Commonwealth of Virginia

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

Fwd: Semi-Monthly Daily LFG Well Temperature Update

1 message

Bazyk, Crystal <crystal.bazyk@deq.virginia.gov> Tue, Nov 1, 2022 at 5:06 PM
To: Susan Blalock <susan.blalock@deq.virginia.gov>

---------- Forwarded message ---------
From: **King, Brandon** <BKing@scsengineers.com>
Date: Tue, Nov 1, 2022 at 4:54 PM
Subject: Semi-Monthly Daily LFG Well Temperature Update
To: crystal.bazyk@deq.virginia.gov <crystal.bazyk@deq.virginia.gov>, hall.kristen@epa.gov <hall.kristen@epa.gov>, jeff.hurst@deq.virginia.gov <jeff.hurst@deq.virginia.gov>, willard.erinm@epa.gov <willard.erinm@epa.gov>, stacy.bowers@deq.virginia.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: Dick, Bob <BDick@scsengineers.com>, Warren, Charles <CWarren@scsengineers.com>, Mahon, Ryan <RMahon@scsengineers.com>, Nachman, Lucas <LNachman@scsengineers.com>, Lock, Tom <TLock@scsengineers.com>

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 November 1, 2022 status update on the existing wells, expansion of the gas collection system, and continuing operating and monitoring results, covering the period from October 16-31, 2022.

Wells 37, 51, 56, 57, and 67 had intermittent periods greater than 145F during this reporting period according to the City's data and were above the 145F temperature compliance threshold by the end of the reporting period. However, wells 54 and 64 remained below 145F throughout this reporting period. SCS received lab reports from Enthalpy during this period for sampling events on 10/12/22 for wells GW-37 and GW-67, as well as the event on 10/19/22 for wells GW-37 and GW-57. The lab reports are attached for reference.

CO results from 10/12/22 samples:

EW-37 - 94.5 ppm

EW-67 - 580 ppm

CO results from 10/19/22 samples:

EW-57: 102 ppm

EW-37: 94.9 ppm

SCS is working with the City to procure materials for the south leachate cleanout LFG System modification project, which SCS anticipates to begin construction in November. The temperature monitoring system installation project has just

gotten underway with drilling of probe TP-1 initiated on 10/26/22. The City is continuing steadfast cover efforts in the Permit 498 Landfill. Below is a photo of progress through today.

Let me know if you have any questions.

Thank you,

D. Brandon King

SCS Engineers

Project Manager

15521 Midlothian Turnpike, Suite 305

Midlothian, VA 23113

Main 804-378-7440

Direct 804-486-1902

Cell 804-840-7846

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Crystal C. Bazyk
Enforcement and Air Compliance/Monitoring Manager
Virginia Department of Environmental Quality
355-A Deadmore Street
Abingdon, VA 24210
276-676-4829

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3 attachments

LF588 Well Temps_10-31-22.pdf
91K

22J0865_2 EA_TO15_Air_MDL-dev 10 21 2022 1415.pdf
879K

22J1080_2 EA_TO15_Air_MDL-dev 10 28 2022 1513.pdf
331K

Note	Well Depth	Date Drill	Phase	Month	October	October	October	October	October	October	October	October	October	October	October	October	October	October	October
				Day	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday	Sunday	Monday
				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**	95	78	82	77	80	75	70	70	72	74	68	74	70	70	66	68
2	70	9/6/2017	Old Well	**39**	105	92	92	88	90	90	95	100	100	105	101	109	107	102	100	105
3	100	9/7/2017	Old Well	**40**	110	111	112	111	110	108	118	120	122	119	120	119	119	124	125	122
4	110	10/4/2016	Old Well	**46**	130	130	130	130	132	133	103	130	132	133	135	135	135	140	140	142
5	120	10/4/2016	Old Well	**47**	130	128	131	132	134	134	120	120	125	127	124	125	120	128	125	123
6	120	9/17/2013	Old Well	**29**	115	110	110	112	111	110	82	90	89	92	99	95	95	95	100	104
7	100	8/23/2017	Old Well	**30R**	135	132	134	138	133	130	130	130	132	132	131	131	131	132	133	135
8	120	8/30/2017	Old Well	**31R**	125	116	110	112	114	110	90	85	88	88	90	89	88	88	90	125
9	70	7/29/2016	Old Well	**32**	80	72	72	68	73	72	70	72	76	76	75	74	75	77	86	75
10	100	7/28/2016	Old Well	**33**	120	108	111	114	109	111	105	117	115	117	118	118	120	117	120	119
11	100	7/30/2016	Old Well	**34**	125	119	120	118	120	120	105	110	112	112	110	111	110	114	110	112
12	100	8/1/2016	Old Well	**36**	80	76	72	76	78	80	60	50	55	60	65	66	60	60	66	70
13	100	8/24/2017	Old Well	**37**	140	140	138	139	135	138	140	145	140	140	142	140	140	140	145	146
14	50	8/25/2017	Old Well	**38**	116	111	106	112	105	108	100	90	95	95	90	93	96	92	99	100
15	75	9/8/2017	Old Well	**41**	120	130	132	130	138	136	140	140	140	142	145	140	140	141	140	140
16	57	9/8/2017	Old Well	**42**	105	108	105	115	115	117	110	110	111	111	113	114	114	112	115	115
17	110	10/7/2016	Old Well	**48**	90	78	72	88	90	85	50	70	75	78	80	79	78	80	90	81
1	120	10/1/2021	New Well	**32R**	Too Tall	Too Tall	Too Tall	Too Tall	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**	145	145	145	140	145	142	103	128	135	135	132	135	138	137	130	130
3	96	10/1/2021	New Well	**50**	135	129	132	130	132	130	122	122	129	130	130	130	130	128	130	128
4	114	10/1/2021	New Well	**51**	140	135	132	132	134	130	145	145	142	140	145	143	144	145	142	146
5	109	10/1/2021	New Well	**52**	105	98	99	101	98	99	50	75	78	80	80	82	82	79	81	82
6	91	10/1/2021	New Well	**53**	130	120	119	115	122	125	115	130	131	130	132	130	133	130	130	135
7	91	10/1/2021	New Well	**54**	140	138	140	135	138	136	130	130	135	135	135	137	134	135	132	135
8	104	10/1/2021	New Well	**55**	105	98	96	100	102	102	95	100	105	109	110	111	111	108	110	110
9	109	10/1/2021	New Well	**56**	125	131	133	130	135	133	135	140	141	145	145	145	142	140	145	146
10	103	10/1/2021	New Well	**57**	145	130	130	132	134	134	140	150	145	142	145	146	145	145	145	148
11	92	10/1/2021	New Well	**58**	75	66	68	73	74	70	70	70	78	76	78	78	76	78	78	114
12	72	10/1/2021	New Well	**59**	119	119	118	112	115	110	110	112	114	115	115	115	113	110	106	116
13	120	10/1/2021	New Well	**60**	128	120	120	122	120	122	120	120	122	125	125	125	125	125	122	129
14	105	10/1/2021	New Well	**61**	105	98	100	105	108	102	90	95	95	100	100	100	100	97	100	98
15	120	10/1/2021	New Well	**62**	110	102	106	108	110	105	120	120	125	126	125	125	124	125	125	125
16	117	10/1/2021	New Well	**63**	128	120	124	124	125	122	110	120	122	123	122	122	124	125	130	128
17	120	10/1/2021	New Well	**64**	122	124	124	128	130	130	132	135	136	135	135	135	132	135	130	140
18	100	10/1/2021	New Well	**65**	130	115	112	112	105	100	80	70	75	73	76	76	75	76	77	119
19	102	10/1/2021	New Well	**66**	118	121	122	120	124	122	130	125	116	118	118	118	118	120	122	124
20	100	10/1/2021	New Well	**67**	145	148	150	150	148	146	140	140	145	145	145	145	145	140	140	145
21	75	10/1/2021	New Well	**68**	130	129	122	122	124	124	120	122	124	125	125	127	125	127	128	128

1941 Reymet Road ● Richmond, Virginia 23237 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J0865

Client Name:	SCS Field Services - Harrisburg, PA	Date Received:	October 18, 2022 10:28
	4330 Lewis Road, Suite 1	Date Issued:	October 21, 2022 14:15
	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 10/18/2022 10:28. 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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	Harrisburg, PA 17111	Project Number:	[none]
Submitted To:	Tom Lock	Purchase Order:	
Client Site I.D.:	Bristol		

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
37	22J0865-01	Air	10/12/2022 14:23	10/18/2022 10:28
67	22J0865-02	Air	10/12/2022 14:00	10/18/2022 10:28

ENTHALPY ANALYTICAL

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

ANALYTICAL RESULTS

Project Location:

Field Sample #: 37

Sample ID: 22J0865-01

Sample Matrix: Air

Sampled: 10/12/2022 14:23

Sample Type: LG

Sample Description/Location:

Sub Description/Location:

Canister ID: 063-00087::00335

Canister Size: 1.4

Initial Vacuum(in Hg): 30

Final Vacuum(in Hg): 9.2

Receipt Vacuum(in Hg): 9.2

Flow Controller Type: Passive

Flow Controller ID:

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	94.5	90.0	90.0		9	1	10/20/22 11:46	DFH

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Client Name:	SCS Field Services - Harrisburg, PA 4330 Lewis Road, Suite 1 Harrisburg, PA 17111	Date Received: Date Issued:	October 18, 2022 10:28 October 21, 2022 14:15
Submitted To:	Tom Lock	Project Number:	[none]
Client Site I.D.:	Bristol	Purchase Order:	

ANALYTICAL RESULTS

Project Location:

Field Sample #: 67

Sample ID: 22J0865-02

Sample Matrix: Air

Sampled: 10/12/2022 14:00

Sample Type: LG

Sample Description/Location:

Sub Description/Location:

Canister ID: 063-00204::9205

Canister Size: 1.4

Initial Vacuum(in Hg): 30

Final Vacuum(in Hg): 4.2

Receipt Vacuum(in Hg): 4.2

Flow Controller Type: Passive

Flow Controller ID:

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	580	90.0	90.0		9	1	10/20/22 13:06	DFH

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Client Name:	SCS Field Services - Harrisburg, PA 4330 Lewis Road, Suite 1 Harrisburg, PA 17111	Date Received: Date Issued:	October 18, 2022 10:28 October 21, 2022 14:15
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**	
22J0865-01	1.00 mL / 1.00 mL	ALT-145	BFJ0773	SFJ0750	AG00026
22J0865-02	1.00 mL / 1.00 mL	ALT-145	BFJ0773	SFJ0750	AG00026

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Laboratory Order ID 22J0865

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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 BFJ0773 - No Prep VOC GC Air										
Blank (BFJ0773-BLK1)					Prepared & Analyzed: 10/20/2022					
Carbon Monoxide	<	10.0	ppmv							
LCS (BFJ0773-BS1)					Prepared & Analyzed: 10/20/2022					
Methane	4480	500	ppmv	5000		89.6	0-200			
Carbon dioxide	4420	500	ppmv	5000		88.4	0-200			
Oxygen (O2)	5100	500	ppmv	5000		102	0-200			
Nitrogen (N2)	5530	2000	ppmv	5000		111	0-200			
Hydrogen (H2)	5710	200	ppmv	5100		112	0-200			
Carbon Monoxide	4800	10	ppmv	5000		95.9	0-200			
Duplicate (BFJ0773-DUP1)			**Source: 22J0865-01**		Prepared & Analyzed: 10/20/2022					
Methane	147000	4500	ppmv		146000			0.992	25	
Carbon dioxide	223000	4500	ppmv		219000			1.53	25	
Oxygen (O2)	71900	4500	ppmv		71200			0.989	25	
Hydrogen (H2)	11700	1800	ppmv		11600			0.305	25	
Nitrogen (N2)	421000	18000	ppmv		416000			1.18	25	
Carbon Monoxide	<	90.0	ppmv		94.5			NA	25	
Duplicate (BFJ0773-DUP3)			**Source: 22J0731-01**		Prepared & Analyzed: 10/20/2022					
Methane	311000	4500	ppmv		312000			0.268	25	
Carbon dioxide	282000	4500	ppmv		282000			0.0129	25	
Oxygen (O2)	10200	4500	ppmv		10300			0.915	25	
Hydrogen (H2)	<	1800	ppmv		<1800			NA	25	
Nitrogen (N2)	326000	18000	ppmv		328000			0.436	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:	

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 #12098	460021	06/14/2023
WVDEP	West Virginia DEP	350	11/30/2022

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.

ENTHALPY ANALYTICAL
formerly Air, Water & Soil Laboratories

AIR ANALYSIS
CHAIN OF CUSTODY

Equipment due 10/31

COMPANY NAME: SCS Field Services - Harrisburg	INVOICE TO: **Same**	PROJECT NAME/Quote #: **Bristol**
CONTACT:	INVOICE CONTACT:	SITE NAME: Bristol
ADDRESS:	INVOICE ADDRESS:	PROJECT NUMBER:
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)
SAMPLER NAME (PRINT): Ryan Seymour	SAMPLER SIGNATURE: Ryan Seymour	**Turn Around Time:** Circle: 10 (5 Days) or __ Day

PWS I.D. #:

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

063-22I-0016

	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)	Final Canister Vacuum (in Hg)	Ending Sample Temp °F	Matrix (See Codes)	ANALYSIS: Alt 145 CO		
1)	37	LAB	LAB	335	1.4	220412-07	20	9.2	10/12/22	14:20	18	151	~~10/12~~	14:28	3		LG	x		
2)	67	LAB	LAB	9205	1.4	220901-01	20	4.2	10/12/22	13:58	0	154	10/12/22	14:00	0	159	LG	x		
3)	57	—	—	10224	1.4	220919-02	20	this well is black foam	183 degrees. coming out I		spewing steam and didn't want to						LG	x		
4)	67			11317	1.4	220728-01	20	Suck up	10/12/22	in my gem. 14:50	0						LG	x		

no seal no ice 20.2 310

RELINQUISHED:		RECEIVED: fedexground DATE / TIME	QC Data Package	LAB USE ONLY
RELINQUISHED: fedexground DATE / TIME		RECEIVED: 40 10/18/22 10:28 DATE / TIME	Level I ☐	
RELINQUISHED: DATE / TIME		RECEIVED: DATE / TIME	Level II ☐	
			Level III ☐	
			Level IV ☐	

SCS Field Services **22J0865**
Bristol
Recd: 10/18/2022 Due: 10/25/2022
v130325002

The sample train guage didn't work.

ENTHALPY ANALYTICAL
formerly Air, Water & Soil Laboratories

AIR ANALYSIS
CHAIN OF CUSTODY

Equipment due 10/31

COMPANY NAME: SCS Field Services - Harrisburg	INVOICE TO: **Same**	PROJECT NAME/Quote #: **Bristol**
CONTACT:	INVOICE CONTACT:	SITE NAME:
ADDRESS:	INVOICE ADDRESS:	PROJECT NUMBER:
PHONE #:	INVOICE PHONE #:	P.O. #:
FAX #: EMAIL:		Pretreatment Program:
Is sample for compliance reporting? YES NO	**Regulatory State:** Is sample from a chlorinated supply? YES NO	PWS I.D. #:
SAMPLER NAME (PRINT):	SAMPLER SIGNATURE:	**Turn Around Time:** Circle: **10** **5 Days** **or** __ Day

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

063-22I-0016

	CLIENT SAMPLE I.D.	Regulator Info: Flow Controller ID	Regulator Info: Cal Flow (mL/min)	Canister Information: Canister ID	Canister Information: Size (L)	Canister Information: Cleaning Batch ID	Canister Information: LAB Outgoing Canister Vacuum (in Hg)	Canister Information: 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)	Final Canister Vacuum (in Hg)	Ending Sample Temp °F	Matrix (See Codes)	ANALYSIS: Alt 145 CO		
1)				12408	1.4	220919-02	20										LG	x		
2)				12411	1.4	220919-02	20										LG	x		
3)																				
4)																				

no Seal no ice 20.2 3/0

RELINQUISHED:		RECEIVED: fedex DATE / TIME	QC Data Package: Level I ☐
RELINQUISHED: fedex DATE / TIME		RECEIVED: 10/18/22 1028 DATE / TIME	Level II ☐
RELINQUISHED: DATE / TIME		RECEIVED: DATE / TIME	Level III ☐ Level IV ☐

LAB USE ONLY

SCS Field Services **22J0865**
Bristol
Recd: 10/18/2022 **Due: 10/25/2022**

v130325002

ENTHALPY ANALYTICAL

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Certificate of Analysis

Final Report

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

Sample Conditions Checklist

Samples Received at:	**20.20°C**
How were samples received?	FedEx Ground
Were Custody Seals used? If so, were they received intact?	No
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Work Order Comments

1941 Reymet Road ● Richmond, Virginia 23237 ● Tel: (804)-358-8295 Fax: (804)-358-8297

Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

Client Name:	SCS Field Services - Harrisburg, PA	Date Received:	October 21, 2022 10:25
	4330 Lewis Road, Suite 1	Date Issued:	October 28, 2022 15:13
	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 10/21/2022 10:25. 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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Certificate of Analysis

Final Report

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Client Name:	SCS Field Services - Harrisburg, PA	Date Received:	October 21, 2022 10:25
	4330 Lewis Road, Suite 1	Date Issued:	October 28, 2022 15:13
	Harrisburg, PA 17111	Project Number:	[none]
Submitted To:	Tom Lock	Purchase Order:	

Client Site I.D.: Bristol

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
57	22J1080-01	Air	10/19/2022 11:15	10/21/2022 10:25
37	22J1080-02	Air	10/19/2022 11:00	10/21/2022 10:25

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Certificate of Analysis

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Laboratory Order ID 22J1080

Client Name:	SCS Field Services - Harrisburg, PA 4330 Lewis Road, Suite 1 Harrisburg, PA 17111	Date Received: Date Issued:	October 21, 2022 10:25 October 28, 2022 15:13
Submitted To:	Tom Lock	Project Number:	[none]
Client Site I.D.:	Bristol	Purchase Order:	

ANALYTICAL RESULTS

Project Location:

Field Sample #: 57

Sample ID: 22J1080-01

Sample Matrix: Air

Sampled: 10/19/2022 11:15

Sample Type: LG

Sample Description/Location:

Sub Description/Location:

Canister ID: 063-00373: 13954

Canister Size: 1.4

Initial Vacuum(in Hg): 30

Final Vacuum(in Hg): 6.6

Receipt Vacuum(in Hg): 6.6

Flow Controller Type: passive

Flow Controller ID:

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	102	90.0	90.0		9	1	10/24/22 9:24	DFH

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Client Name:	SCS Field Services - Harrisburg, PA 4330 Lewis Road, Suite 1 Harrisburg, PA 17111	Date Received: Date Issued:	October 21, 2022 10:25 October 28, 2022 15:13
Submitted To:	Tom Lock	Project Number:	[none]
Client Site I.D.:	Bristol	Purchase Order:	

ANALYTICAL RESULTS

Project Location:

Field Sample #: 37

Sample ID: 22J1080-02

Sample Matrix: Air

Sampled: 10/19/2022 11:00

Sample Type: LG

Sample Description/Location:

Sub Description/Location:

Canister ID: 063-00372: 13957

Canister Size: 1.4

Initial Vacuum(in Hg): 30

Final Vacuum(in Hg): 7.8

Receipt Vacuum(in Hg): 7.8

Flow Controller Type: passive

Flow Controller ID:

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	94.9	90.0	90.0		9	1	10/24/22 10:17	DFH

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Client Name:	SCS Field Services - Harrisburg, PA 4330 Lewis Road, Suite 1 Harrisburg, PA 17111	Date Received: Date Issued:	October 21, 2022 10:25 October 28, 2022 15:13
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**	
22J1080-01	1.00 mL / 1.00 mL	ALT-145	BFJ0870	SFJ0832	AG00026
22J1080-02	1.00 mL / 1.00 mL	ALT-145	BFJ0870	SFJ0832	AG00026

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Client Name:	SCS Field Services - Harrisburg, PA 4330 Lewis Road, Suite 1 Harrisburg, PA 17111	Date Received: Date Issued:	October 21, 2022 10:25 October 28, 2022 15:13
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 BFJ0870 - No Prep VOC GC Air										
Blank (BFJ0870-BLK1)					Prepared & Analyzed: 10/24/2022					
Carbon Monoxide	<	10.0	ppmv							
LCS (BFJ0870-BS1)					Prepared & Analyzed: 10/24/2022					
Methane	4490	500	ppmv	5000		89.8	0-200			
Carbon dioxide	4110	500	ppmv	5000		82.3	0-200			
Oxygen (O2)	5520	500	ppmv	5000		110	0-200			
Nitrogen (N2)	6690	2000	ppmv	5000		134	0-200			
Hydrogen (H2)	5790	200	ppmv	5100		113	0-200			
Carbon Monoxide	4820	10	ppmv	5000		96.3	0-200			
Duplicate (BFJ0870-DUP1)				**Source: 22J1080-01**	Prepared & Analyzed: 10/24/2022					
Methane	412000	4500	ppmv		412000			0.0289	25	
Carbon dioxide	408000	4500	ppmv		407000			0.277	25	
Oxygen (O2)	20700	4500	ppmv		20700			0.0361	25	C
Nitrogen (N2)	81500	18000	ppmv		81100			0.426	25	
Hydrogen (H2)	22200	1800	ppmv		22300			0.0724	25	
Carbon Monoxide	105	90.0	ppmv		102			3.05	25	
Duplicate (BFJ0870-DUP2)				**Source: 22J1080-02**	Prepared & Analyzed: 10/24/2022					
Methane	149000	4500	ppmv		149000			0.0974	25	
Carbon dioxide	229000	4500	ppmv		229000			0.293	25	
Oxygen (O2)	73200	4500	ppmv		73100			0.120	25	C
Hydrogen (H2)	10200	1800	ppmv		10100			0.769	25	
Nitrogen (N2)	431000	18000	ppmv		430000			0.125	25	
Carbon Monoxide	97.0	90.0	ppmv		94.9			2.25	25	
Duplicate (BFJ0870-DUP3)				**Source: 22J1078-01**	Prepared & Analyzed: 10/24/2022					
Methane	324000	4500	ppmv		325000			0.413	25	
Carbon dioxide	268000	4500	ppmv		269000			0.419	25	
Oxygen (O2)	10900	4500	ppmv		11100			1.79	25	C
Nitrogen (N2)	322000	18000	ppmv		323000			0.549	25	
Hydrogen (H2)	<	1800	ppmv		<1800			NA	25	
Carbon Monoxide	<	90.0	ppmv		<90.0			NA	25	

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Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

Client Name: SCS Field Services - Harrisburg, PA
4330 Lewis Road, Suite 1

Harrisburg, PA 17111

Date Received: October 21, 2022 10:25
Date Issued: October 28, 2022 15:13

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

Project Number: [none]
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 BFJ0870 - No Prep VOC GC Air										
Duplicate (BFJ0870-DUP4)				**Source: 22J1089-01**	Prepared & Analyzed: 10/24/2022					
Methane	276000	4500	ppmv		275000			0.425	25	
Carbon dioxide	492000	4500	ppmv		491000			0.156	25	
Oxygen (O2)	<	4500	ppmv		<4500			NA	25	C
Hydrogen (H2)	124000	1800	ppmv		124000			0.0336	25	
Nitrogen (N2)	69000	18000	ppmv		68900			0.0724	25	
Carbon Monoxide	647	90.0	ppmv		636			1.71	25	
Duplicate (BFJ0870-DUP5)				**Source: 22J1089-02**	Prepared & Analyzed: 10/24/2022					
Methane	312000	4500	ppmv		309000			0.742	25	
Carbon dioxide	494000	4500	ppmv		489000			0.982	25	
Oxygen (O2)	19800	4500	ppmv		19700			0.433	25	C
Hydrogen (H2)	46300	1800	ppmv		46000			0.745	25	
Nitrogen (N2)	72200	18000	ppmv		72000			0.355	25	
Carbon Monoxide	371	90.0	ppmv		367			1.05	25	
Duplicate (BFJ0870-DUP6)				**Source: 22J1089-03**	Prepared & Analyzed: 10/24/2022					
Methane	64600	4500	ppmv		64800			0.259	25	
Carbon dioxide	631000	4500	ppmv		631000			0.0692	25	
Oxygen (O2)	13900	4500	ppmv		14100			1.73	25	C
Hydrogen (H2)	182000	1800	ppmv		182000			0.212	25	
Nitrogen (N2)	52400	18000	ppmv		53300			1.80	25	
Carbon Monoxide	1430	90.0	ppmv		1430			0.196	25	
Duplicate (BFJ0870-DUP7)				**Source: 22J1307-01**	Prepared: 10/24/2022 Analyzed: 10/27/2022					
Methane	265000	9000	ppmv		265000			0.114	25	
Carbon dioxide	463000	9000	ppmv		461000			0.335	25	
Oxygen (O2)	<	9000	ppmv		<9000			NA	25	
Hydrogen (H2)	107000	3600	ppmv		107000			0.0419	25	
Nitrogen (N2)	49500	36000	ppmv		50000			1.06	25	
Carbon Monoxide	559	180	ppmv		565			0.992	25	

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Final Report

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Client Name:	SCS Field Services - Harrisburg, PA 4330 Lewis Road, Suite 1 Harrisburg, PA 17111	Date Received: Date Issued:	October 21, 2022 10:25 October 28, 2022 15:13
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 BFJ0870 - No Prep VOC GC Air										
Duplicate (BFJ0870-DUP8)			**Source: 22J1307-02**		Prepared: 10/24/2022 Analyzed: 10/27/2022					
Methane	207000	9000	ppmv		204000			1.66	25	
Carbon dioxide	549000	9000	ppmv		542000			1.27	25	
Oxygen (O2)	<	9000	ppmv		<9000			NA	25	
Nitrogen (N2)	61200	36000	ppmv		60100			1.83	25	
Hydrogen (H2)	71400	3600	ppmv		70100			1.91	25	
Carbon Monoxide	338	180	ppmv		<180			NA	25	
Duplicate (BFJ0870-DUP9)			**Source: 22J1307-03**		Prepared: 10/24/2022 Analyzed: 10/27/2022					
Methane	179000	9000	ppmv		176000			1.42	25	
Carbon dioxide	332000	9000	ppmv		331000			0.378	25	
Oxygen (O2)	63600	9000	ppmv		63100			0.683	25	
Nitrogen (N2)	231000	36000	ppmv		229000			0.869	25	
Hydrogen (H2)	61200	3600	ppmv		60600			0.931	25	
Carbon Monoxide	523	180	ppmv		514			1.77	25	
Duplicate (BFJ0870-DUPA)			**Source: 22J1332-01**		Prepared: 10/24/2022 Analyzed: 10/28/2022					
Methane	311000	4500	ppmv		309000			0.793	25	
Carbon dioxide	308000	4500	ppmv		305000			0.760	25	
Oxygen (O2)	58900	4500	ppmv		58900			0.000610	25	
Hydrogen (H2)	23100	1800	ppmv		23300			1.16	25	
Nitrogen (N2)	216000	18000	ppmv		216000			0.132	25	
Carbon Monoxide	129	90.0	ppmv		120			6.80	25	

Certified Analytes included in this Report

Analyte	Certifications	Analyte	Certifications

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Client Site I.D.:	Bristol	Purchase Order:	

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 #12098	460021	06/14/2023
WVDEP	West Virginia DEP	350	11/30/2022

Qualifiers and Definitions

C	Continuing calibration verification response for this analyte is outside specifications.
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.

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formerly Air, Water & Soil Laboratories

RA.

AIR ANALYSIS CHAIN OF CUSTODY

Equipment due ~~10/30/22~~ 10/30/22

COMPANY NAME: SCS Field Services - Harrisburg	INVOICE TO: **Same**	PROJECT NAME/Quote #: Bristol
CONTACT: **Mike Byk**	INVOICE CONTACT:	SITE NAME: Bristol
ADDRESS:	INVOICE ADDRESS:	PROJECT NUMBER:
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)
SAMPLER NAME (PRINT): Ryan Seymour	SAMPLER SIGNATURE: Ryan Seymour	PWS I.D. #:
		Turn Around Time: Circle: 10 (5 Days) or __ Day

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

063-22I-0009

	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)	Final Canister Vacuum (in Hg)	Ending Sample Temp °F	Matrix (See Codes)	ANALYSIS: Alt 145 CO		
1)	57	N BOX		13954	1.4	220902-01	30	~~-29~~ (6.6)	10/19/22	11:14 AM	-29	152°	10/19/22	11:15 AM	-2	152°	LG	x		
2)	37	N BOX		13957	1.4	220902-01	30	~~-29~~ (4.8)	10/19/22	10:59 AM	-29	149°	10/19/22	11:00 AM	-2	149°	LG	x		
3)				13964	1.4	220902-01	30										LG	x		
4)				13967	1.4	220902-01	30										LG	x		

318 203 no ice noseal

RELINQUISHED:	DATE / TIME	RECEIVED: fedex ground	DATE / TIME
RELINQUISHED: fedex ground	DATE / TIME	RECEIVED: 10	DATE / TIME 10/21/22 10:25
RELINQUISHED:	DATE / TIME	RECEIVED:	DATE / TIME

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

LAB USE ONLY

22J1080

SCS Field Services 22J1080
Bristol
Recd: 10/21/2022 Due: 10/28/2022
v130325002

Page 10 of 12

Bristol CO in air (2)

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

Matrix Codes: AA=Indoor/Ambient Air SG=Soil Gas LV=Landfill/Vent Gas OT=Other_____ **063-22I-000**

	CLIENT SAMPLE I.D.	Regulator Info		Canister Information					Sampling Start Information				Sampling Stop Inform	
									Barometric Pres. (in Hg):				Barometric Pres. (in H	
		Flow Controller ID	Cal Flow (mL/min)	Canister ID	Size (L)	Cleaning Batch ID	LAB Outgoing Canister Vacuum (in Hg)	LAB Receiving Canister Vacuum (in Hg)	Start Date	Start Time (24hr clock)	Initial Canister Vacuum (in Hg)	Starting Sample Temp °F	Stop Date	Stop Time (24hr clock)
1)				13969	1.4	220902-01	30							
2)				13971	1.4	220902-01	30							
3)							30							
4)							30							

310 20.3 no

RELINQUISHED:		RECEIVED: DATE / TIME	QC Data Package	LAB USE ONLY
		fedex ground	Level I ☐	
LINQUISHED: fedex ground	DATE / TIME	RECEIVED: 10 10/21/22 1025 DATE / TIME	Level II ☐	SCS Field Servi
LINQUISHED:	DATE / TIME	RECEIVED: DATE / TIME	Level III ☐	Bristol
			Level IV ☐	Recd: 10/21/2022

22J1080

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Certificate of Analysis

Final Report

Laboratory Order ID 22J1080

Client Name:	SCS Field Services - Harrisburg, PA 4330 Lewis Road, Suite 1 Harrisburg, PA 17111	Date Received: Date Issued:	October 21, 2022 10:25 October 28, 2022 15:13
Submitted To:	Tom Lock	Project Number:	[none]
Client Site I.D.:	Bristol	Purchase Order:	

Sample Conditions Checklist

Samples Received at:	**20.30°C**
How were samples received?	FedEx Ground
Were Custody Seals used? If so, were they received intact?	No
Are the custody papers filled out completely and correctly?	Yes
Do all bottle labels agree with custody papers?	Yes
Is the temperature blank or representative sample within acceptable limits or received on ice, and recently taken?	Yes
Are all samples within holding time for requested laboratory tests?	Yes
Is a sufficient amount of sample provided to perform the tests included?	Yes
Are all samples in appropriate containers for the analyses requested?	Yes
Were volatile organic containers received?	No
Are all volatile organic and TOX containers free of headspace?	NA
Is a trip blank provided for each VOC sample set? VOC sample sets include EPA8011, EPA504, EPA8260, EPA624, EPA8015 GRO, EPA8021, EPA524, and RSK-175.	NA
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis.	Yes

Work Order Comments