Commonwealth of Virginia

Blalock, Susan <susan.blalock@deq.virginia.gov>

FW: Semi-Monthly Daily LFG Well Temperature Update 9-1-22

1 message

Crystal Bazyk <crystal.bazyk@deq.virginia.gov> Tue, Sep 6, 2022 at 8:35 AM
To: Angela Sells <angela.sells@deq.virginia.gov>
Cc: Susan Blalock <susan.blalock@deq.virginia.gov>

From: King, Brandon <BKing@scsengineers.com>
Sent: Thursday, September 1, 2022 4:54 PM
To: crystal.bazyk@deq.virginia.gov; hall.kristen@epa.gov; jeff.hurst@deq.virginia.gov; willard.erinm@epa.gov; stacy.bowers@deq.virginia.gov; David Cochran <dcochran@bristolva.org>; Randall Eads <CityManager@bristolva.org>; 'mmartin@bristolva.org' (mmartin@bristolva.org) <mmartin@bristolva.org>; Joey Lamie <Joey.Lamie@bristolva.org>; Jake Chandler <jacob.chandler@bristolva.org>
Cc: Nachman, Lucas <LNachman@scsengineers.com>; Mahon, Ryan <RMahon@scsengineers.com>; Warren, Charles <CWarren@scsengineers.com>; Lock, Tom <TLock@scsengineers.com>; Dick, Bob <BDick@scsengineers.com>
Subject: Semi-Monthly Daily LFG Well Temperature Update 9-1-22

Ms. Hall and Ms. Bazyk,

In accordance with EPA's letter, "Approval of Higher Operating Temperature Values of Landfill Gas Wells and Submission of Gas Treatment Alternatives at the Bristol Virginia Integrated Solid Waste Facility" from August 2021, I am providing the September 1, 2022 status report on the existing wells, expansion of the gas collection system, and continuing operating and monitoring results, covering the period from August 16-31, 2022.

Thank you,

D. Brandon King

Project Manager

15521 Midlothian Turnpike, Suite 305

Midlothian, VA 23113

Main 804-378-7440

Direct 804-486-1902

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Bimonthly Daily LFG Well Temperature Update_9-1-22.pdf

738K

September 1, 2022
File No. 02218208.04

MEMORANDUM

TO: Kristin Hall, EPA Region III
Crystal Bayzk, VDEQ-SWRO

FROM: D. Brandon King, SCS Engineers
Robert E. Dick, SCS Engineers

SUBJECT: Semi-monthly Status Update – August 15th through August 31st, 2022
Bristol Integrated Waste Management Facility, Bristol, Virginia

In accordance with the Environmental Protection Agency (EPA) Region III letter, *Approval of Higher Operating Temperature Values for Landfill Gas Wells and Submission of Gas Treatment Alternatives at the Bristol Virginia Integrated Solid Waste Management Facility*, dated 8/23/21, SCS is submitting this semi-monthly status update to satisfy the condition of compliance provision #2. This compliance provision report includes daily temperature readings of the existing and new wells installed. In addition, this report includes a summary of work accomplished during this reporting period of 8/15/22 through 8/31/22, pursuant of compliance provision #2.

DAILY TEMPERATURE READINGS

The City recorded daily temperature readings throughout the second half of August and displayed on the attached table. Existing wells GW-31R, GW-37, and GW-47 temperatures have averaged between 145F to 160F throughout the majority of this reporting period. Existing well GW-46 continued to exhibit temperatures below 145F during this reporting period. New wells GW-50, GW-54, and GW-64 continued to record temperatures above 145F during this reporting period. It should be noted that all three of these wells recorded temperatures below 145F by the end of the reporting period. In addition, new wells GW-51 and GW-67 recorded temperatures above 145F during this reporting period. However, GW-67 recorded temperatures below 145F at the end of this reporting period. All other LFG wells recorded temperatures below 145F during the second half of August. SCS conducted the August monthly wellfield monitoring on 8/3/22. Subsequently, SCS performed LFG retest monitoring on 8/10/22, 8/15/22, and 8/24/22 at select LFG wellheads.

LFG ANALYTICAL DATA REVIEW

The City and SCS are still awaiting the EPA's evaluation of the Higher Operating Value for Temperature Request letter submitted to EPA on 3/8/22. According to SCS August 2022 LFG monthly wellfield data, exceedance temperatures continue in HOV requested wells GW-31R and GW-37, as well as GW-54. LFG well GW-67 recorded a temperature above 145F on 8/3/22, but below 145F during the 5-day retest conducted on 8/3/22.

Wells GW-31R and GW-37 recorded temperatures of 155F and 153F respectively by SCS during wellfield retest activities on 8/15/22 and 8/24/22 respectively. Well GW-54 recorded a temperature of 145F on 8/15/22 and 150F on 8/24/22 by SCS. SCS recorded a CO sample via 1.5L Summa Canister at wells GW-31R and GW-54 on 8/15/22. Both wells sampled on 8/15/22 recorded CO

readings below the detection limit of 90 ppm. None of the concentrations recorded show evidence of a subsurface fire. The results of the CO sampling events are included for reference.

NON-ROUTINE O&M

City personnel have been hauling cover soil into Permit #588 Landfill and spreading over exposed areas of waste in non-active filling areas during the second half of August. The City's Street Department allocated several dump trucks to stockpile soil at a staging area at the north end of the Permit #588 Landfill, which is moved by the Facility to the south end and spread over non-active filling areas. The City's O&M contractor mobilized on-site during the week of 8/15/22 to move the LFG laterals, pneumatic airline and dewatering forcemain piping in non-active areas of the landfill. The City collaborated with the contractor to spread cover soil in the exposed areas under LFG system piping. The majority of these areas were covered, while the O&M contractor extended the piping accordingly, before moving the piping back into place and reconnecting to the LFG System. SCS understands there is one additional line with exposed waste underneath that the City's O&M contractor will address using this practice during the first half September. Below are photos depicting these corrective actions.

View of the south end of the Permit #588 Landfill on 8/17/22. Cover soil stockpiled in the vicinity of LFG piping to be placed over exposed waste once piping was disconnected from wells and moved.

SCS-FS O&M on-site on 8/17/22 disconnecting LFG and dewatering piping from wells to move lines to allow cover soil to be placed over exposed areas of waste. Lines were extended before reconnecting to the wells.

EVALUATION OF LFG SYSTEM

The City is equipped with several functional dedicated pneumatic dewatering pumps available on standby to be switched out in the event a well has a non-functioning pump. The City has set up a dedicated pump cleaning and testing station allowing SCS-FS O&M access to the City's wash bay. This includes an air compressor from a service truck and a water barrel to test the pneumatic pumps to satisfy this need from O&M. SCS-FS O&M will continue to use this testing and cleaning station to clean select pumps based on cycle counter data.

SCS is continuing weekly surface emissions monitoring per the Plan of Action Report dated 7/6/22. SCS has procured foam seals, which were delivered to the site. SCS-FS O&M will mobilize the week of September 12th to complete the work with the City in moving the lateral, air, and forcemain to apply cover soil in the areas under those lines to control fugitive emissions. SCS-FS O&M will extend those lines and reconnect them to the LFG System once adequate cover soil is in place. SCS will communicate with O&M contractor during the weekly SEM to install foam seals to select LFG wells. This work will occur during the week of the 12th or 19th based on SEM data. It should be noted that

there were no surface emissions monitoring exceedances along the serpentine route during the last weekly SEM event.

During the week of September 12th, SCS anticipates the O&M contractor to install temperature monitoring sensors in 25 LFG wells. The temperature sensors are automated to provide the City and SCS real-time access to the temperature data.

SCS will conduct the monthly LFG wellfield monitoring in early September and record the pump stroke counter data during the event. SCS will update the pump stroke counter analysis table and relay the information to the O&M contractor to perform pump maintenance on select wells as necessary in September.

SCS Engineers understands the south end leachate cleanouts are connected to the existing LFG System from a pilot-scale collection system SCS installed on behalf of Ingenco in 2020. SCS is assessing the south end cleanouts to possibly be upgraded with a larger LFG header to increase the volume of LFG collected from these south end cleanouts. SCS anticipates beginning the design phase of these leachate cleanout modifications in September.

Please contact SCS or City personnel if you have any questions or require additional information.

cc: Randall Eads, City of Bristol
Michael Maine, City of Bristol
Jeff Hurst, VDEQ-SWRO
Tom Lock, SCS Field Services
David Cochran, City of Bristol
Erin Willard, EPA Region III
Stacy Bowers, VDEQ-SWRO
Robert E. Dick, P.E., SCS Engineers

Note	Well Depth	Date Drill	Phase	Month	August	August	August	August	August	August	August	August	August	August	August	August	August	August	August	August
				Day	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday
				Date	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
				Well Number																
1	102	10/16/2016	Old Well	**35**	75	75	74	78	80	90	80	89	80	80	85	80	85	80	80	80
2	70	9/6/2017	Old Well	**39**	80	80	82	80	90	98	105	111	115	115	115	112	110	115	120	110
3	100	9/7/2017	Old Well	**40**	105	100	110	108	105	110	105	109	110	110	110	105	105	110	110	110
4	110	10/4/2016	Old Well	**46**	80	82	80	84	92	98	95	90	100	95	100	95	95	100	100	110
5	120	10/4/2016	Old Well	**47**	100	132	125	135	140	135	150	145	150	140	150	150	145	150	145	146
6	120	9/17/2013	Old Well	**29**	85	110	100	95	108	110	120	122	120	120	120	120	115	120	115	118
7	100	8/23/2017	Old Well	**30R**	Too Tall	Too Tall	Too Tall	Too Tall	122	132	135	138	140	135	135	135	150	145	140	140
8	120	8/30/2017	Old Well	**31R**	70	155	140	140	142	138	160	145	160	160	165	150	145	165	160	159
9	70	7/29/2016	Old Well	**32**	70	60	65	45	50	88	75	84	80	70	74	75	80	75	75	80
10	100	7/28/2016	Old Well	**33**	120	100	115	118	120	118	125	128	125	120	120	120	115	130	120	121
11	100	7/30/2016	Old Well	**34**	90	75	75	75	79	82	80	90	85	85	85	85	80	95	100	100
12	100	8/1/2016	Old Well	**36**	Too Tall	Too Tall	Too Tall	Too Tall	92	98	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	80	80	84
13	100	8/24/2017	Old Well	**37**	70	145	140	140	136	135	160	155	155	160	160	160	155	160	145	150
14	50	8/25/2017	Old Well	**38**	112	100	100	85	83	81	110	112	115	115	110	110	105	110	110	128
15	75	9/8/2017	Old Well	**41**	125	125	128	100	110	105	135	140	140	125	140	140	140	135	135	120
16	57	9/8/2017	Old Well	**42**	80	120	105	105	114	120	125	120	120	115	120	115	115	120	115	115
17	110	10/7/2016	Old Well	**48**	Too Tall	Too Tall	Too Tall	Too Tall	85	98	70	70	75	85	80	80	85	80	85	96
1	120	10/1/2021	New Well	**32R**	Too Tall	Too Tall	Too Tall	80	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall	Too Tall
2	110	10/1/2021	New Well	**49**	75	130	125	120	115	122	140	138	140	135	140	140	140	140	140	Too Tall
3	96	10/1/2021	New Well	**50**	140	135	125	125	124	128	145	142	135	145	145	145	140	145	145	139
4	114	10/1/2021	New Well	**51**	80	85	80	88	90	98	165	166	150	170	175	170	165	180	180	178
5	109	10/1/2021	New Well	**52**	105	100	111	108	100	118	100	102	120	120	120	120	120	120	120	119
6	91	10/1/2021	New Well	**53**	100	105	105	90	95	98	120	115	125	110	115	115	115	100	100	Meter Going of
7	91	10/1/2021	New Well	**54**	Too Tall	Too Tall	Too Tall	90	98	108	155	145	160	150	160	155	155	160	160	144
8	104	10/1/2021	New Well	**55**	100	100	85	45	85	89	80	82	75	115	85	85	80	80	80	82
9	109	10/1/2021	New Well	**56**	130	136	120	110	120	128	130	132	145	135	130	130	125	135	130	132
10	103	10/1/2021	New Well	**57**	133	125	125	129	122	126	135	133	145	125	130	125	120	140	135	139
11	92	10/1/2021	New Well	**58**	127	115	115	105	112	108	135	129	140	130	130	145	145	120	120	130
12	72	10/1/2021	New Well	**59**	122	105	115	90	94	99	105	108	120	105	110	105	101	115	115	110
13	120	10/1/2021	New Well	**60**	111	115	120	100	110	118	125	128	135	140	130	110	110	125	125	120
14	105	10/1/2021	New Well	**61**	109	105	100	100	108	115	115	118	115	115	115	130	130	115	120	112
15	120	10/1/2021	New Well	**62**	70	115	105	105	122	126	120	114	120	120	120	110	110	120	115	110
16	117	10/1/2021	New Well	**63**	70	130	115	115	117	120	130	128	130	125	130	120	115	135	130	132
17	120	10/1/2021	New Well	**64**	75	145	140	125	127	122	145	142	145	145	150	150	145	150	140	140
18	100	10/1/2021	New Well	**65**	75	125	115	120	119	124	130	128	130	125	130	130	130	135	125	Too Tall
19	102	10/1/2021	New Well	**66**	122	125	120	115	118	111	135	132	145	130	140	140	140	140	140	Too Tall
20	100	10/1/2021	New Well	**67**	Too Tall	Too Tall	Too Tall	130	128	124	145	148	155	100	145	145	140	150	145	144
21	75	10/1/2021	New Well	**68**	100	100	102	100	98	106	125	122	140	135	135	135	145	125	120	120

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Certificate of Analysis

Final Report

Laboratory Order ID 22H1024

Client Name:	SCS Field Services - Harrisburg, PA	Date Received:	August 17, 2022 9:40
	4330 Lewis Road, Suite 1	Date Issued:	August 22, 2022 15:48
	Harrisburg, PA 17111	Project Number:	[none]
Submitted To:	Tom Lock	Purchase Order:	
Client Site I.D.:	Bristol		

Enclosed are the results of analyses for samples received by the laboratory on 08/17/2022 09:40. If you have any questions concerning this report, please feel free to contact the laboratory.

Sincerely,

Ted Soyars

Technical Director

End Notes:

The test results listed in this report relate only to the samples submitted to the laboratory and as received by the Laboratory.

Unless otherwise noted, the test results for solid materials are calculated on a wet weight basis. Analyses for pH, dissolved oxygen, temperature, residual chlorine and sulfite that are performed in the laboratory do not meet NELAC requirements due to extremely short holding times. These analyses should be performed in the field. The results of field analyses performed by the Sampler included in the Certificate of Analysis are done so at the client's request and are not included in the laboratory's fields of certification nor have they been audited for adherence to a reference method or procedure.

The signature on the final report certifies that these results conform to all applicable NELAC standards unless otherwise specified. For a complete list of the Laboratory's NELAC certified parameters please contact customer service.

TNI Accredited
VELAP ID 460021

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Submitted To:	Tom Lock	Purchase Order:	
Client Site I.D.:	Bristol		

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
31R	22H1024-01	Air	08/15/2022 07:40	08/17/2022 09:40
54	22H1024-02	Air	08/15/2022 07:58	08/17/2022 09:40

ENTHALPY ANALYTICAL

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Client Site I.D.:	Bristol	Purchase Order:	

ANALYTICAL RESULTS

Project Location:

Field Sample #: 31R

Sample ID: 22H1024-01

Sample Matrix: Air

Sampled: 8/15/2022 07:40

Sample Type: LG

Sample Description/Location:

Sub Description/Location:

Canister ID: 063-00021: 12408

Canister Size: 1.4

Initial Vacuum(in Hg): 30

Final Vacuum(in Hg): 3.2

Receipt Vacuum(in Hg): 3.2

Flow Controller Type: Passive

Flow Controller ID: SS-43GXS4

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis
ALT-145

Analyte	ppmv Result	MDL	LOQ	Flag/Qual	Dilution	PF	Date/Time Analyzed	Analyst
Carbon Monoxide, as received	ND	90.0	90.0		9	1	8/18/22 14:14	DFH

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Submitted To:	Tom Lock	Project Number:	[none]
Client Site I.D.:	Bristol	Purchase Order:	

ANALYTICAL RESULTS

Project Location:

Field Sample #: 54

Sample ID: 22H1024-02

Sample Matrix: Air

Sampled: 8/15/2022 07:58

Sample Type: LG

Sample Description/Location:

Sub Description/Location:

Canister ID: 063-00023: 12411

Canister Size: 1.4

Initial Vacuum(in Hg): 30

Final Vacuum(in Hg): 1.2

Receipt Vacuum(in Hg): 1.2

Flow Controller Type: Passive

Flow Controller ID: SS-43GXS4

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis

ALT-145

Analyte	ppmv Result	MDL	LOQ	Flag/Qual	Dilution	PF	Date/Time Analyzed	Analyst
Carbon Monoxide, as received	ND	90.0	90.0		9	1	8/18/22 15:09	DFH

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Submitted To:	Tom Lock	Project Number:	[none]
Client Site I.D.:	Bristol	Purchase Order:	

Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis			**Preparation Method:**	**No Prep VOC GC Air**	
22H1024-01	1.00 mL / 1.00 mL	ALT-145	BFH0570	SFH0652	AG00026
22H1024-02	1.00 mL / 1.00 mL	ALT-145	BFH0570	SFH0652	AG00026

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Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFH0570 - No Prep VOC GC Air										
Blank (BFH0570-BLK1)					Prepared & Analyzed: 08/16/2022					
Carbon Monoxide	<	10.0	ppmv							
LCS (BFH0570-BS1)					Prepared & Analyzed: 08/16/2022					
Methane	4390	500	ppmv	5000		87.8	0-200			
Carbon dioxide	3850	500	ppmv	5000		77.0	0-200			
Oxygen (O2)	4960	500	ppmv	5000		99.3	0-200			
Nitrogen (N2)	5340	2000	ppmv	5000		107	0-200			
Hydrogen (H2)	5660	200	ppmv	5100		111	0-200			
Carbon Monoxide	4790	10	ppmv	5000		95.9	0-200			
Duplicate (BFH0570-DUP1)				**Source: 22H0824-01**	Prepared & Analyzed: 08/16/2022					
Methane	305000	4500	ppmv		305000			0.0110	25	
Carbon dioxide	360000	4500	ppmv		360000			0.0230	25	
Oxygen (O2)	10200	4500	ppmv		10200			0.174	25	
Nitrogen (N2)	88700	18000	ppmv		88600			0.0799	25	
Hydrogen (H2)	108000	1800	ppmv		108000			0.139	25	
Carbon Monoxide	103	90.0	ppmv		104			0.781	25	
Duplicate (BFH0570-DUP2)				**Source: 22H0824-02**	Prepared & Analyzed: 08/16/2022					
Methane	354000	4500	ppmv		353000			0.373	25	
Carbon dioxide	381000	4500	ppmv		379000			0.537	25	
Oxygen (O2)	<	4500	ppmv		<4500			NA	25	
Hydrogen (H2)	92200	1800	ppmv		91500			0.677	25	
Nitrogen (N2)	63900	18000	ppmv		63800			0.168	25	
Carbon Monoxide	115	90.0	ppmv		119			2.92	25	
Duplicate (BFH0570-DUP3)				**Source: 22H0824-03**	Prepared & Analyzed: 08/16/2022					
Methane	311000	4500	ppmv		312000			0.430	25	
Carbon dioxide	279000	4500	ppmv		280000			0.136	25	
Oxygen (O2)	<	4500	ppmv		<4500			NA	25	
Nitrogen (N2)	243000	18000	ppmv		244000			0.394	25	
Hydrogen (H2)	52200	1800	ppmv		52500			0.532	25	
Carbon Monoxide	<	90.0	ppmv		<90.0			NA	25	

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Submitted To:	Tom Lock	Project Number:	[none]
Client Site I.D.:	Bristol	Purchase Order:	

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFH0570 - No Prep VOC GC Air										
Duplicate (BFH0570-DUP4)			**Source: 22H0824-04**		Prepared & Analyzed: 08/16/2022					
Methane	114000	4500	ppmv		114000			0.356	25	
Carbon dioxide	166000	4500	ppmv		166000			0.129	25	
Oxygen (O2)	96100	4500	ppmv		96200			0.110	25	
Hydrogen (H2)	62700	1800	ppmv		62800			0.169	25	
Nitrogen (N2)	413000	18000	ppmv		414000			0.231	25	
Carbon Monoxide	104	90.0	ppmv		101			3.17	25	
Duplicate (BFH0570-DUP5)			**Source: 22H0874-01**		Prepared: 08/16/2022 Analyzed: 08/18/2022					
Methane	16300	4750	ppmv		15900			2.23	25	
Carbon dioxide	20100	4750	ppmv		20300			1.11	25	
Oxygen (O2)	185000	4750	ppmv		189000			1.96	25	
Hydrogen (H2)	<	1900	ppmv		<1900			NA	25	
Nitrogen (N2)	666000	19000	ppmv		678000			1.79	25	
Carbon Monoxide	<	95.0	ppmv		<95.0			NA	25	
Duplicate (BFH0570-DUP6)			**Source: 22H0874-02**		Prepared: 08/16/2022 Analyzed: 08/18/2022					
Methane	<	4500	ppmv		<4500			NA	25	
Carbon dioxide	<	4500	ppmv		<4500			NA	25	
Oxygen (O2)	197000	4500	ppmv		195000			1.02	25	
Hydrogen (H2)	<	1800	ppmv		<1800			NA	25	
Nitrogen (N2)	701000	18000	ppmv		695000			0.915	25	
Carbon Monoxide	<	90.0	ppmv		<90.0			NA	25	
Duplicate (BFH0570-DUP7)			**Source: 22H0877-01**		Prepared: 08/16/2022 Analyzed: 08/18/2022					
Methane	224000	4500	ppmv		225000			0.216	25	
Carbon dioxide	555000	4500	ppmv		560000			0.822	25	
Oxygen (O2)	<	4500	ppmv		<4500			NA	25	
Nitrogen (N2)	41300	18000	ppmv		41400			0.186	25	
Hydrogen (H2)	85300	1800	ppmv		85700			0.474	25	
Carbon Monoxide	502	90.0	ppmv		503			0.0537	25	

ENTHALPY ANALYTICAL

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Certificate of Analysis

Final Report

Laboratory Order ID 22H1024

Client Name:	SCS Field Services - Harrisburg, PA 4330 Lewis Road, Suite 1 Harrisburg, PA 17111	Date Received: Date Issued:	August 17, 2022 9:40 August 22, 2022 15:48
Submitted To:	Tom Lock	Project Number:	[none]
Client Site I.D.:	Bristol	Purchase Order:	

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFH0570 - No Prep VOC GC Air										
Duplicate (BFH0570-DUP8)			**Source: 22H0877-02**		Prepared: 08/16/2022 Analyzed: 08/18/2022					
Methane	89000	4500	ppmv		87500			1.63	25	
Carbon dioxide	651000	4500	ppmv		640000			1.77	25	
Oxygen (O2)	<	4500	ppmv		<4500			NA	25	
Hydrogen (H2)	226000	1800	ppmv		222000			1.87	25	
Nitrogen (N2)	<	18000	ppmv		<18000			NA	25	
Carbon Monoxide	1100	90.0	ppmv		1080			1.97	25	
Duplicate (BFH0570-DUP9)			**Source: 22H0877-03**		Prepared: 08/16/2022 Analyzed: 08/18/2022					
Methane	266000	4500	ppmv		267000			0.542	25	
Carbon dioxide	526000	4500	ppmv		546000			3.88	25	
Oxygen (O2)	4670	4500	ppmv		4710			0.901	25	
Nitrogen (N2)	19100	18000	ppmv		19200			0.830	25	
Hydrogen (H2)	81900	1800	ppmv		82200			0.450	25	
Carbon Monoxide	544	90.0	ppmv		553			1.72	25	
Duplicate (BFH0570-DUPA)			**Source: 22H0877-04**		Prepared: 08/16/2022 Analyzed: 08/18/2022					
Methane	162000	4500	ppmv		163000			0.840	25	
Carbon dioxide	622000	4500	ppmv		627000			0.838	25	
Oxygen (O2)	<	4500	ppmv		<4500			NA	25	
Nitrogen (N2)	<	18000	ppmv		<18000			NA	25	
Hydrogen (H2)	133000	1800	ppmv		134000			1.06	25	
Carbon Monoxide	809	90.0	ppmv		811			0.233	25	
Duplicate (BFH0570-DUPB)			**Source: 22H1024-01**		Prepared: 08/16/2022 Analyzed: 08/18/2022					
Methane	<	4500	ppmv		<4500			NA	25	
Carbon dioxide	<	4500	ppmv		<4500			NA	25	
Oxygen (O2)	197000	4500	ppmv		199000			0.893	25	
Hydrogen (H2)	<	1800	ppmv		<1800			NA	25	
Nitrogen (N2)	704000	18000	ppmv		709000			0.821	25	
Carbon Monoxide	<	90.0	ppmv		<90.0			NA	25	

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Submitted To:	Tom Lock	Project Number:	[none]
Client Site I.D.:	Bristol	Purchase Order:	

Volatile Organic Compounds by GC/TCD - Unadjusted, as received basis - Quality Control

Enthalpy Analytical

Analyte	Result	Reporting Limit	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BFH0570 - No Prep VOC GC Air										
Duplicate (BFH0570-DUPC)				**Source: 22H1024-02**	Prepared: 08/16/2022 Analyzed: 08/18/2022					
Methane	13700	4500	ppmv		13900			1.28	25	
Carbon dioxide	<	4500	ppmv		<4500			NA	25	
Oxygen (O2)	182000	4500	ppmv		183000			0.877	25	
Nitrogen (N2)	658000	18000	ppmv		664000			0.884	25	
Hydrogen (H2)	<	1800	ppmv		<1800			NA	25	
Carbon Monoxide	<	90.0	ppmv		<90.0			NA	25	
Duplicate (BFH0570-DUPD)				**Source: 22H1120-01**	Prepared: 08/16/2022 Analyzed: 08/22/2022					
Methane	302000	4500	ppmv		300000			0.620	25	
Carbon dioxide	417000	4500	ppmv		414000			0.745	25	
Oxygen (O2)	29300	4500	ppmv		29000			0.903	25	
Hydrogen (H2)	48200	1800	ppmv		47400			1.70	25	
Nitrogen (N2)	162000	18000	ppmv		161000			0.731	25	
Carbon Monoxide	277	90.0	ppmv		276			0.195	25	

Certified Analytes included in this Report

Analyte	Certifications	Analyte	Certifications

Code	Description	Laboratory ID	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2022
NCDEQ	North Carolina DEQ	495	12/31/2022
NYDOH	New York DOH Drinking Water	12096	04/01/2023
PADEP	NELAP-Pennsylvania Certificate #007	68-03503	10/31/2022
VELAP	NELAP-Virginia Certificate #11900	460021	06/14/2023
WVDEP	West Virginia DEP	350	11/30/2022

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Client Name:	SCS Field Services - Harrisburg, PA 4330 Lewis Road, Suite 1 Harrisburg, PA 17111	Date Received: Date Issued:	August 17, 2022 9:40 August 22, 2022 15:48
Submitted To:	Tom Lock	Project Number:	[none]
Client Site I.D.:	Bristol	Purchase Order:	

Qualifiers and Definitions

RPD	Relative Percent Difference
Qual	Qualifers
-RE	Denotes sample was re-analyzed
PF	Preparation Factor
MDL	Method Detection Limit
LOQ	Limit of Quantitation
ppbv	parts per billion by volume

TIC — Tentatively Identified Compounds are compounds that are identified by comparing the analyte mass spectral pattern with the NIST spectral library. A TIC spectral match is reported when the pattern is at least 75% consistent with the published pattern. Compound concentrations are estimated and are calculated using an internal standard response factor of 1.

All EPA method 3C results are reported as normalized values when the sum total of all evaluated constituents is outside ± 10% of the absolute.

PHONE #:		INVOICE PHONE #:	P.O. #:
FAX #:	EMAIL:		Pretreatment Program:
Is sample for compliance reporting? (YES) NO	Regulatory State: VA	Is sample from a chlorinated supply? YES (NO)	PW
SAMPLER NAME (PRINT): Ryan Seymour	SAMPLER SIGNATURE: Ryan Seymour		Turn Around Time: Circl

Matrix Codes: AA=Indoor/Ambient Air SG=Soil Gas LV=Landfill/Vent Gas OT=Other OT

063-22H-0006

	CLIENT SAMPLE I.D	Regulator Info: Flow Controller ID	Regulator Info: Cal Flow (mL/min)	Canister Information: Canister ID	Size (L)	Cleaning Batch ID	LAB Outgoing Canister Vacuum (in Hg)	LAB Receiving Canister Vacuum (in Hg)	Sampling Start Information: Barometric Pres. (in Hg): Start Date	Start Time (24hr clock)	Initial Canister Vacuum (in Hg)	Starting Sample Temp °F	Sampling Stop Information: Barometric Pres. (in Hg): Stop Date	Stop Time (24hr clock)
1)	✓			9203	1.4	220630-01	30							
2)	✓			11324	1.4	220801-03	30							
3)	31R	SS-43GX54	5520V54	12408	1.4	220801-03	30	6 (3.2)	8/15/22	7:40	30	154	8/15/22	7:41
4)	54	SS-45GX54	5520V54	12411	1.4	220801-021	30	7 (1.2)	8/15/22	7:57	30	144	8/15/22	7:58

20.7°C 310 NOI

RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
Ryan Seymour		FEDEX	
RELINQUISHED: FEDEX	DATE / TIME	RECEIVED: [signature]	DATE / TIME 8/17/22 0940
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME

QC Data Package
- Level I ☐
- Level II ☐
- Level III ☐
- Level IV ☐

LAB USE ONLY

FedEx

SCS Field Servic
Bristol

Recd: 08/17/2022

PHONE #:		INVOICE PHONE #:	P.O. #:
FAX #:	EMAIL:		Pretreatment Program:
Is sample for compliance reporting? (YES) NO	Regulatory State: VA	Is sample from a chlorinated supply? YES (NO)	PW
SAMPLER NAME (PRINT): Ryan Seymour	SAMPLER SIGNATURE: Ryan Seymour		Turn Around Time: Circl

Matrix Codes: AA=Indoor/Ambient Air SG=Soil Gas LV=Landfill/Vent Gas OT=Other OT

063-22H-0006

	CLIENT SAMPLE I.D	Regulator Info: Flow Controlier ID	Regulator Info: Cal Flow (mL/min)	Canister Information: Canister ID	Size (L)	Cleaning Batch ID	LAB Outgoing Canister Vacuum (in Hg)	LAB Receiving Canister Vacuum (in Hg)	Sampling Start Information: Barometric Pres. (in Hg): Start Date	Start Time (24hr clock)	Initial Canister Vacuum (in Hg)	Starting Sample Temp °F	Sampling Stop Information: Barometric Pres. (in Hg): Stop Date	Stop Time (24hr clock)
1)	✓			9203	1.4	220630-01	30							
2)	✓			11324	1.4	220801-03	30							
3)	31R	SS-43GX54	5520V54	12408	1.4	220801-03	30	6 (3.2)	8/15/22	7:40	30	154	8/15/22	7:41
4)	54	SS-48GX54	5520V54	12411	1.4	220801-021	30	2 (1.2)	8/15/22	7:57	30	144	8/15/22	7:58

20.7°C 310 no10

RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME
Ryan Seymour		FedEx	
FedEx		Jennifer Mills	8/17/22 0940

QC Data Package
- Level I ☐
- Level II ☐
- Level III ☐
- Level IV ☐

LAB USE ONLY

SCS Field Servic
Bristol
Recd: 08/17/2022