
11/20/2015 11:18:16 AM	90.7			
11/20/2015 11:19:16 AM	83.4			
11/20/2015 11:20:16 AM	240.9			
Run Averages:	51.9			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	**Date:**	11/20/15
Source:	Scrubber/Cyclone 1 -	**Start Time:**	12:16
Run No.:	Blend-C1-R3	**Stop Time:**	13:16

Date/time	THC ppmvw			
11/20/2015 12:16:16 PM	9.6			
11/20/2015 12:17:16 PM	9.7			
11/20/2015 12:18:16 PM	9.7			
11/20/2015 12:19:16 PM	11.1			
11/20/2015 12:20:16 PM	38.4			
11/20/2015 12:21:16 PM	119.6			
11/20/2015 12:22:16 PM	112.8			
11/20/2015 12:23:16 PM	138.9			
11/20/2015 12:24:16 PM	44.3			
11/20/2015 12:25:16 PM	36.7			
11/20/2015 12:26:16 PM	61.9			
11/20/2015 12:27:16 PM	232.7			
11/20/2015 12:28:16 PM	122.4			
11/20/2015 12:29:16 PM	41.8			
11/20/2015 12:30:16 PM	35.8			
11/20/2015 12:31:16 PM	139.3			
11/20/2015 12:32:16 PM	50.8			
11/20/2015 12:33:16 PM	37.9			
11/20/2015 12:34:16 PM	33.9			
11/20/2015 12:35:16 PM	30.5			
11/20/2015 12:36:16 PM	35.9			
11/20/2015 12:37:16 PM	31.9			
11/20/2015 12:38:16 PM	127.6			
11/20/2015 12:39:16 PM	149.9			
11/20/2015 12:40:16 PM	71.3			
11/20/2015 12:41:16 PM	47.8			
11/20/2015 12:42:16 PM	147.6			
11/20/2015 12:43:16 PM	64.8			
11/20/2015 12:44:16 PM	41.4			
11/20/2015 12:45:16 PM	39.5			
11/20/2015 12:46:16 PM	37.6			
11/20/2015 12:47:16 PM	46.3			
11/20/2015 12:48:16 PM	173.0			
11/20/2015 12:49:16 PM	120.3			
11/20/2015 12:50:16 PM	69.8			
11/20/2015 12:51:16 PM	59.1			
11/20/2015 12:52:16 PM	48.1			
11/20/2015 12:53:16 PM	40.3			
11/20/2015 12:54:16 PM	61.5			
11/20/2015 12:55:16 PM	118.9			
11/20/2015 12:56:16 PM	95.4			
11/20/2015 12:57:16 PM	45.1			
11/20/2015 12:58:16 PM	39.2			
11/20/2015 12:59:16 PM	32.4			
11/20/2015 1:00:16 PM	105.2			
11/20/2015 1:01:16 PM	105.7			
11/20/2015 1:02:16 PM	36.7			
11/20/2015 1:03:16 PM	29.2			
11/20/2015 1:04:16 PM	25.3			
11/20/2015 1:05:16 PM	29.3			
11/20/2015 1:06:16 PM	148.1			
11/20/2015 1:07:16 PM	54.8			
11/20/2015 1:08:16 PM	41.9			
11/20/2015 1:09:16 PM	61.3			
11/20/2015 1:10:16 PM	35.0			
11/20/2015 1:11:16 PM	42.1			
11/20/2015 1:12:16 PM	47.3			
11/20/2015 1:13:16 PM	93.9			
11/20/2015 1:14:16 PM	151.5			
11/20/2015 1:15:16 PM	42.8			
Run Averages:	**68.5**			

Method 25A Data Sheet (THC)

Client	WTE
Facility	Greenfield, MA
Source ID	Scrubber 1 — Blend
Test Location	Outlet
Date	20 NOV 2015

THC Analyzer Data

Manufacturer	TECO
Model/Serial Number	Model 51 / 46i09 - 275
Fuel Pressure	18.0
Combustion Air Pressure	34.0
Sample Pressure	9.0
Measurement Range	0 - 100 as CH4
Response Time	

Test Data

Test Number:	1	2	3
Start Time:	0809	1016	1216
Stop Time:	0909	1121	1316
Testers:			

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.0
High Gas	830	829.9
Response Line		

Response Line = (Ha/Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	275		284.6		< 5% of cylinder concentration
Mid Gas	505		490.2		< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance	
Test Run 1 Zero	0.0		0.1		< 3% of the measurement range	
Test Run 1 Upscale	505		494.4		< 3% of the measurement range	
					Test Run 1 Avg. Conc.	68.62
Test Run 2 Zero	0.0		0.1		< 3% of the measurement range	
Test Run 2 Upscale	505		499.0		< 3% of the measurement range	
					Test Run 2 Avg. Conc.	52.86
Test Run 3 Zero	0.0		0.3		< 3% of the measurement range	
Test Run 3 Upscale	505		499.2		< 3% of the measurement range	
Calibration Drift = (Actual Response - CE Test Response) / Measurement Range * 100					Test Run 3 Avg. Conc.	67.92

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2	N/A		
Combustion Air			UHP Air	↓		
Zero Gas			UHP Air	↓		
Low Gas	25 - 35	275	CH4/Air	EB0023533		
Mid Gas	45 - 55	505	CH4/Air	SG9160436		
High Gas	80 - 90	830	CH4/Air	EB0058010		

B8. Blended Waste – Cyclone 2

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Blend-C2-R1**
Source:	**Cyclone 2 - Blend**	**Date:**	**20-Nov-15**

START TIME :	8:09	END TIME :	9:09

Avg. VOC Concentration (as methane)	**3.24**	PPMwv
Average Volumetric Flow Rate	1,055,704	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	1.94	%

Non-Methane VOC as methane (PPM wet volume)	=	**3.242**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**3.307**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.37E-07**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**0.145**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Blend-C2-R2**
Source:	**Cyclone 2 - Blend**	**Date:**	**20-Nov-15**

START TIME :	10:16	END TIME :	11:21

Avg. VOC Concentration (as methane)	**1.27**	PPMwv
Average Volumetric Flow Rate	1,022,394	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	1.15	%

Non-Methane VOC as methane (PPM wet volume)	=	**1.269**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**1.283**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**5.33E-08**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**0.055**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Blend-C2-R3**
Source:	**Cyclone 2 - Blend**	**Date:**	**20-Nov-15**

START TIME :	12:16	END TIME :	13:16

Avg. VOC Concentration (as methane)	**3.83**	PPMwv
Average Volumetric Flow Rate	1,022,762	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	1.76	%

Non-Methane VOC as methane (PPM wet volume)	=	**3.827**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**3.895**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.62E-07**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**0.166**	lb/hr

Method 25A Calibration Data Sheet - THC

Source Summary	
Client:/Site:	wTe Recycling
Source:/Location:	Cyclone 2 - Blend
Test Date:	20-Nov-15

Field Crew Summary	
Crew Member 1 -	AMS, ARS
Crew Member 2 -	JB, MB
Crew Member 3 -	JC, TS

THC Analyzer Data			
Manufacturer -	TECO		
Model/Serial Number -	51 / THC51-3		
Fuel Pressure -	20		
Combustion Air Pressure -	31		
Sample Pressure -	9		
Range -	0	-	100
Calibrant (choose one, x in box)	Propane		
	Methane	x	
Program Molecular Weight:	16.04	g/mol	

Run Summary			
Run No.	1	2	3
Start Time	8:09	10:16	12:16
Stop Time	9:09	11:21	13:16

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.9
Response Line	1.001	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	29.1	29.1	27.9	4.2	< 5% of cylinder concentration
Mid Gas	52.2	52.3	50.0	4.3	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria	
Test Run 1 Zero	0.0	0.1	0.0	0.1	< 3% of the measurement range	
Test Run 1 Upscale	29.1	27.9	27.0	0.9	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	3.2
Test Run 2 Zero	0.0	0.1	0.0	0.1	< 3% of the measurement range	
Test Run 2 Upscale	29.1	27.9	28.1	0.2	< 3% of the measurement range	
					Test Run 2 Avg. Conc.	1.3
Test Run 3 Zero	0.0	0.1	1.0	0.9	< 3% of the measurement range	
Test Run 3 Upscale	29.1	27.9	27.5	0.4	< 3% of the measurement range	
					Test Run 3 Avg. Conc.	3.8

Where:

$$\text{Calibration Drift} = \frac{(\text{Final Test Response} - \text{Initial Test Response})}{\text{Measurement Range}} * 100$$

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2			N/A
Combustion Air			UHP Air			
Zero Gas	0	0	UHP Air			0.0%
Low Gas	25-35	29.1	CH4/Air	EB0057655	9/11/2022	29.1%
Mid Gas	45-55	52.2	CH4/Air	EB0051398	12/9/2021	52.2%
High Gas	80-90	85.7	CH4/Air	EB0017088	8/11/2023	85.7%

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	Date:	11/20/15
Source:	Cyclone 2 - Blend	Start Time:	8:09
Run No.:	Blend-C2-R1	Stop Time:	9:09

Date/time	THC ppmvw			
11/20/2015 8:09:00 AM	1.3			
11/20/2015 8:10:00 AM	1.5			
11/20/2015 8:11:00 AM	1.6			
11/20/2015 8:12:00 AM	2.5			
11/20/2015 8:13:00 AM	2.5			
11/20/2015 8:14:00 AM	2.1			
11/20/2015 8:15:00 AM	2.0			
11/20/2015 8:16:00 AM	2.8			
11/20/2015 8:17:00 AM	4.4			
11/20/2015 8:18:00 AM	3.5			
11/20/2015 8:19:00 AM	2.7			
11/20/2015 8:20:00 AM	2.0			
11/20/2015 8:21:00 AM	2.6			
11/20/2015 8:22:00 AM	6.6			
11/20/2015 8:23:00 AM	4.1			
11/20/2015 8:24:00 AM	4.2			
11/20/2015 8:25:00 AM	4.5			
11/20/2015 8:26:00 AM	3.4			
11/20/2015 8:27:00 AM	2.9			
11/20/2015 8:28:00 AM	3.0			
11/20/2015 8:29:00 AM	2.6			
11/20/2015 8:30:00 AM	2.3			
11/20/2015 8:31:00 AM	2.1			
11/20/2015 8:32:00 AM	2.0			
11/20/2015 8:33:00 AM	2.0			
11/20/2015 8:34:00 AM	2.4			
11/20/2015 8:35:00 AM	2.2			
11/20/2015 8:36:00 AM	1.9			
11/20/2015 8:37:00 AM	1.7			
11/20/2015 8:38:00 AM	1.6			
11/20/2015 8:39:00 AM	1.5			
11/20/2015 8:40:00 AM	1.6			
11/20/2015 8:41:00 AM	1.5			
11/20/2015 8:42:00 AM	1.4			
11/20/2015 8:43:00 AM	1.3			
11/20/2015 8:44:00 AM	1.5			
11/20/2015 8:45:00 AM	2.9			
11/20/2015 8:46:00 AM	5.8			
11/20/2015 8:47:00 AM	3.5			
11/20/2015 8:48:00 AM	6.8			
11/20/2015 8:49:00 AM	5.3			
11/20/2015 8:50:00 AM	6.8			
11/20/2015 8:51:00 AM	5.4			
11/20/2015 8:52:00 AM	3.8			
11/20/2015 8:53:00 AM	3.4			
11/20/2015 8:54:00 AM	3.0			
11/20/2015 8:55:00 AM	2.7			
11/20/2015 8:56:00 AM	2.2			
11/20/2015 8:57:00 AM	4.0			
11/20/2015 8:58:00 AM	6.5			
11/20/2015 8:59:00 AM	3.1			
11/20/2015 9:00:00 AM	2.5			
11/20/2015 9:01:00 AM	6.7			
11/20/2015 9:02:00 AM	8.1			
11/20/2015 9:03:00 AM	5.0			
11/20/2015 9:04:00 AM	3.4			
11/20/2015 9:05:00 AM	2.5			
11/20/2015 9:06:00 AM	5.4			
11/20/2015 9:07:00 AM	3.6			
11/20/2015 9:08:00 AM	3.0			
Run Averages:	3.2			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	Date:	11/20/15
Source:	Cyclone 2 - Blend	Start Time:	10:16
Run No.:	Blend-C2-R2	Stop Time:	11:21

Date/time	THC ppmvw			
11/20/2015 10:16:22 AM	0.2			
11/20/2015 10:17:22 AM	1.1			
11/20/2015 10:18:22 AM	0.9			
11/20/2015 10:19:22 AM	Pause Test			
11/20/2015 10:20:22 AM				
11/20/2015 10:21:22 AM				
11/20/2015 10:22:22 AM	Resume Test			
11/20/2015 10:23:22 AM	0.5			
11/20/2015 10:24:22 AM	1.2			
11/20/2015 10:25:22 AM	1.6			
11/20/2015 10:26:22 AM	1.1			
11/20/2015 10:27:22 AM	0.6			
11/20/2015 10:28:22 AM	0.8			
11/20/2015 10:29:22 AM	0.5			
11/20/2015 10:30:22 AM	0.5			
11/20/2015 10:31:22 AM	1.5			
11/20/2015 10:32:22 AM	1.5			
11/20/2015 10:33:22 AM	1.1			
11/20/2015 10:34:22 AM	1.6			
11/20/2015 10:35:22 AM	1.2			
11/20/2015 10:36:22 AM	0.6			
11/20/2015 10:37:22 AM	0.6			
11/20/2015 10:38:22 AM	0.6			
11/20/2015 10:39:22 AM	0.6			
11/20/2015 10:40:22 AM	0.7			
11/20/2015 10:41:22 AM	0.4			
11/20/2015 10:42:22 AM	0.2			
11/20/2015 10:43:22 AM	0.2			
11/20/2015 10:44:22 AM	0.3			
11/20/2015 10:45:22 AM	0.8			
11/20/2015 10:46:22 AM	0.3			
11/20/2015 10:47:22 AM	1.3			
11/20/2015 10:48:22 AM	1.0			
11/20/2015 10:49:22 AM	0.7			
11/20/2015 10:50:22 AM	1.0			
11/20/2015 10:51:22 AM	1.4			
11/20/2015 10:52:22 AM	4.8			
11/20/2015 10:53:22 AM	2.3			
11/20/2015 10:54:22 AM	2.2			
11/20/2015 10:55:22 AM	1.7			
11/20/2015 10:56:22 AM	1.7			
11/20/2015 10:57:22 AM	1.4			
11/20/2015 10:58:22 AM	1.0			
11/20/2015 10:59:22 AM	0.6			
11/20/2015 11:00:22 AM	0.5			
11/20/2015 11:01:22 AM	0.6			
11/20/2015 11:02:22 AM	1.0			
11/20/2015 11:03:22 AM	0.6			
11/20/2015 11:04:22 AM	0.6			
11/20/2015 11:05:22 AM	1.3			
11/20/2015 11:06:22 AM	3.9			
11/20/2015 11:07:22 AM	1.3			
11/20/2015 11:08:22 AM	0.8			
11/20/2015 11:09:22 AM	1.7			
11/20/2015 11:10:22 AM	1.3			
11/20/2015 11:11:22 AM	0.9			
11/20/2015 11:12:22 AM	0.6			
11/20/2015 11:13:22 AM	2.2			
11/20/2015 11:14:22 AM	2.6			
11/20/2015 11:15:22 AM	1.7			
11/20/2015 11:16:22 AM	3.9			
11/20/2015 11:17:22 AM	4.2			
11/20/2015 11:18:22 AM	2.2			
11/20/2015 11:19:22 AM	2.3			
11/20/2015 11:20:22 AM	1.5			
Run Averages:	1.3			

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	Date:	11/20/15
Source:	Cyclone 2 - Blend	Start Time:	12:16
Run No.:	Blend-C2-R3	Stop Time:	13:16

Date/time	THC ppmvw			
11/20/2015 12:16:22 PM	2.5			
11/20/2015 12:17:22 PM	5.0			
11/20/2015 12:18:22 PM	4.2			
11/20/2015 12:19:22 PM	3.9			
11/20/2015 12:20:22 PM	3.5			
11/20/2015 12:21:22 PM	2.9			
11/20/2015 12:22:22 PM	3.4			
11/20/2015 12:23:22 PM	4.3			
11/20/2015 12:24:22 PM	5.8			
11/20/2015 12:25:22 PM	4.3			
11/20/2015 12:26:22 PM	3.3			
11/20/2015 12:27:22 PM	4.6			
11/20/2015 12:28:22 PM	4.3			
11/20/2015 12:29:22 PM	3.6			
11/20/2015 12:30:22 PM	3.1			
11/20/2015 12:31:22 PM	2.9			
11/20/2015 12:32:22 PM	2.5			
11/20/2015 12:33:22 PM	2.4			
11/20/2015 12:34:22 PM	4.0			
11/20/2015 12:35:22 PM	6.5			
11/20/2015 12:36:22 PM	5.6			
11/20/2015 12:37:22 PM	4.3			
11/20/2015 12:38:22 PM	6.9			
11/20/2015 12:39:22 PM	6.3			
11/20/2015 12:40:22 PM	4.7			
11/20/2015 12:41:22 PM	3.7			
11/20/2015 12:42:22 PM	3.2			
11/20/2015 12:43:22 PM	3.0			
11/20/2015 12:44:22 PM	3.0			
11/20/2015 12:45:22 PM	3.3			
11/20/2015 12:46:22 PM	2.9			
11/20/2015 12:47:22 PM	2.9			
11/20/2015 12:48:22 PM	2.9			
11/20/2015 12:49:22 PM	2.7			
11/20/2015 12:50:22 PM	3.0			
11/20/2015 12:51:22 PM	5.3			
11/20/2015 12:52:22 PM	5.4			
11/20/2015 12:53:22 PM	3.6			
11/20/2015 12:54:22 PM	3.2			
11/20/2015 12:55:22 PM	3.0			
11/20/2015 12:56:22 PM	3.3			
11/20/2015 12:57:22 PM	6.8			
11/20/2015 12:58:22 PM	4.2			
11/20/2015 12:59:22 PM	3.4			
11/20/2015 1:00:22 PM	3.0			
11/20/2015 1:01:22 PM	2.8			
11/20/2015 1:02:22 PM	4.0			
11/20/2015 1:03:22 PM	4.0			
11/20/2015 1:04:22 PM	3.3			
11/20/2015 1:05:22 PM	3.3			
11/20/2015 1:06:22 PM	3.1			
11/20/2015 1:07:22 PM	3.3			
11/20/2015 1:08:22 PM	2.9			
11/20/2015 1:09:22 PM	3.7			
11/20/2015 1:10:22 PM	3.8			
11/20/2015 1:11:22 PM	3.9			
11/20/2015 1:12:22 PM	3.0			
11/20/2015 1:13:22 PM	4.1			
11/20/2015 1:14:22 PM	3.6			
11/20/2015 1:15:22 PM	4.3			
Run Averages:	3.8			

Method 25A Data Sheet

Client	wTe
Facility	Greenfield, MA
Source	Cyclone #2 — Blend
Test Location	Outlet
Date	11/20/2015
Calibration For	THC (circled) Methane

THC Analyzer Data

Manufacturer	TECO
Model/Serial Number	51 / THC51-3
Fuel Pressure	20
Combustion Air Pressure	31
Sample Pressure	9
Measurement Range	0-100 CH4 (0-1,000 scale)
Response Time	75 sec

Test Data

Test Number	1	2	3
Start Time	809	1016	1216
Stop Time	905	1121	1316
Testers			

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.9
Response Line		

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	29.1	29.1	27.9		< 5% of cylinder concentration
Mid Gas	52.2	52.3	50.0	4.3	< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance	
Test Run 1 Zero	0.0	0.1	0.0		< 3% of the measurement range	
Test Run 1 Mid	29.1	27.9	27.0		< 3% of the measurement range	
					Test Run 1 Avg. Conc.	
Test Run 2 Zero	0.0	0.1	0.0		< 3% of the measurement range	
Test Run 2 Mid	29.1	27.9	28.1		< 3% of the measurement range	
					Test Run 2 Avg. Conc.	1.22
Test Run 3 Zero	0.0	0.1	1.0		< 3% of the measurement range	
Test Run 3 Mid	29.1	27.9	27.5		< 3% of the measurement range	
Calibration Drift = (Actual Response - CE Test Response) * 100 / Measurement Range					Test Run 3 Avg. Conc.	3.82

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2	n/a	n/a	
Combustion Air			UHP Air	n/a	na	
Low Gas	25 - 35	29.1	CH4/Air	EB0057655	9/11/2022	29.1
Mid Gas	45 - 55	52.2	CH4/Air	EB0051398	12/9/2021	52.2
High Gas	80 - 90	85.7	CH4/Air	EB0017088	8/10/2023	85.7

B9. Blended Waste – Cyclone 3

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Blend-C3-R1**
Source:	**Cyclone 3 - Blend**	**Date:**	**20-Nov-15**

START TIME :	8:09	END TIME :	9:09

Avg. VOC Concentration (as methane)	3.56	PPMwv
Average Volumetric Flow Rate	1,051,820	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	2.18	%

Non-Methane VOC as methane (PPM wet volume)	=	**3.563**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**3.642**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.51E-07**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**0.159**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Blend-C3-R2**
Source:	**Cyclone 3 - Blend**	**Date:**	**20-Nov-15**

START TIME :	10:16	END TIME :	11:21

Avg. VOC Concentration (as methane)	**2.34**	PPMwv
Average Volumetric Flow Rate	1,044,033	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	1.02	%

Non-Methane VOC as methane (PPM wet volume)	=	**2.339**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**2.363**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**9.82E-08**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**0.102**	lb/hr

EMISSION RATE CALCULATION SHEET
VOLATILE ORGANIC COMPOUND EMISSIONS

Client/Site:	**wTe Recycling**	**Run #:**	**Blend-C3-R3**
Source:	**Cyclone 3 - Blend**	**Date:**	**20-Nov-15**

START TIME :	12:16	END TIME :	13:16

Avg. VOC Concentration (as methane)	**2.72**	PPMwv
Average Volumetric Flow Rate	1,034,681	DSCFH
Molecular Weight of methane	16.04	g/mole
Stack Moisture	1.08	%

Non-Methane VOC as methane (PPM wet volume)	=	**2.722**	PPMwv
Non-Methane VOC as methane (PPM dry volume)	=	**2.752**	PPMvd
lb/dscf = ppmvd x 2.59e-9 x MW	=	**1.14E-07**	lb/dscf
lb/hr = lb/dscf x DSCFH	=	**0.118**	lb/hr

Method 25A Calibration Data Sheet - THC

Source Summary	
Client:/Site:	wTe Recycling
Source:/Location:	Cyclone 3 - Blend
Test Date:	20-Nov-15

Field Crew Summary	
Crew Member 1 -	AMS, ARS
Crew Member 2 -	JB, MB
Crew Member 3 -	JC, TS

THC Analyzer Data			
Manufacturer -	TECO		
Model/Serial Number -	51 / THC51-2		
Fuel Pressure -	18		
Combustion Air Pressure -	34		
Sample Pressure -	9		
Range -	0	-	100
Calibrant (choose one, x in box)	Propane		
	Methane	x	
Program Molecular Weight:	16.04	g/mol	

Run Summary			
Run No.	1	2	
Start Time	8:09	10:16	12:16
Stop Time	9:09	11:21	13:16

Calibration Error Test Data		
Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.6
Response Line	0.998	

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Acceptance Criteria
Low Gas	29.1	29.0	28.3	2.5	< 5% of cylinder concentration
Mid Gas	52.2	52.1	50.4	3.2	< 5% of cylinder concentration

Where:

Predicted Response = (Cylinder Concentration) x (Response Line)

Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	Initial Test Response	Final Test Response	Calibration Drift	Acceptance Criteria	
Test Run 1 Zero	0.0	0.1	0.3	0.2	< 3% of the measurement range	
Test Run 1 Upscale	29.1	28.3	28.0	0.3	< 3% of the measurement range	
					Test Run 1 Avg. Conc.	3.6
Test Run 2 Zero	0.0	0.1	0.1	0.0	< 3% of the measurement range	
Test Run 2 Upscale	29.1	28.3	29.2	0.9	< 3% of the measurement range	
					Test Run 2 Avg. Conc.	2.3
Test Run 3 Zero	0.0	0.1	0.0	0.1	< 3% of the measurement range	
Test Run 3 Upscale	29.1	28.3	29.4	1.1	< 3% of the measurement range	
					Test Run 3 Avg. Conc.	2.7

Where:

$$\text{Calibration Drift} = \frac{(\text{Final Test Response} - \text{Initial Test Response})}{\text{Measurement Range}} * 100$$

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel	N/A		UHP H2			N/A
Combustion Air			UHP Air			
Zero Gas	0	0	UHP Air			0.0%
Low Gas	25-35	29.1	CH4/Air	EB0057655	9/11/2022	29.1%
Mid Gas	45-55	52.2	CH4/Air	EB0051398	12/9/2021	52.2%
High Gas	80-90	85.7	CH4/Air	EB0017088	8/11/2023	85.7%

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	Date:	11/20/15
Source:	Cyclone 3 - Blend	Start Time:	8:09
Run No.:	Blend-C3-R1	Stop Time:	9:09

Date/time	THC ppmvw
11/20/2015 8:09:00 AM	2.0
11/20/2015 8:10:00 AM	1.8
11/20/2015 8:11:00 AM	1.9
11/20/2015 8:12:00 AM	1.8
11/20/2015 8:13:00 AM	2.0
11/20/2015 8:14:00 AM	2.0
11/20/2015 8:15:00 AM	2.0
11/20/2015 8:16:00 AM	2.1
11/20/2015 8:17:00 AM	2.3
11/20/2015 8:18:00 AM	2.8
11/20/2015 8:19:00 AM	2.9
11/20/2015 8:20:00 AM	3.0
11/20/2015 8:21:00 AM	2.8
11/20/2015 8:22:00 AM	3.4
11/20/2015 8:23:00 AM	3.7
11/20/2015 8:24:00 AM	3.6
11/20/2015 8:25:00 AM	4.0
11/20/2015 8:26:00 AM	4.1
11/20/2015 8:27:00 AM	3.8
11/20/2015 8:28:00 AM	3.5
11/20/2015 8:29:00 AM	2.9
11/20/2015 8:30:00 AM	2.9
11/20/2015 8:31:00 AM	2.7
11/20/2015 8:32:00 AM	2.5
11/20/2015 8:33:00 AM	2.5
11/20/2015 8:34:00 AM	2.5
11/20/2015 8:35:00 AM	2.8
11/20/2015 8:36:00 AM	2.5
11/20/2015 8:37:00 AM	2.5
11/20/2015 8:38:00 AM	2.5
11/20/2015 8:39:00 AM	2.5
11/20/2015 8:40:00 AM	2.5
11/20/2015 8:41:00 AM	2.6
11/20/2015 8:42:00 AM	2.5
11/20/2015 8:43:00 AM	2.5
11/20/2015 8:44:00 AM	2.5
11/20/2015 8:45:00 AM	2.7
11/20/2015 8:46:00 AM	4.1
11/20/2015 8:47:00 AM	4.3
11/20/2015 8:48:00 AM	4.6
11/20/2015 8:49:00 AM	5.2
11/20/2015 8:50:00 AM	5.2
11/20/2015 8:51:00 AM	6.9
11/20/2015 8:52:00 AM	5.6
11/20/2015 8:53:00 AM	4.5
11/20/2015 8:54:00 AM	4.3
11/20/2015 8:55:00 AM	4.0
11/20/2015 8:56:00 AM	3.7
11/20/2015 8:57:00 AM	3.5
11/20/2015 8:58:00 AM	5.1
11/20/2015 8:59:00 AM	4.7
11/20/2015 9:00:00 AM	4.5
11/20/2015 9:01:00 AM	4.2
11/20/2015 9:02:00 AM	6.8
11/20/2015 9:03:00 AM	6.4
11/20/2015 9:04:00 AM	6.2
11/20/2015 9:05:00 AM	5.2
11/20/2015 9:06:00 AM	4.9
11/20/2015 9:07:00 AM	5.5
11/20/2015 9:08:00 AM	5.0
Run Averages:	**3.6**

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	Date:	11/20/15
Source:	Cyclone 3 - Blend	Start Time:	10:16
Run No.:	Blend-C3-R2	Stop Time:	11:21

Date/time	THC ppmvw
11/20/2015 10:16:22 AM	1.5
11/20/2015 10:17:22 AM	1.4
11/20/2015 10:18:22 AM	1.7
11/20/2015 10:19:22 AM	Pause Test
11/20/2015 10:20:22 AM	
11/20/2015 10:21:22 AM	
11/20/2015 10:22:22 AM	Resume Test
11/20/2015 10:23:22 AM	1.9
11/20/2015 10:24:22 AM	1.9
11/20/2015 10:25:22 AM	2.2
11/20/2015 10:26:22 AM	2.0
11/20/2015 10:27:22 AM	2.1
11/20/2015 10:28:22 AM	2.1
11/20/2015 10:29:22 AM	2.0
11/20/2015 10:30:22 AM	2.0
11/20/2015 10:31:22 AM	2.0
11/20/2015 10:32:22 AM	2.4
11/20/2015 10:33:22 AM	2.6
11/20/2015 10:34:22 AM	2.6
11/20/2015 10:35:22 AM	2.5
11/20/2015 10:36:22 AM	2.5
11/20/2015 10:37:22 AM	2.0
11/20/2015 10:38:22 AM	1.8
11/20/2015 10:39:22 AM	2.0
11/20/2015 10:40:22 AM	2.0
11/20/2015 10:41:22 AM	2.1
11/20/2015 10:42:22 AM	1.6
11/20/2015 10:43:22 AM	1.6
11/20/2015 10:44:22 AM	1.6
11/20/2015 10:45:22 AM	2.0
11/20/2015 10:46:22 AM	2.0
11/20/2015 10:47:22 AM	1.5
11/20/2015 10:48:22 AM	2.3
11/20/2015 10:49:22 AM	2.0
11/20/2015 10:50:22 AM	2.1
11/20/2015 10:51:22 AM	2.2
11/20/2015 10:52:22 AM	3.0
11/20/2015 10:53:22 AM	3.5
11/20/2015 10:54:22 AM	2.9
11/20/2015 10:55:22 AM	3.0
11/20/2015 10:56:22 AM	2.9
11/20/2015 10:57:22 AM	3.0
11/20/2015 10:58:22 AM	2.5
11/20/2015 10:59:22 AM	2.2
11/20/2015 11:00:22 AM	2.1
11/20/2015 11:01:22 AM	2.0
11/20/2015 11:02:22 AM	2.1
11/20/2015 11:03:22 AM	2.0
11/20/2015 11:04:22 AM	2.0
11/20/2015 11:05:22 AM	2.0
11/20/2015 11:06:22 AM	2.6
11/20/2015 11:07:22 AM	2.8
11/20/2015 11:08:22 AM	2.6
11/20/2015 11:09:22 AM	2.5
11/20/2015 11:10:22 AM	2.7
11/20/2015 11:11:22 AM	2.5
11/20/2015 11:12:22 AM	2.2
11/20/2015 11:13:22 AM	2.2
11/20/2015 11:14:22 AM	3.3
11/20/2015 11:15:22 AM	3.0
11/20/2015 11:16:22 AM	3.1
11/20/2015 11:17:22 AM	4.0
11/20/2015 11:18:22 AM	3.6
11/20/2015 11:19:22 AM	3.3
11/20/2015 11:20:22 AM	3.4
Run Averages:	2.34

Instrumental Analyzer Monitoring Data (not corrected for calibrations)

Facility/Site:	wTe Recycling	Date:	11/20/15
Source:	Cyclone 3 - Blend	Start Time:	12:16
Run No.:	Blend-C3-R3	Stop Time:	13:16

Date/time	THC ppmvw			
11/20/2015 12:16:22 PM	1.5			
11/20/2015 12:17:22 PM	1.9			
11/20/2015 12:18:22 PM	2.1			
11/20/2015 12:19:22 PM	2.0			
11/20/2015 12:20:22 PM	2.7			
11/20/2015 12:21:22 PM	2.6			
11/20/2015 12:22:22 PM	2.5			
11/20/2015 12:23:22 PM	2.5			
11/20/2015 12:24:22 PM	3.7			
11/20/2015 12:25:22 PM	3.3			
11/20/2015 12:26:22 PM	2.8			
11/20/2015 12:27:22 PM	2.8			
11/20/2015 12:28:22 PM	3.1			
11/20/2015 12:29:22 PM	2.9			
11/20/2015 12:30:22 PM	2.6			
11/20/2015 12:31:22 PM	2.6			
11/20/2015 12:32:22 PM	2.0			
11/20/2015 12:33:22 PM	2.0			
11/20/2015 12:34:22 PM	2.1			
11/20/2015 12:35:22 PM	2.8			
11/20/2015 12:36:22 PM	4.1			
11/20/2015 12:37:22 PM	4.3			
11/20/2015 12:38:22 PM	3.9			
11/20/2015 12:39:22 PM	4.7			
11/20/2015 12:40:22 PM	4.2			
11/20/2015 12:41:22 PM	3.9			
11/20/2015 12:42:22 PM	3.2			
11/20/2015 12:43:22 PM	2.8			
11/20/2015 12:44:22 PM	2.5			
11/20/2015 12:45:22 PM	2.5			
11/20/2015 12:46:22 PM	2.5			
11/20/2015 12:47:22 PM	2.5			
11/20/2015 12:48:22 PM	2.2			
11/20/2015 12:49:22 PM	1.8			
11/20/2015 12:50:22 PM	2.0			
11/20/2015 12:51:22 PM	2.3			
11/20/2015 12:52:22 PM	3.4			
11/20/2015 12:53:22 PM	2.9			
11/20/2015 12:54:22 PM	2.5			
11/20/2015 12:55:22 PM	2.5			
11/20/2015 12:56:22 PM	2.2			
11/20/2015 12:57:22 PM	2.6			
11/20/2015 12:58:22 PM	3.0			
11/20/2015 12:59:22 PM	3.0			
11/20/2015 1:00:22 PM	2.5			
11/20/2015 1:01:22 PM	2.1			
11/20/2015 1:02:22 PM	2.1			
11/20/2015 1:03:22 PM	2.8			
11/20/2015 1:04:22 PM	2.5			
11/20/2015 1:05:22 PM	2.8			
11/20/2015 1:06:22 PM	2.5			
11/20/2015 1:07:22 PM	2.6			
11/20/2015 1:08:22 PM	2.5			
11/20/2015 1:09:22 PM	2.6			
11/20/2015 1:10:22 PM	2.6			
11/20/2015 1:11:22 PM	3.0			
11/20/2015 1:12:22 PM	2.6			
11/20/2015 1:13:22 PM	2.5			
11/20/2015 1:14:22 PM	2.9			
11/20/2015 1:15:22 PM	3.0			
Run Averages:	2.7			

Method 25A Data Sheet

Client	wTe
Facility	Greenfield, MA
Source	Cyclone #3 — Blend
Test Location	Outlet
Date	11/20/2015
Calibration For	THC Methane

THC Analyzer Data

Manufacturer	TECO
Model/Serial Number	511 THC 51-1
Fuel Pressure	18.0
Combustion Air Pressure	34.0
Sample Pressure	9.0
Measurement Range	0-100 ppm
Response Time	75 seconds

Test Data

Test Number	1	2	3
Start Time	809	1016	1216
Stop Time	909	1121	1316
Testers			

Calibration Error Test Data

Calibration Gas	Cylinder Concentration	Actual Response
Zero Gas	0.0	0.1
High Gas	85.7	85.6
Response Line		

Response Line = (Ha-Za)/(Hc-Zc)

Calibration Gas	Cylinder Concentration	Predicted Response	Actual Response	Calibration Error	Criteria Acceptance
Low Gas	29.1		28.3		< 5% of cylinder concentration
Mid Gas	52.2		50.4		< 5% of cylinder concentration

Predicted Response = (Cylinder Concentration) x (Response Line)
Calibration Error = (Actual Response - Predicted Response) / Cylinder Concentration x 100

Calibration Drift Test Data

Calibration Gas	Cylinder Concentration	CE Test Response	Actual Response	Calibration Drift	Criteria Acceptance	
Test Run 1 Zero	0.0	0.1	0.3		< 3% of the measurement range	
Test Run 1 Mid	29.1	28.3	28.0		< 3% of the measurement range	
					Test Run 1 Avg. Conc.	
Test Run 2 Zero	0.0	0.1	0.1		< 3% of the measurement range	
Test Run 2 Mid	29.1	28.3	29.2		< 3% of the measurement range	
					Test Run 2 Avg. Conc.	2.50
Test Run 3 Zero	0.0	0.1	0.0		< 3% of the measurement range	
Test Run 3 Mid	29.1	28.3	29.4		< 3% of the measurement range	
Calibration Drift = (Actual Response - CE Test Response) / Measurement Range * 100					Test Run 3 Avg. Conc.	2.72

Gas Cylinder Data

Calibration Gas	Required % of Span	Cylinder Concentration	Cylinder Composition	Cylinder Number	Expiration Date	Actual % of Span
Fuel			UHP H2	n/a	n/a	
Combustion Air			UHP Air	n/a	na	
Low Gas	25 - 35	29.1	CH4/Air	EB0057655	9/11/2022	29.1
Mid Gas	45 - 55	52.2	CH4/Air	EB0051398	12/9/2021	52.2
High Gas	80 - 90	85.7	CH4/Air	EB0017088	8/10/2023	85.7