

REPORT OF H₂S GAS ASSESSMENT -- JANUARY 2021

GREENPOINTE CLASS 2 LANDFILL
EASLEY, SOUTH CAROLINA

Permit No. LF2-00001

Prepared For:
Greenpointe, LLC
5000 Hamlin Road
Easley, South Carolina

BLE Project Number J20-11728-11

February 2, 2021



BLE

**BUNNELL
LAMMONS
ENGINEERING**

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BLECORP.COM

February 2, 2021

SCDHEC
Solid Waste Compliance Section
Division of Compliance and Enforcement
2600 Bull Street
Columbia, SC 29201
VIA EMAIL: priceje@dhec.sc.gov

Attention: Ms. Jessica E. Price

Subject: **Report of H2S Gas Assessment – January 2021**
Greenpointe Class 2 Landfill
500 Hamlin Road
Easley, Anderson County, South Carolina
Permit No. LF2-00001
BLE Project Number J20-11728-11

Dear Ms. Price:

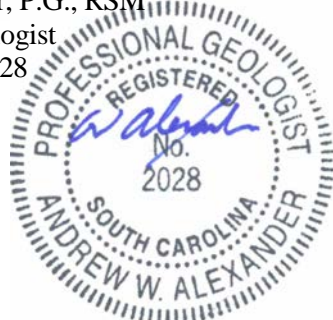
Bunnell-Lammons Engineering, Inc. (BLE) is pleased to submit this report to the South Carolina Department of Health and Environmental Control (SCDHEC) Solid Waste Compliance Section (SWCS) for the Greenpointe Class 2 Landfill on behalf of Greenpointe, LLC. The report addresses hydrogen sulfide (H2S) gas assessment activities requested by the SWCS related to odor complaints at the subject site.

Sincerely,

BUNNELL LAMMONS ENGINEERING INC.



Andrew W. Alexander, P.G., RSM
Consulting Hydrogeologist
Registered, SC No. 2028





Robert T. Hawkins, CHMM
Senior Environmental Consultant

CC: Mr. Radford Jenkins - Greenpointe, LLC



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1.0 PROJECT INFORMATION

The active Greenpointe Class 2 Landfill is located at 500 Hamlin Road in Anderson County, South Carolina (**Figure 1**). The permitted landfill footprint is approximately 14 acres and is operated by Greenpointe, LLC (Greenpointe). The landfill is a permitted construction and demolition disposal facility (**Figure 2**).

SCDHEC issued a letter to Greenpointe dated December 11, 2020 titled *Odor Complaints/Possible H₂S Issue*. The letter included two directives. The first directive requests an assessment of hydrogen sulfide (H₂S) gas at the facility. The second directive requests changes to landfill operations. Greenpointe requested that BLE respond to the first directive by conducting the required sampling. The also letter established a due date of February 9, 2021 for submittal of an H₂S assessment report to SCDHEC.

On or about December 16, 2020, we contacted the author of the SCDHEC letter, Ms. Jessica Price, to discuss BLE's proposed scope of work for the assessment. This report documents the results and findings of the assessment tasks performed in accordance with SCDHEC input both during planning and during execution of the field work.

2.0 SCOPE OF SERVICES PERFORMED

BLE mobilized a three (3) person sampling crew to the facility on January 19, 2021. The BLE crew was accompanied by SCDHEC representative Mr. Justin Koon and another SCDHEC associate who witnessed sampling efforts and provided input and real-time modification to the assessment program. All modifications to the original sampling plan were at the direction of SCDHEC field representatives. All testing was performed on a single day to reduce temporal variability during sampling. Sampling was performed between approximately 8:30 AM and 2:00 PM.

Testing was performed at nineteen (19) locations, which were designated "Ambient" and GS-1 through GS-18 (**Figure 2**). Sample locations GS-1 through GS-16 and Ambient were performed on facility property. Sample locations GS-17 and GS-18 were performed off facility property.

Ambient atmospheric conditions were measured at the Ambient location at the start, middle, and end of the day and recorded on a sampling log (**Appendix A**). These data included, air temperature, cloud cover, relative humidity, barometric pressure, and wind speed and direction. Barometric pressure data was sourced from online data via the integrated iOS mobile phone weather application. All other atmospheric conditions were measured using a Extech model 45160 hand-held meter as shown on the log. Precipitation was not recorded on the log since none was observed during the sampling event.

Gas sampling was performed at all nineteen (19) locations. The concentrations of methane (CH₄), carbon monoxide (CO), oxygen (O₂), and hydrogen sulfide (H₂S) were measured and recorded as shown on the sampling logs in **Appendix A**. The gas data were measured using a RKI model GX-3R hand-held meter as shown on each log. The gas meters were calibrated the day prior to the assessment using the manufacturer's calibration methods and certified calibration gases. The units of measure for each gas are shown on the logs. It is noted that the detection limit for H₂S is approximately one (1) part per million (ppm). Sampling was performed at approximately 3 feet above the ground surface and/or approximately 3 feet below ground surface using a barhole punch, as indicated on the sampling logs. All holes were abandoned with bentonite upon completion.

3.0 RESULTS

3.1 Atmospheric Conditions

Ambient atmospheric conditions were recorded prior to the sampling event, during the sampling event, and at the end of the sampling event. Air temperature increased from 1.1°C to 14.4°C during the sampling event. Barometric pressure was stable throughout the day, with a minimum pressure of 30.23 inHg and a maximum pressure of 30.30 inHg. Relative humidity decreased during the sampling event, from 39.9% to 21.9%. Cloud cover was consistently partly cloudy throughout the sampling event. Wind direction was from the northeast (45°) from start of the sampling event at 8:30 AM through 10:30 AM at a windspeed which ranged from zero (not measurable) to 108 ft/min (1.2 mph). The wind direction shifted by 1:42 PM to west (280°) at a windspeed of 1,133 ft/min (13 mph). The sampling log for the ambient atmospheric conditions is included in **Appendix A**.

3.2 Gas Sampling

The concentrations of methane (CH₄), carbon monoxide (CO), oxygen (O₂), and hydrogen sulfide (H₂S) were measured at each of the 19 sampling locations shown on **Figure 2** and recorded on the on the sampling logs (**Appendix A**). CH₄ was detected at one location (GS-1), CO was detected at four locations (GS-5 through GS-8), and O₂ was detected at all 19 locations. H₂S was not detected at any of the 19 sampling locations. The sampling logs for each testing location are included in **Appendix A**.

4.0 CONCLUSIONS AND RECOMMENDATIONS

4.1 Atmospheric Conditions

The observed air temperature during the sampling event was slightly above the average range of 0°C to 12°C for upstate South Carolina on January 19th specifically, and for the month of January in general. The observed air temperature is not anticipated to have adversely affected the results of the gas sampling event.

Barometric pressure and landfill gas production are typically inversely proportional. The barometric pressure was stable during the event and is not anticipated to have adversely affected the results of the gas sampling event.

Precipitation and resulting infiltration of stormwater into a landfill waste mass can result in increased landfill gas production, under certain conditions. No precipitation was observed during the sampling event which might result in the abnormal production of landfill gas.

Wind direction shifted during the day, from northeast to west and significant changes (increases) in windspeed were observed. It is noted that early morning sampling locations were positioned at locations potentially downwind of the landfill waste mass. Sampling locations later in the day were primarily in positions within or very near the waste mass itself (at the potential source); however, it is possible that changes in windspeed and direction may affect sampling results for samples collected above the ground surface. Samples collected from below ground surface locations are not anticipated to have been affected by changes in windspeed or direction.

Relative humidity decreased during the sampling event and is likely correlated to the corresponding change of wind direction and speed. The relative humidity changes are not anticipated to adversely affect the results of this gas sampling event.

We conclude that atmospheric conditions (with the possible exception of wind) observed during the sampling event should not adversely affect the results of the gas sampling event.

4.2 Gas Sampling

The production of landfill gas can result in increased concentrations of CH₄ and CO and reduced concentrations of O₂ under certain conditions. For example, sometimes H₂S is observed if waste containing sulfur is present in the waste mass. Both CH₄ and CO are colorless and odorless gasses in pure form. Concentrations of landfill gas are sometimes detectable via olfactory methods (by nose) when the landfill gas includes constituents such as sulfides and/or ammonia.

During the January 19, 2021 sampling event, the gas sampling meters did not detect significant concentrations of CH₄ or CO at any location nor were decreased concentrations of O₂ observed. Concentrations of O₂ were stable 20.9% at each sampling location. Normal air has an O₂ concentration between 20.8% to 21.0%. These results indicate that landfill gas was not emanating from the landfill during the sampling event.

Similarly, H₂S (an odorous component of landfill gas) was not detected at any of the sampling locations by the sampling meter. The handheld RKI GX-3R sampling meters used in this assessment are a normal and customary type of meter used for field gas detection and the assessment technique using these type of meters was selected at the direction of SCDHEC. It is noted that these meters have a lower detection limit of approximately 1 ppm for H₂S and that the air odor threshold for H₂S by a human nose is 0.0005 ppm to 0.3 ppm (Agency for Toxic Substances and Disease Registry, 2008).

We conclude that the data collected during the January 19, 2021 assessment event do not provide evidence that landfill gas containing H₂S was present at concentrations exceeding the approximate 1 ppm detection limit of the meter in the subsurface or above the ground surface. SCDHEC indicated during assessment planning that if H₂S was to exceed 100 ppm at any testing location, additional testing off site would be required. H₂S was not detected at any location above 100 ppm (or even above 1 ppm), which included, two testing locations (GS-17 and GS-18) located in residential areas offsite. H₂S was not detected above 1 ppm at either of these off-site locations.

5.0 SUMMARY

The results of this H₂S gas assessment satisfy the requirements of the SCDHEC directive and indicate that H₂S gas was not present at concentrations detected by the meter. Therefore, these assessment actions are complete.



6.0 QUALIFICATIONS OF REPORT

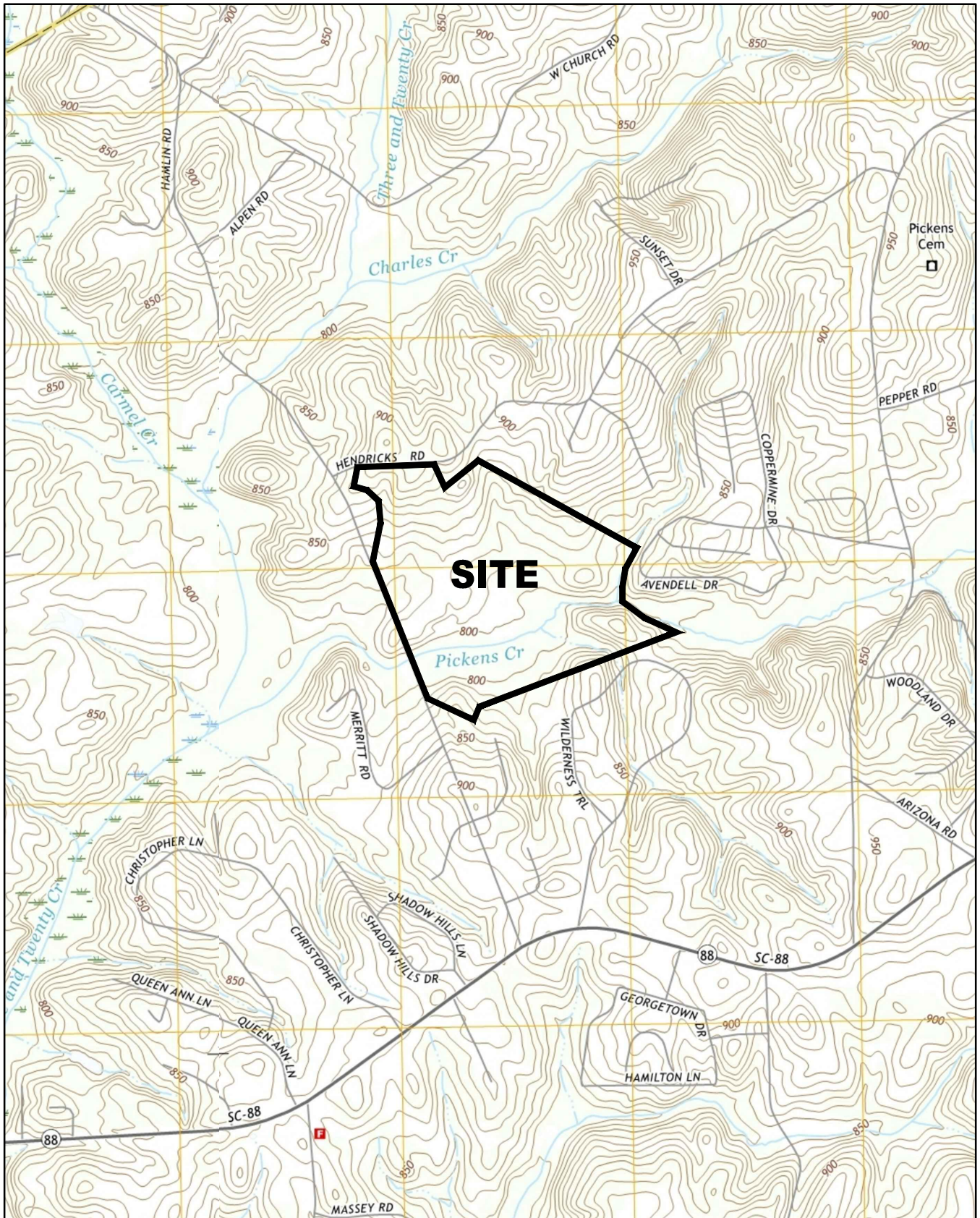
The activities and evaluative approaches used in this assessment are consistent with those normally employed in environmental assessments of this type. Our evaluation of site conditions has been based on our understanding of the site and project information and the data obtained in our assessment.

This report has been prepared on behalf of and exclusively for the use of Greenpointe, LLC. This report and the findings contained herein shall not, in whole or in part, be used or relied upon by any other party (excluding SCDHEC) without BLE's prior written consent.

7.0 CLOSING

We appreciate the opportunity to be of service to Greenpointe, LLC. Please contact us at (864) 288-1265 if you have any questions or comments.

Figures



REFERENCE:
USGS TOPOGRAPHIC MAP, 7.5 MINUTE SERIES,
EASLEY, FIVE FORKS, LIBERTY AND PIERCETOWN, S.C.
QUADRANGLES, 2014, 2017, 2014 AND 2014.

DRAWN:	KLW	DATE:	1-28-21
CHECKED:	AWA	CAD:	GREENPOINTE-11SLM
APPROVED:	AWA	JOB NO:	J20-11728-11

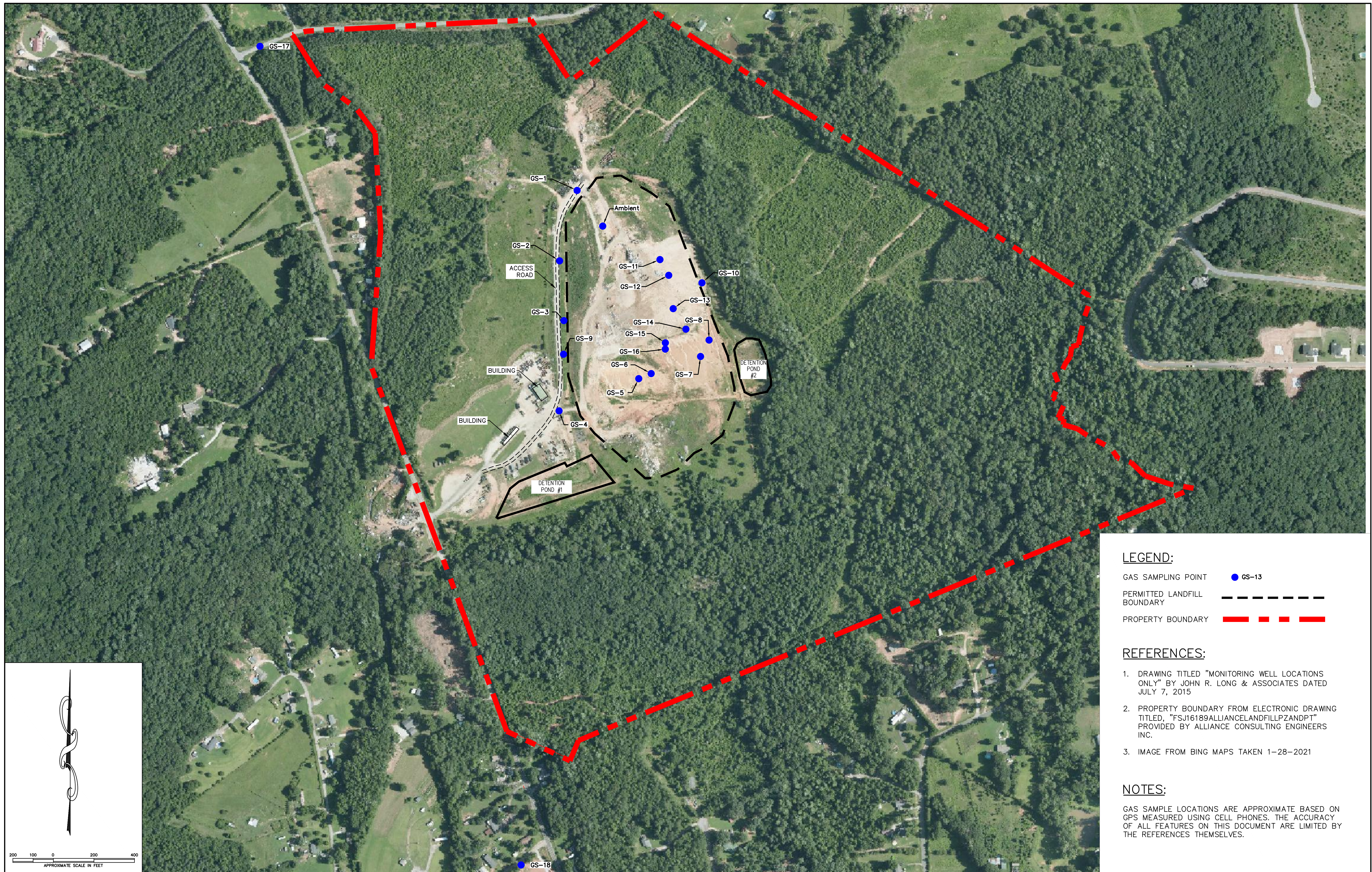
BLE | **BUNNELL
LAMMONS
ENGINEERING**

6004 Ponders Court, Greenville, SC 29615
Phone: (864) 288-1265 Fax: (864) 288-4430

SITE LOCATION MAP
GREENPOINTE CLASS 2 LANDFILL
EASLEY, SOUTH CAROLINA

FIGURE

1



LEGEND:

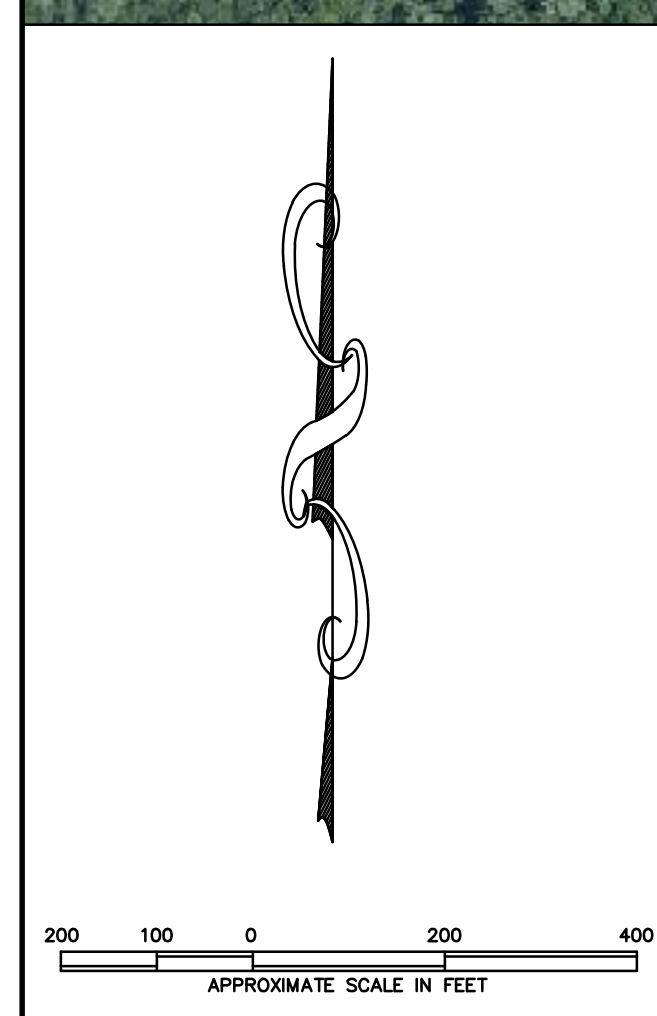
- GAS SAMPLING POINT ● GS-13
- PERMITTED LANDFILL BOUNDARY
- PROPERTY BOUNDARY

REFERENCES:

1. DRAWING TITLED "MONITORING WELL LOCATIONS ONLY" BY JOHN R. LONG & ASSOCIATES DATED JULY 7, 2015
2. PROPERTY BOUNDARY FROM ELECTRONIC DRAWING TITLED, "FSJ16189ALLIANCERLANDFILLPZANDPT" PROVIDED BY ALLIANCE CONSULTING ENGINEERS INC.
3. IMAGE FROM BING MAPS TAKEN 1-28-2021

NOTES:

GAS SAMPLE LOCATIONS ARE APPROXIMATE BASED ON GPS MEASURED USING CELL PHONES. THE ACCURACY OF ALL FEATURES ON THIS DOCUMENT ARE LIMITED BY THE REFERENCES THEMSELVES.



NO.	REVISIONS DESCRIPTION	BY

DRAWN: KLV	DATE: 1-28-21
CHECKED: AWA	CAD FILE: GREENPOINTE-11SM
APPROVED: AWA	JOB NO: J20-11728-11

BUNNELL LAMMONS ENGINEERING
 6004 Ponders Court, Greenville, SC 29615
 Phone: (864) 288-1265 Fax: (864) 288-4430

APPENDIX A
FIELD SAMPLING LOGS



Ambient Atmospheric Conditions

Date: 1/19/2021
Field Personnel: BPD, MDM
BLE Job No: J20-11728-11
Facility Name: Greenpointe Class 2 Landfill

Phenomena				
Time (military)	830	1030	1342	
Air Temperature (°C)	1.1	6.2	14.4	
Barometric Pressure (in. Hg)*	30.28*	30.30*	30.23*	
Relative Humidity (%)	39.9	31.1	21.9	
Cloud Cover (subjective)	Partly cloudy	Partly cloudy	Partly cloudy	
Wind Speed (FPM)	Gentle Breeze, Not Measureable	108	1133	
Wind Direction (compass+DD)	45	45	280	
Location Lat/Long (DD)	34.728752, -82.613431	34.728752, -82.613431	34.728752, -82.613431	

Notes:

*From weather application on mobile phone

Equipment:

Extech 45160 Serial No. A.072925



Sampling Log

Sample ID:	GS-1	Location Lat/Long (DD):	34.729230, -82.613861
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11		
Facility Name:	Greenpointe Class 2 Landfill		
Field Personnel:	BDP, MDM	AGS-Above ground surface.	
		BGS-Below ground surface.	

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	857	Time (military)	911	Time (military)	920
CH ₄ (% LEL)	0	CH ₄ (% LEL)	0	CH ₄ (% LEL)	1
CO (ppm)	0	CO (ppm)	0	CO (ppm)	0
O ₂ (%)	20.9	O ₂ (%)	20.9	O ₂ (%)	20.9
H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
--	--



Sampling Log

Sample ID:	GS-2	Location Lat/Long (DD):	34.728272, -82.614130
Date:	1/19/2021	Location Description:	10ft off the road; landfill side
BLE Job No:	J20-11728-11		
Facility Name:	Greenpointe Class 2 Landfill	AGS-Above ground surface.	
Field Personnel:	BDP, MDM	BGS-Below ground surface.	

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	934	Time (military)	937	Time (military)	941
CH ₄ (% LEL)	0	CH ₄ (% LEL)	0	CH ₄ (% LEL)	0
CO (ppm)	0	CO (ppm)	0	CO (ppm)	0
O ₂ (%)	20.9	O ₂ (%)	20.9	O ₂ (%)	20.9
H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-3	Location Lat/Long (DD):	34.727463, -82.614045
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	950	Time (military)	958	Time (military)	1005
CH ₄ (% LEL)	0	CH ₄ (% LEL)	0	CH ₄ (% LEL)	0
CO (ppm)	0	CO (ppm)	0	CO (ppm)	0
O ₂ (%)	20.9	O ₂ (%)	20.9	O ₂ (%)	20.9
H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-4	Location Lat/Long (DD):	34.726239, -82.614101
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	1045	Time (military)	1051	Time (military)	1055
CH ₄ (% LEL)	0	CH ₄ (% LEL)	0	CH ₄ (% LEL)	0
CO (ppm)	0	CO (ppm)	0	CO (ppm)	0
O ₂ (%)	20.9	O ₂ (%)	20.9	O ₂ (%)	20.9
H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-5	Location Lat/Long (DD):	34.726692, -82.612801
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	1102	Time (military)	1111	Time (military)	1114
CH ₄ (% LEL)	0	CH ₄ (% LEL)	0	CH ₄ (% LEL)	0
CO (ppm)	0	CO (ppm)	0	CO (ppm)	8
O ₂ (%)	20.9	O ₂ (%)	20.9	O ₂ (%)	20.9
H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0

Notes: Odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-6	Location Lat/Long (DD):	34.726764, -82.612598
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	1122	Time (military)	1126	Time (military)	1133
CH ₄ (% LEL)	0	CH ₄ (% LEL)	0	CH ₄ (% LEL)	0
CO (ppm)	0	CO (ppm)	6	CO (ppm)	0
O ₂ (%)	20.9	O ₂ (%)	20.9	O ₂ (%)	20.9
H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0

Notes: Sample BGS - CO levels measured 6% initially, then dropped to 0% within 30 seconds Odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-7	Location Lat/Long (DD):	34.727006, -82.611792
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	1143	Time (military)	1147	Time (military)	1150
CH ₄ (% LEL)	0	CH ₄ (% LEL)	0	CH ₄ (% LEL)	0
CO (ppm)	0	CO (ppm)	17	CO (ppm)	0
O ₂ (%)	20.9	O ₂ (%)	20.9	O ₂ (%)	20.9
H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0

Notes: Odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-8	Location Lat/Long (DD):	34.727230, -82.611656
Date:	1/19/2021	Location Description:	Adjacent to open pit filled with retention water at the base of the southeastern side of the landfill slope
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	Not Tested	Time (military)	Not Tested	Time (military)	1155
CH ₄ (% LEL)	Not Tested	CH ₄ (% LEL)	Not Tested	CH ₄ (% LEL)	0
CO (ppm)	Not Tested	CO (ppm)	Not Tested	CO (ppm)	18
O ₂ (%)	Not Tested	O ₂ (%)	Not Tested	O ₂ (%)	20.9
H ₂ S (ppm)	Not Tested	H ₂ S (ppm)	Not Tested	H ₂ S (ppm)	0.0

Notes:	Equipment:
	RKI GX-3R <input type="checkbox"/> SN:054070677RN
	<input checked="" type="checkbox"/> SN:014041020RN
	Calibration Date: 1-18-2021 Calibration Tech: IAI



Sampling Log

Sample ID:	GS-9	Location Lat/Long (DD):	34.727007, -82.614042
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	1011	Time (military)	1015	Time (military)	1017
CH ₄ (% LEL)	0	CH ₄ (% LEL)	0	CH ₄ (% LEL)	0
CO (ppm)	0	CO (ppm)	0	CO (ppm)	0
O ₂ (%)	20.9	O ₂ (%)	20.9	O ₂ (%)	20.9
H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0

Notes:	Equipment:
	RKI GX-3R <input type="checkbox"/> SN:054070677RN
	<input checked="" type="checkbox"/> SN:014041020RN
	Calibration Date: 1-18-2021
	Calibration Tech: IAI



Sampling Log

Sample ID:	GS-10	Location Lat/Long (DD):	34.728004, -82.611788
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	1209	Time (military)	1215	Time (military)	1217
CH ₄ (% LEL)	0	CH ₄ (% LEL)	0	CH ₄ (% LEL)	0
CO (ppm)	0	CO (ppm)	0	CO (ppm)	0
O ₂ (%)	20.9	O ₂ (%)	20.9	O ₂ (%)	20.9
H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-11	Location Lat/Long (DD):	34.728310, -82.612483
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)	Sample Depth BGS (3ft)	Sample Height AGS (3ft)
Not Tested	Not Tested	
Time (military)	Time (military)	Time (military) 1235
CH ₄ (% LEL)	CH ₄ (% LEL)	CH ₄ (% LEL) 0
CO (ppm)	CO (ppm)	CO (ppm) 0
O ₂ (%)	O ₂ (%)	O ₂ (%) 20.9
H ₂ S (ppm)	H ₂ S (ppm)	H ₂ S (ppm) 0.0

Notes: Odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-12	Location Lat/Long (DD):	34.728099, -82.612335
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	1240	Time (military)	1241	Time (military)	1242
CH ₄ (% LEL)	0	CH ₄ (% LEL)	0	CH ₄ (% LEL)	0
CO (ppm)	0	CO (ppm)	0	CO (ppm)	0
O ₂ (%)	20.9	O ₂ (%)	20.9	O ₂ (%)	20.9
H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0	H ₂ S (ppm)	0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-13	Location Lat/Long (DD):	34.727648, -82.612254
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	Not Tested	Time (military)	Not Tested	Time (military)	1250
CH ₄ (% LEL)	Not Tested	CH ₄ (% LEL)	Not Tested	CH ₄ (% LEL)	0
CO (ppm)	Not Tested	CO (ppm)	Not Tested	CO (ppm)	0
O ₂ (%)	Not Tested	O ₂ (%)	Not Tested	O ₂ (%)	20.9
H ₂ S (ppm)	Not Tested	H ₂ S (ppm)	Not Tested	H ₂ S (ppm)	0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-14	Location Lat/Long (DD):	34.727373, -82.612040
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)	Sample Depth BGS (3ft)	Sample Height AGS (3ft)
Not Tested	Not Tested	
Time (military)	Time (military)	Time (military) 1257
CH ₄ (% LEL)	CH ₄ (% LEL)	CH ₄ (% LEL) 0
CO (ppm)	CO (ppm)	CO (ppm) 0
O ₂ (%)	O ₂ (%)	O ₂ (%) 20.9
H ₂ S (ppm)	H ₂ S (ppm)	H ₂ S (ppm) 0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibaration Tech: IAI
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Sampling Log

Sample ID:	GS-15	Location Lat/Long (DD):	34.727183, -82.612373
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	Not Tested	Time (military)	Not Tested	Time (military)	1303
CH ₄ (% LEL)	Not Tested	CH ₄ (% LEL)	Not Tested	CH ₄ (% LEL)	0
CO (ppm)	Not Tested	CO (ppm)	Not Tested	CO (ppm)	0
O ₂ (%)	Not Tested	O ₂ (%)	Not Tested	O ₂ (%)	20.9
H ₂ S (ppm)	Not Tested	H ₂ S (ppm)	Not Tested	H ₂ S (ppm)	0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-16	Location Lat/Long (DD):	34.727098, -82.612373
Date:	1/19/2021	Location Description:	
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	Not Tested	Time (military)	Not Tested	Time (military)	1310
CH ₄ (% LEL)	Not Tested	CH ₄ (% LEL)	Not Tested	CH ₄ (% LEL)	0
CO (ppm)	Not Tested	CO (ppm)	Not Tested	CO (ppm)	0
O ₂ (%)	Not Tested	O ₂ (%)	Not Tested	O ₂ (%)	20.9
H ₂ S (ppm)	Not Tested	H ₂ S (ppm)	Not Tested	H ₂ S (ppm)	0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-17	Location Lat/Long (DD):	34.731116, -82.619104
Date:	1/19/2021	Location Description:	Measurements recorded in the residential area to northwest of landfill
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	Not Tested	Time (military)	Not Tested	Time (military)	1356
CH ₄ (% LEL)	Not Tested	CH ₄ (% LEL)	Not Tested	CH ₄ (% LEL)	0
CO (ppm)	Not Tested	CO (ppm)	Not Tested	CO (ppm)	0
O ₂ (%)	Not Tested	O ₂ (%)	Not Tested	O ₂ (%)	20.9
H ₂ S (ppm)	Not Tested	H ₂ S (ppm)	Not Tested	H ₂ S (ppm)	0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input type="checkbox"/> SN:054070677RN <input checked="" type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	GS-18	Location Lat/Long (DD):	34.720078, -82.614608
Date:	1/19/2021	Location Description:	Measurements recorded in the residential area to south of landfill
BLE Job No:	J20-11728-11	AGS-Above ground surface.	
Facility Name:	Greenpointe Class 2 Landfill	BGS-Below ground surface.	
Field Personnel:	BDP, MDM		

Pre-Sample Height AGS (3ft)		Sample Depth BGS (3ft)		Sample Height AGS (3ft)	
Time (military)	Not Tested	Time (military)	Not Tested	Time (military)	1347
CH ₄ (% LEL)	Not Tested	CH ₄ (% LEL)	Not Tested	CH ₄ (% LEL)	0
CO (ppm)	Not Tested	CO (ppm)	Not Tested	CO (ppm)	0
O ₂ (%)	Not Tested	O ₂ (%)	Not Tested	O ₂ (%)	20.9
H ₂ S (ppm)	Not Tested	H ₂ S (ppm)	Not Tested	H ₂ S (ppm)	0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input checked="" type="checkbox"/> SN:054070677RN <input type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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Sampling Log

Sample ID:	Ambient Location	Location Lat/Long (DD):	34.728752, -82.613431
Date:	1/19/2021	Location Description:	Top of landfill
BLE Job No:	J20-11728-11		
Facility Name:	Greenpointe Class 2 Landfill	AGS-Above ground surface.	
Field Personnel:	BDP, MDM	BGS-Below ground surface.	

Pre-Sample Height AGS (3ft)	Sample Depth BGS (3ft)	Sample Height AGS (3ft)
Not Tested	Not Tested	
Time (military)	Time (military)	Time (military) 1340
CH ₄ (% LEL)	CH ₄ (% LEL)	CH ₄ (% LEL) 0
CO (ppm)	CO (ppm)	CO (ppm) 0
O ₂ (%)	O ₂ (%)	O ₂ (%) 20.9
H ₂ S (ppm)	H ₂ S (ppm)	H ₂ S (ppm) 0.0

Notes: No odor detected by olfactory methods	Equipment: RKI GX-3R <input checked="" type="checkbox"/> SN:054070677RN <input type="checkbox"/> SN:014041020RN Calibration Date: 1-18-2021 Calibration Tech: IAI
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