



January 13, 2017

Ms. Christina Pearse-Bossick
Environmental Manager
BFI Waste Systems of North America, LLC
501 S. Lilley Road
Canton, Michigan 48188

Subject: Surface monitoring report for BFI - Arbor Hills Landfill, "Area E," conducted on January 11, 2017.

Dear Ms. Pearse-Bossick,

Air Quality Specialist, Inc. (AQSI) conducted a surface emissions monitoring (SEM) event at BFI Waste Systems of North America, LLC (BFI) – Arbor Hills Landfill (Arbor) on January 11, 2017. The monitoring was performed in general accordance with 40 Code of Federal Regulations (CFR) Part 60, Subpart WWW; however this SEM event was not performed to comply with the routine quarterly SEM requirement required pursuant to 40 CFR 60.753(d) and 60.755(c).

AQSI traversed "Area E" of the landfill consistent with the requirements of the New Source Performance Standard (NSPS). AQSI used a portable Flame Ionization Detector (FID) to measure surface methane concentration. AQSI calibrated and operated the FID in accordance with the NSPS and 40 CFR Part 60, Appendix A, Method 21. Instrument calibration data is attached.

The average weather conditions during the scan event were:

<u>Date</u>	<u>Temperature</u>	<u>Skies</u>	<u>Wind Speed</u>	<u>Wind Direction</u>
January 11, 2017	35 °F	Cloudy	10 mph	South

On January 11, 2017, there were five (5) locations on "Area E" with a measured surface concentration greater than 500 parts per million (ppm), as methane. The results were:

<u>Number/ID</u>	<u>Concentration</u>	<u>Descriptive Location</u>
011117-E ₁	>500 ppm	~50' upslope of Well W286
011117-E ₂	>500 ppm	On lateral trench Northeast of W252
011117-E ₃	>500 ppm	Marker pipe, ~6' Northeast of E ₂
011117-E ₄	>500 ppm	~60' East of W307 casing
011117-E ₅	>500 ppm	Well W225R3 casing

Based on these results, and in accordance with 40 CFR 60, Subpart WWW, 60.755(c)(4)(ii), AQSI will return to the site on or before January 21, 2017, to perform a "10-day" re-monitoring event of the exceedance location.

The attachment contains the FID calibration error and drift-check data, and a site map with the approximate traverse pattern and exceedance locations (if applicable).

Please contact me at (248) 887-7565 if you have any questions.

Sincerely,

AIR QUALITY SPECIALIST, INC.



Andrew D. Secord
Environmental Scientist

Attachments: FID Calibration Data
Site Map



Attachments
BFI – Arbor Hills Landfill
Calibration Data Sheets and Site Map

USEPA METHOD 21

**Determination of Volatile Organic Compound Leaks
AQSI Surface Monitoring Calibration Data Sheet**

Client: BFI-Arthur "Area E" Date: 1/11/17
 Technician / FID: ADS/TVA 1000 (TE) Temperature: 30°F cloudy

Calibration Standards	Cylinder Identification	Concentration (ppm, Methane)
Zero Gas	<u>Ambient</u>	<u>< 5</u>
Span Gas	<u>GAG-ISA-500-3</u>	<u>518</u>

Allow the instrument to warm-up for 5 to 10 minutes. Introduce zero gas and set the zero value. Introduce span gas and set the span concentration. Record stable span concentration: = 504

Calibration Precision Demonstration:

Make a total of three measurements by alternatively using zero gas and the specified calibration gas. Record the meter readings.

Test Number	Stable Value	Absolute Deviation	Response Time
Zero ₁ =	<u>1.2</u>	0.0 ppm	
Span ₁ =	<u>505</u>	0.0 ppm	<u>5</u>
Zero ₂ =	<u>2.4</u>	0.0 ppm	
Span ₂ =	<u>502</u>	0.0 ppm	<u>5</u>
Zero ₃ =	<u>2.5</u>	0.0 ppm	
Span ₃ =	<u>508</u>	0.0 ppm	<u>5</u>

Absolute Average Zero Deviation: _____

Absolute Average Span Deviation: _____

Percent Zero Calibration Precision: _____

Percent Span Calibration Precision: _____

Average response time to 90% of stable value must be <30s. _____

Average Background Concentration: _____

Upwind: 2.6

Downwind: 10.7

Post-test Calibration Error and Drift Check:

Make no adjustments to the instrument or sample system. Allow instrument to sample zero air. Record the stable value. Re-introduce the span gas to the measurement system. Record response time and stable span gas value.

Post-zero = 4.8 (< 10% of span)*

Response time = 5 (< 30s)*

Post-span = 561 (< 10% deviation)*

* if these criteria are all met, test is considered valid without comment.

USEPA METHOD 21

**Determination of Volatile Organic Compound Leaks
AQSI Surface Monitoring Calibration Data Sheet**

Client: BFI - Arbor, "Area E" Date: January 11, 2017
 Technician / FID: ADS / TVA 1000B (TE) Temperature: 21 °F

<u>Calibration Standards</u>	<u>Cylinder Identification</u>	<u>Concentration (ppm, Methane)</u>
Zero Gas	Ambient	~ 5.0
Span Gas	GAQ-150A-500-3	504

Allow the instrument to warm-up for 5 to 10 minutes. Introduce zero gas and set the zero value. Introduce span gas and set the span concentration. Record stable span concentration: = 504.0 ppm

Calibration Precision Demonstration:

Make a total of three measurements by alternatively using zero gas and the specified calibration gas. Record the meter readings.

<u>Test Number</u>	<u>Stable Value</u>	<u>Absolute Deviation</u>	<u>Response Time</u>
Zero ₁ =	<u>1.2 ppm</u>	3.8 ppm	
Span ₁ =	<u>505.0 ppm</u>	1.0 ppm	5.0 s
Zero ₂ =	<u>2.4 ppm</u>	2.6 ppm	
Span ₂ =	<u>502.0 ppm</u>	2.0 ppm	5.0 s
Zero ₃ =	<u>2.5 ppm</u>	2.5 ppm	
Span ₃ =	<u>508.0 ppm</u>	4.0 ppm	6.0 s

Absolute Average Zero Deviation: 3.0 ppm
 Absolute Average Span Deviation: 2.3 ppm
 Percent Zero Calibration Precision: 0.6%
 Percent Span Calibration Precision: 0.5%

Average response time to 90% of stable value must be <30s. 5.3 s

Average Background Concentration: 6.7 ppm

Upwind: 2.6 ppm Downwind: 10.7 ppm

Post-test Calibration Error and Drift Check:

Make no adjustments to the instrument or sample system. Allow instrument to sample zero air. Record the stable value. Re-introduce the span gas to the measurement system. Record response time and stable span gas value.

Post-zero = 4.8 ppm (< 10% of span)*
 Response time = 5.0 s (< 30s)*
 Post-span = 561.0 ppm (< 10% deviation)*

* if these criteria are all met, test is considered valid without comment.



1/11/17

E₁ >1.3% ~50' upslope
W286, odor (gas)

E₂ 3,900 ppm, lateral
trench NE W252

E₃ 1,500 ppm, marker
pipe, ~6' NE of E₂

E₄ old E12 ~60' E W307
1,800 ppm

E₅ 2,200 ppm W225R3
casing (should have
been E₁, but forgot
to record

"10-day"