January 16, 2015

PA Department of Environmental Protection
Andrew Schweitzer
4530 Bath Pike
Bethlehem, PA 18017

Re: Air Quality Program Site Inspection November 5, 2014

Dear Mr. Schweitzer:

IESI is providing the following information relative to the Air Quality Program site inspection on November 5, 2014. The follow-up surface emission monitoring (SEM) to the PADEP field survey site inspection was conducted by SCS Field Services personnel.

IESI personnel worked in conjunction with SCS Field Services to remediate the locations using a combination of clay and bentonite material to re-seal the soil surface around the landfill gas wells. The subject locations were monitored and all designated locations were less than 500 ppm at the final recheck.

Attached is a SCS Field Services supplemental report and Table detailing the monitoring results.

If you have any questions please call me at 610-317-3200.

Sincerely

Allen Schleyer
IESI PA Compliance Manager

Enclosure: As stated

S

ROUTING

- ☒ Council
- ☒ Manager
- ☐ Asst. Mgr.
- ☐ Zoning
- ☐ Finance
- ☐ Police
- ☐ P. Works
- ☐ P/C
- ☐ P & R
- ☐ EAC
- ☒ Engineer
- ☐ Solicitor
- ☐ Planner
- ☒ Landfill
- ☐ EMC
- ☐ Other

CC: Dean Fisher, PADEP Bethlehem Office
Susan French, PADEP NERO
Jack Cahalan, Lower Saucon Township
Sam Donato, IESI
File

2335 Applebutter Road
Bethlehem, PA 18015-6004

IESI Corporation

610-317-3200 - Tel
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Environmental Consultants
and Contractors

4309 Linglestown Road
Suite 115
Harrisburg, PA 17112

717 671-5102
FAX 717 671-5103
www.scsengineers.com

SCS FIELD SERVICES

File No. 07214090.01 Task 3
January 14, 2015

Mr. Al Schleyer
IESI Bethlehem Landfill
2335 Applebutter Road
Bethlehem, PA 18015

Subject: Supplemental Surface Emission Monitoring (SEM) Results
IESI Bethlehem Landfill, Bethlehem, PA

Dear Mr. Schleyer:

The following report presents the results of supplemental surface emissions monitoring (SEM) performed by SCS Field Services (SCS-FS) for IESI at the subject site (the landfill). This monitoring was conducted at IESI's request as a follow-up to monitoring exceedances reported by the Pennsylvania Department of Environmental Protection (PADEP) during a site inspection conducted on November 5, 2014.

Follow-Up to November 5, 2014 PADEP Inspection

PADEP conducted an inspection at the landfill on November 5, 2014. During this inspection, PADEP personnel performed SEM at various locations and noted that methane levels at 17 locations were greater than 500 parts per million (ppm). The locations noted by DEP were as follows:

- LC-20
- HW-4-28
- LC-19
- LC-18
- Pipe east of LC-18
- HW-4-7
- HW-4-10
- HW-4-12
- HW-4-11
- EW-10-11
- PS-02
- Crack north of PS-02
- EW-4-30R
- EW-4-30
- EW-4-18
- HW-4-17
- LC-17

This monitoring was summarized in PADEP's Inspection Report dated November 5, 2014.

In response to these detections, landfill personnel completed appropriate remedial actions at each exceedance location. This included placing bentonite and clay around the areas in exceedance. On November 14, 2014, SCS-FS conducted supplemental SEM at each exceedance location. Monitoring was performed as specified in 40 CFR 60.755 (c) and (d), and 40 CFR 60, Appendix A, Method 21. The monitoring locations were tested for emissions of volatile organic compounds (VOCs), as methane, using a Foxboro TVA-1000B flame ionization detector (FID).

During the November 14, 2014 monitoring event, SCS-FS confirmed that surface methane levels at all locations except the following were less than 500 ppm above background. Emissions at these seven locations were greater than 500 ppm above background:

- HW-4-7
- HW-4-11
- PS-02
- EW-4-30R
- EW-4-30
- EW-4-18
- HW-4-17

In response, landfill personnel completed further remedial actions at the locations still in exceedance.

SCS-FS conducted additional monitoring at the seven locations on November 24, 2014 and confirmed that surface methane levels were reduced to less than 500 ppm above background at all locations except HW-4-11. Landfill personnel completed further remedial actions at HW-4-11 on November 24 and SCS-FS confirmed that surface emissions were reduced to less than 500 ppm above background.

SCS-FS conducted additional monitoring on December 11 at all the locations identified by PADEP. During the December 11, 2014 monitoring event, SCS-FS confirmed that surface methane levels at all of the locations.

The attached Table 1 presented in ***Attachment 1*** summarizes the supplemental monitoring conducted in response to the November 5, 2014, PADEP inspection. The Calibration and Pertinent Data Forms for the monitoring performed by SCS-FS are included in ***Attachment 2***.

Thank you for the opportunity to provide this service. Please contact either of the undersigned if you require further information.

Sincerely,

Keith Kleckner
Project Superintendent
SCS FIELD SERVICES

Thomas M. Lock
Project Manager
SCS FIELD SERVICES

cc: Josh Roth, Derek Dyer, SCS Engineers

Attachments

ATTACHMENTS

1. SEM Data (Table 1)
2. SEM Calibration and Pertinent Data Forms

ATTACHMENT 1

SEM Data (Table 1)

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
IESI Bethlehem Landfill, Bethlehem, PA

Follow-Up SEM to DEP Inspection Exceedances on 11-5-14

Date	Tag	FID Conc. (ppm)	Notes
11/14/14	LC-20	311	
12/11/14	LC-20	46	
11/14/14	LC-19	251	
12/11/14	LC-19	97	
11/14/14	HW-4-28	71	
12/11/14	HW-4-28	55	
11/14/14	HW-4-7	615	
11/24/14	HW-4-7	28	Second 10-Day recheck
12/11/14	HW-4-7	163	
11/14/14	HW-4-10	328	
12/11/14	HW-4-10	86	
11/14/14	LC-18	35	
12/11/14	LC-18	54	
11/14/14	Pipe East of LC-18	172	
12/11/14	Pipe East of LC-18	69	
11/14/14	HW-4-12	210	
12/11/14	HW-4-12	24	
11/14/14	Crack North of PS-02	33	
12/11/14	Crack North of PS-02	176	
11/14/14	HW-4-11	2307	
11/24/14	HW-4-11	501	Second 10-Day recheck
11/24/14	HW-4-11	121	additional cover placed
12/11/14	HW-4-11	73	
11/14/14	EW-10-11	320	
12/11/14	EW-10-11	46	
11/14/14	PS-02	1383	

ppm - parts per million
nd - not detected
<1 - less than 1

TABLE 1. SURFACE EMISSIONS TESTING RESULTS
IESI Bethlehem Landfill, Bethlehem, PA

Follow-Up SEM to DEP Inspection Exceedances on 11-5-14

Date	Tag	FID Conc. (ppm)	Notes
11/24/14	PS-02	54	Second 10-Day recheck
12/11/14	PS-02	333	
11/14/14	EW-4-30	3240	
11/24/14	EW-4-30	62	Second 10-Day recheck
12/11/14	EW-4-30	73	
11/14/14	EW-4-30R	1429	
11/24/14	EW-4-30R	106	Second 10-Day recheck
12/11/14	EW-4-30R	212	
11/14/14	EW-4-18	833	
11/24/14	EW-4-18	66	Second 10-Day recheck
12/11/14	EW-4-18	94	
11/14/14	LC-17	270	
12/11/14	LC-17	70	
11/14/14	HW-4-17	1853	
11/24/14	HW-4-17	72	Second 10-Day recheck
12/11/14	HW-4-17	76	

ppm - parts per million
nd - not detected
<1 - less than 1

ATTACHMENT 2

SEM Calibration and Pertinent Data Forms

SCS FIELD SERVICES

NSPS Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 11/14/14 Site: Bethlehem Job Number: 07213051.01

Technician(s): Keith Kleckner

Weather Observations

Wind Speed: 10 MPH Wind Direction: NW Barometric Pressure: 30.12 "Hg

Air Temperature: 38 °F General Weather Conditions: Clear

Calibration Information

Instrument S/N 34945693 Span Calibration Gas Manufacturer: landtec

Span Cal Gas Lot # : 43315-66 Expiration Date: 11/1/2016 Concentration: 500 ppm

Zero Cal Gas Lot # : 43315-62 Expiration Date: 11/1/2016 Concentration: 0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	2.32	511	11
2	2.17	514	14
3	3.14	510	10
		Average Difference:	12

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 12 / 500 X 100%

= 2.33 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas. Measure the amount of time it takes the instrument to read 90% of the calibration gas concentration. ***This average response time must be less than or equal to 30 seconds.***

Trial	Start Time (Add Cal Gas) (hh:mm:ss)	Time at 90% Reading (hh:mm:ss)	Time Elapsed (Seconds)
1	11:18:00 AM	11:18:06 AM	6
2	11:19:00 AM	11:19:05 AM	5
3	11:20:00 AM	11:20:05 AM	5
		Average Response Time:	5

Background Concentration Checks

Upwind Location Description: Haul road Northwest of landfill Reading: 3.76 ppm

Downwind Location Description Haul road Sotheast of landfill Reading: 6.67 ppm

Average Background Reading: 5.22 ppm

Post-monitoring Calibration Precision Check

Zero Air Reading: 2.38 ppm Cal Gas Reading: 508 ppm

Notes/Comments:

SCS FIELD SERVICES

NSPS Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 11/24/14 Site: Bethlehem Landfill Job Number: 07214090.01

Technician(s): Ben Lock

Weather Observations

Wind Speed: 12 MPH Wind Direction: SW Barometric Pressure: 29.60 "Hg

Air Temperature: 68 °F General Weather Conditions: Partly Cloudy

Calibration Information

Instrument S/N: 414006484 Span Calibration Gas Manufacturer: Landtec

Span Cal Gas Lot # : 42138-01 Expiration Date: May, 2015 Concentration: 491 ppm

Zero Cal Gas Lot # : 1366017 Expiration Date: Aug, 2015 Concentration: 0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	0.05	499	8
2	0.15	501	10
3	0.07	500	9
		Average Difference:	9

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 9 / 491 X 100%

= 1.83 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas. Measure the amount of time it takes the instrument to read 90% of the calibration gas concentration. ***This average response time must be less than or equal to 30 seconds.***

Trial	Start Time (Add Cal Gas) (hh:mm:ss)	Time at 90% Reading (hh:mm:ss)	Time Elapsed (Seconds)
1	12:00:00 PM	12:00:14 PM	14
2	12:00:30 PM	12:00:39 PM	9
3	12:01:00 PM	12:01:07 PM	7
		Average Response Time:	10

Background Concentration Checks

Upwind Location Description: SW of site on access road Reading: 4.32 ppm

Downwind Location Description: NE of site on access road Reading: 16.39 ppm

Average Background Reading: 10.36 ppm

Post-monitoring Calibration Precision Check

Zero Air Reading: 0.39 ppm Cal Gas Reading: 500 ppm

Notes/Comments:

SCS FIELD SERVICES

NSPS Surface Emissions Monitoring
Calibration and Pertinent Data Form

Date: 12/11/14 Site: Bethlehem Landfill Job Number: 07214090.00

Technician(s): Ben Lock

Weather Observations

Wind Speed: 6 MPH Wind Direction: W Barometric Pressure: 29.77 "Hg

Air Temperature: 32 °F General Weather Conditions: Cloudy

Calibration Information

Instrument S/N: 414006484 Span Calibration Gas Manufacturer: Landtec

Span Cal Gas Lot # : 42138-01 Expiration Date: May, 2015 Concentration: 491 ppm

Zero Cal Gas Lot # : 1366017 Expiration Date: Aug, 2015 Concentration: 0 ppm

Pre-monitoring Calibration Precision Check

Procedure: Calibrate the instrument. Make a total of three measurements by alternating zero air and the calibration gas. Record the readings and calculate the average algebraic difference between the instrument reading and the calibration gas as a percentage. ***The calibration precision must be less than or equal to 10% of the calibration gas value.***

Trial	Zero Air Reading (ppm)	Cal Gas Reading (ppm)	|Cal Gas Conc. – Cal Gas Reading|
1	0.18	499	8
2	0.16	500	9
3	0.12	498	7
		Average Difference:	8

Calibration Precision = Average Difference / Cal. Gas Conc. X 100%

= 8 / 491 X 100%

= 1.63 %

Pre-monitoring Response Time Check

Procedure: Introduce zero concentration methane/H2S into the instrument. Quickly change to the calibration gas. Measure the amount of time it takes the instrument to read 90% of the calibration gas concentration. ***This average response time must be less than or equal to 30 seconds.***

Trial	Start Time (Add Cal Gas) (hh:mm:ss)	Time at 90% Reading (hh:mm:ss)	Time Elapsed (Seconds)
1	9:48:00 AM	9:48:13 AM	13
2	9:48:30 AM	9:48:40 AM	10
3	9:49:00 AM	9:49:07 AM	7
		Average Response Time:	10

Background Concentration Checks

Upwind Location Description: W of site on access road Reading: 2.79 ppm

Downwind Location Description: E of site on access road Reading: 14.11 ppm

Average Background Reading: 8.45 ppm

Post-monitoring Calibration Precision Check

Zero Air Reading: 0.25 ppm Cal Gas Reading: 500 ppm

Notes/Comments:

LANDTEC

ANALYSIS CERTIFICATION

METHOD OF PREPARATION: GRAVIMETRIC / PRESSURE TRANSFILLING

ANALYTICAL PRINCIPLE: GC (TCD)

ACCURACY:: ± 2% Relative

LOT Number	COMP 1 CH_4	COMP 2 AIR	COMP 3	COMP 4	COMP 5	COMP 6	Exp Date
43315-66	500 PPM	Balance					Nov/2016
Actual	508 PPM	Balance					

Gas mixtures manufactured with balances calibrated by an ISO 17025 accredited company. Results are in mole percent, unless otherwise indicated. Mixtures are prepared by either partial pressure or gravimetric method. Gas mixtures are traceable to N.I.S.T. weights and/or N.I.S.T. gas mixture reference materials

No effecting environmental conditions during analysis.

FILL PRESSURE 1000 PSI

EXPIRATION DATE: November, 2016

CERTIFICATION DATE: November 11, 2013

ANALYSIS BY: Kyle Christianson

"We certify that all the cylinders for the Lot numbers identified herein are manufactured and tested within the requirements of CFR 49 part 178.65 and that physical and chemical test reports are on file and copies will be furnished upon request." The only liability of this company for gas which fails to comply with this analysis shall be replacement thereof by the company without extra cost.

LANDTEC North America, Inc.
850 S. Via Lata, Suite 112
Colton, CA 92324
Phone: (909) 783-3636 • Fax: (909) 825-0591

LANDTEC

ANALYSIS CERTIFICATION

METHOD OF PREPARATION: GRAVIMETRIC / PRESSURE TRANSFILLING

ANALYTICAL PRINCIPLE: PARAMAGNETIC/ELECTROCHEMICAL/FID

ACCURACY:: ± 10%

AIR

LOT Number	COMP 1 O_2	COMP 2 Moisture	COMP 3 THC	COMP 4	COMP 5	COMP 6	Exp Date
43315-62	19.5%-23.5%	<3 PPM	<0.1 PPM				Nov./2016
Actual	19.5%-23.5%	<3 PPM	<0.1 PPM				

Gas mixtures manufactured with balances calibrated by an ISO 17025 accredited company. Results are in mole percent, unless otherwise indicated. Mixtures are prepared by either partial pressure or gravimetric method. Gas mixtures are traceable to N.I.S.T. weights and/or N.I.S.T. gas mixture reference materials

No effecting environmental conditions during analysis.

FILL PRESSURE 1000 PSI

EXPIRATION DATE: November, 2016

CERTIFICATION DATE: November 11, 2013

ANALYSIS BY: Kyle Christianson

"We certify that all the cylinders for the Lot numbers identified herein are manufactured and tested within the requirements of CFR 49 part 178.65 and that physical and chemical test reports are on file and copies will be furnished upon request." The only liability of this company for gas which fails to comply with this analysis shall be replacement thereof by the company without extra cost.

LANDTEC North America, Inc.
850 S. Via Lata, Suite 112
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LANDTEC

ANALYSIS CERTIFICATION

METHOD OF PREPARATION: GRAVIMETRIC / PRESSURE TRANSFILLING

ANALYTICAL PRINCIPLE: GC (TCD)

ACCURACY:: ± 2% Relative

LOT Number	COMP 1 CH_4	COMP 2 AIR	COMP 3	COMP 4	COMP 5	COMP 6	Exp Date
42138-01	500 PPM	Balance					May/2015
Actual	491 PPM	Balance					

Gas mixtures manufactured with balances calibrated by an ISO 17025 accredited company. Results are in mole percent, unless otherwise indicated. Mixtures are prepared by either partial pressure or gravimetric method. Gas mixtures are traceable to N.I.S.T. weights and/or N.I.S.T. gas mixture reference materials

No effecting environmental conditions during analysis.

FILL PRESSURE 1000 PSI

EXPIRATION DATE: May, 2015

CERTIFICATION DATE: May 16, 2012

ANALYSIS BY: Jason Goldrup

"We certify that all the cylinders for the Lot numbers identified herein are manufactured and tested within the requirements of CFR 49 part 178.65 and that physical and chemical test reports are on file and copies will be furnished upon request." The only liability of this company for gas which fails to comply with this analysis shall be replacement thereof by the company without extra cost.

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Colton, CA 92324
Phone: (909) 783-3636 • Fax: (909) 825-0591

LANDTEC

ANALYSIS CERTIFICATION

METHOD OF PREPARATION: GRAVIMETRIC / PRESSURE TRANSFILLING

ANALYTICAL PRINCIPLE: GC (FID)

ACCURACY:: ± 2% Relative

LOT Number	COMP 1 O_2	COMP 2 N_2	COMP 3	COMP 4	COMP 5	COMP 6	Exp Date
1366017	21%	Balance	(<1 PPM THC)				Aug/2015

Gas mixtures manufactured with balances calibrated by an ISO 17025 accredited company. Results are in mole percent, unless otherwise indicated. Mixtures are prepared by either partial pressure or gravimetric method. Gas mixtures are traceable to N.I.S.T. weights and/or N.I.S.T. gas mixture reference materials

No effecting environmental conditions during analysis.

FILL PRESSURE 500 PSIG @ 70f

EXPIRATION DATE: August 17, 2015

CERTIFICATION DATE: August 17, 2012

ANALYSIS BY: Ray Turgeon

"We certify that all the cylinders for the Lot numbers identified herein are manufactured and tested within the requirements of CFR 49 part 178.65 and that physical and chemical test reports are on file and copies will be furnished upon request." The only liability of this company for gas which fails to comply with this analysis shall be replacement thereof by the company without extra cost.

LANDTEC North America, Inc.
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Blue Ridge Landfill - BOD Results -2013/2014

2013			2014			
Date	BOD - mg/l	Flow	Date	BOD - mg/l	Flow	
January			January			
1/21/2013	115	60,067	1/20/2014	1880	61,900	
February			February			Add Microcat X microbes
2/20/2013	130	55,500	2/25/2014	617	41,000	
March			March			
2/26/2013	94	43,600	3/26/2014	47	85,900	
			3/27/2014	42	58,000	
			31-Mar	144	25,800	
April			April			
4/15/2013	67	38,360	4/15/2014	177	24,800	
May			May			
5/15/2013	117	41,900	5/6/2014	88	57,800	
June			June			
6/18/2013	91	47,000	6/12/2014	149	52,715	
July			July			
			7/17/2014	510	24,200	
7/23/2013	143	37,300	7/29/2014	690	48,500	
			7/31/2014	1660	54,540	
			7/31/2014	1030	87,100	
August			August			Added hypochlorite
8/29/2013	174	2,300	8/29/2014	245	29,756	
			8/29/2014	428	29,350	
September			September			
9/19/2013	192	50,900	9/5/2014	366	11,200	
			9/8/2014	304	25,600	
			9/17/2014	369	28,040	
			9/30/2014	245/312 split	29,080	
October			October			
10/17/2013	130	56,520	10/7/2014	309	59,800	
November			November	No Discharge		
11/20/2013	270	44,800				
December			December			
12/13/2013	217	60,100				
			12/29/2014	709	69,000	