

November 2023 Monthly Compliance Report

Solid Waste Permit No. 588
Bristol Integrated Solid Waste Management Facility
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INTRODUCTION

On behalf of the City of Bristol, Virginia (City), SCS Engineers has prepared this report to the Virginia Department of Environmental Quality (VDEQ) in accordance with item 8.iii in Appendix A of the Consent Decree between the City and VDEQ. This report provides updates regarding the progress towards completion of the items outlined in Appendix A of the Consent Decree between the City and VDEQ. The following sections outline progress during the month of November 2023 related to Solid Waste Permit (SWP) No. 588.

1.0 GAS COLLECTION

The following sections describe the steps the City, in collaboration with its consultants and contractors, has taken to improve the operation, monitoring, and performance of the facility's landfill gas collection and control system (GCCS).

1.1 SURFACE AND LEACHATE COLLECTION EMISSIONS

1.1.1 Surface Emissions

1.1.1.1 Quarterly SEM

SCS performed the Third Quarter surface emissions monitoring event on August 23, 2023. The results of the Quarterly SEM were summarized in the August 2023 Compliance Report for the SWP No. 588 Landfill.

The Fourth Quarter SEM Event is scheduled to be completed during the month of December 2023.

1.1.1.2 Weekly SEM

In addition to the standard regulatory quarterly surface emissions monitoring, SCS performed additional surface emissions monitoring on November 8, 2023; November 15, 2023; and November 20, 2023. These weekly surface emissions monitoring (SEM) Events were performed in accordance item 1.i in Appendix A of the Consent Decree between the City and VDEQ.

The monitoring in November generally conforms to the requirements of 40 CFR 63.1960(c) and (d), and 40 CFR 60.36f(c) and (d), and 40 CFR 60, Appendix A, Method 21. The landfill gas (LFG) collection system is required to operate such that the methane concentration is less than 500 ppm above background at the landfill surface.

The surface emission monitoring route included the entire waste footprint of the Permit No. 588 landfill. Sampling was conducted with a Thermo Scientific TVA-2020 Flame Ionization Detector (FID) at 30-meter intervals and where visual observations indicated the potential for elevated concentrations of LFG, such as distressed vegetation and surface cover cracks. In addition, in accordance with 40 CFR 63.1958(d)(ii)(2) and 40 CFR 60.34f(d), monitoring was conducted at all surface cover penetrations within the waste footprint.

SCS submitted letters to VDEQ outlining the results of the November monitoring events on November 15, 2023; November 22, 2023; and November 29, 2023. Copies of those submittals are included in Appendix A. Table 1 summarizes the results of the three monitoring events in November.

Table 1. Summary of November Surface Emissions Monitoring

Description	November 8, 2023	November 15, 2023	November 20, 2023
Number of Points Sampled	177	177	175
Number of Points in Serpentine Route	100	100	100
Number of Points at Surface Cover Penetrations	77	77	75
Number of Exceedances	2	3	2
Number of Serpentine Exceedances	0	0	0
Number of Pipe Penetration Exceedances	2	3	2

There were no serpentine exceedances detected in November 2023. However, new exceedances were detected at pipe penetrations of four vertical extraction wells (EW-39, EW-76, EW-87, and EW-88). Exceedances at these locations can be attributed to a variety of factors. Many of these wells are equipped with a dewatering pump, that when operating effectively, will lower the water in the well and allow greater gas collection from the area. It seems that many of these exceedances correspond to periods of pump down time. In addition, insufficient cover soil was identified at a few of the exceedance locations. Furthermore, reduced available and applied vacuum were identified at some of these wells.

By the final weekly monitoring event of the month, many of these issues had been resolved with only 2 ongoing exceedances remaining (EW-39 and EW-76). Corrective actions taken at these locations include placement of additional soil, addition of a well-bore skirt, installation of a foam or bentonite seal, continued and improved dewatering activities, and well tuning to increase gas extraction. Corrective actions to address the 2 ongoing exceedances are planned for the month of December 2023.

A Notification of Alternate Remedy for SEM Corrective Action was submitted to VDEQ on November 9, 2023. This report documents the alternate corrective actions at exceedances previously identified at the pipe penetration of vertical extraction wells EW-52, EW-55, and EW-58, as well as at serpentine exceedance Tag 69. Corrective actions included GCCS expansion and additional widespread cover integrity improvements. VDEQ acknowledged approval of these corrective actions on November 15, 2023.

1.1.2 Leachate Collection Emissions

SCS Field Services (SCS-FS) visited the Bristol Landfill on November 2 and 3, 2023, and performed monitoring of the leachate, witness zone, and gradient control clean-outs at the northern and southern ends of the landfill. The results of that monitoring are included in Table 2. Table 2 also lists the cleanout pipe description based on site records and a review of correspondence.

LC07 was not sampled.

Table 2. Leachate Cleanout Pipe Monitoring Results

Description	ID#	Record Date	CH4 (% by Vol)	CO2 (% by Vol)	O2 (% by Vol)	Balance Gas (% by Vol)	Initial Temp (°F)	Adj Temp (°F)	Initial Static Pressure (in H2O)	Adj Static Pressure (in H2O)	System Pressure (in H2O)
Southern Cleanouts Gradient West	LC01	11/2/2023 4:29:46 PM	0.9	1.6	20.1	77.4	60.0	60.0	-7.74	-7.75	-7.74
Southern Cleanouts Gradient East	LC02	11/2/2023 4:32:20 PM	1.2	1.4	20.1	77.3	59.3	59.2	-8.40	-8.41	-8.40
Southern Cleanouts Leachate Center	LC03	11/2/2023 4:35:04 PM	34.7	27.4	8.0	30.0	58.4	58.5	-8.37	-8.37	-8.37
Southern Cleanouts Witness East	LC04	11/2/2023 4:37:20 PM	7.5	8.4	17.4	66.6	58.3	58.4	-9.42	-9.42	-9.42
Southern Cleanouts Leachate West	LC05	11/2/2023 4:39:38 PM	49.0	51.0	0.0	0.0	58.5	58.4	-8.58	-8.41	-8.41
Southern Cleanouts Gradient Center West	LC06	11/2/2023 4:41:45 PM	24.8	19.1	10.9	45.2	58.2	58.2	-9.86	-9.83	-9.83
Southern Cleanouts Leachate East	LC08	11/2/2023 4:43:40 PM	48.9	50.2	0.0	0.9	58.2	58.2	-8.54	-8.41	-8.41
Southern Cleanouts Gradient Center East	LC09	11/2/2023 4:46:05 PM	35.1	25.1	7.3	32.5	58.5	58.4	-9.09	-9.09	-9.09
Southern Cleanouts Leachate West	LC10	11/2/2023 4:48:18 PM	18.7	12.6	14.1	54.6	58.2	58.2	-9.19	-9.09	-9.09
Northern Cleanouts Leachate East	NC01	11/3/2023 9:19:55 AM	2.4	2.3	19.2	76.1	71.1	71.1	-0.04	-0.04	-0.04
Northern Cleanouts Leachate Center	NC02	11/3/2023 9:20:30 AM	2.5	2.2	19.2	76.2	72.4	72.2	-0.05	-0.05	-0.05
Northern Cleanouts Leachate West	NC03	11/3/2023 9:21:36 AM	3.5	3.2	18.8	74.5	72.1	72.0	-0.07	-0.06	-0.06
Northern Cleanouts Witness East	NC04	11/3/2023 7:43:47 AM	13.2	12.0	15.9	59.0	85.3	85.4	-8.75	-8.92	-8.75
Northern Cleanouts Witness Center	NC05	11/3/2023 7:45:47 AM	47.0	39.0	2.7	11.4	86.0	86.1	-9.09	-9.26	-9.09
Northern Cleanouts Witness West	NC06	11/3/2023 7:46:26 AM	40.3	34.1	12.4	13.2	86.4	86.3	-9.65	-9.78	-9.65
Northern Cleanouts Gradient East	NC07	11/3/2023 7:47:23 AM	52.9	39.0	0.2	7.8	86.2	86.2	-8.05	-8.46	-8.05
Northern Cleanouts Gradient Center East	NC08	11/3/2023 7:48:02 AM	55.6	42.7	0.3	1.4	87.3	87.5	-8.12	-8.08	-8.08
Northern Cleanouts Gradient Center West	NC09	11/3/2023 7:48:47 AM	56.0	42.6	0.0	1.4	88.4	88.5	-8.08	-8.02	-8.02
Northern Cleanouts Gradient West	NC10	11/3/2023 7:50:06 AM	26.1	22.5	11.0	40.4	87.5	87.3	-8.25	-8.36	-8.25

1.2 EXISTING GAS EXTRACTION SYSTEM PERFORMANCE

SCS and SCS-FS have been coordinating with the City to improve the performance of the existing gas system.

During the month of November, some adjustments were made to the forcemain and manhole infrastructure located near the entrance of the quarry landfill. A 1” wellhead and 4” HDPE piping was installed at the manhole and vacuum applied in order to address potential fugitive emissions reaching the location. A photo of the manhole wellhead connection is depicted in Figure 7.

Figure 1. Manhole Wellhead Connection at the SWP No. 588 Landfill



The first 5 liquids removal pumps were installed in June of 2023, satisfying item 1.iv of Appendix A of the Consent Decree between the Department and the City. The City and SCS-CONS have received the delivery of additional pumps, and installed them in the LFG extractions wells that SCS deemed as the best fit for the Blackhawk pumps. These pumps serve to supplement the initial 5 pumps that were installed in June of 2023. Based on field observations, the expanded GCCS and its newly connected wells and pumps continue to increase gas and liquids extraction for the landfill. A photo of upgraded 4" HDPE piping connection to manhole is shown in Figure 8.

Figure 2. 4" HDPE connection to manhole at the SWP No. 588 Landfill



Additional actions taken to maintain and improve the system are detailed in the following sections of this report. Additional actions taken by SCS-FS include the following:

- Primary flare troubleshooting and ignition
- Troubleshooting air compressor
- Investigation of high oxygen levels
- Replacing a Kanaflex on sidewall odor mitigation system wellheads
- Modifications to lateral piping
- Placement of enhanced posi-shell on Quarry sidewalls

1.3 REMOTE MONITORING SYSTEM

In the Fall of 2022, SCS Remote Monitoring & Control (SCS-RMC) installed 25 industrial internet of things (IIoT) temperature sensors in the landfill gas wellheads. The purpose of the sensors is to record and transmit well-head gas temperatures via a cellular connection to a database managed by SCS-RMC.

The City is providing average temperatures recorded by the sensors to VDEQ on a daily basis via e-mail. Average daily temperatures recorded by the remote monitoring system during the month of November are included in Appendix C. In addition, SCS previously prepared semi-monthly status updates to satisfy the conditions of compliance provision #2 of 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 August 23, 2021. On August 2, 2023, VDEQ requested that such updates be included in the monthly compliance reports going forward. Accordingly, this section is a summary of temperature monitoring activities during the monthly monitoring period of November 2023.

1.3.1 Automated Wellhead Temperature Measurements

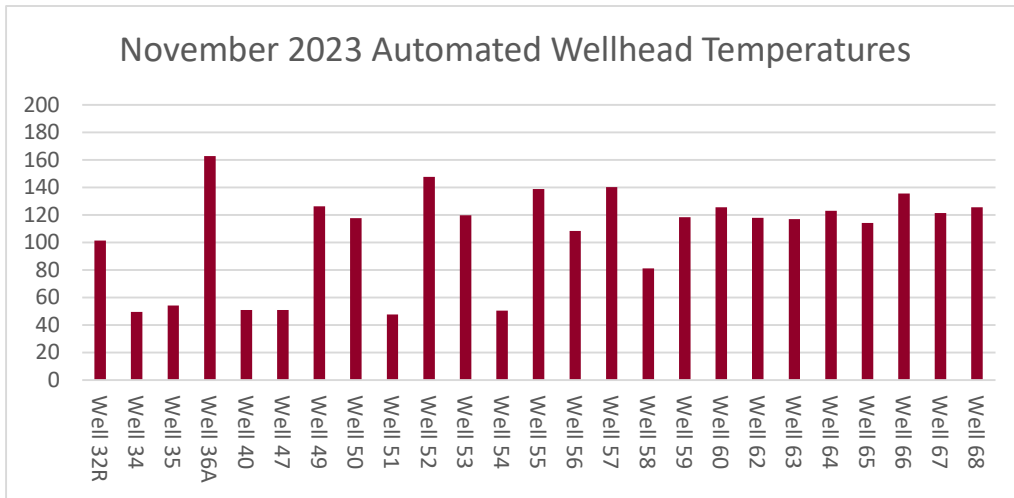
SCS reviewed the automated hourly temperature measurements from November 2023, and identified the following trends:

- **Temperatures over 145 °F:** Temperatures over the NESHAP AAAA compliance threshold of 145 °F were recorded consistently at EW-36A, EW-52, EW-55, EW-57, EW-60 and EW-65 in November. Although temperatures fluctuate throughout the wellfield, SCS is continuing to see high temperatures at certain wells during these monitoring periods. The highest average temperatures were measured at EW-36A (see Figure 3). SCS believes that the increase in temperatures at select well heads suggests that, with the increase of pneumatic pump operations and increased liquids removal, the collection system is being more effectively dewatered. Removal of liquids from the well allows gas from deeper within the waste mass to be extracted. In some cases, gas collected from lower elevations is hotter than gas from higher elevations and this temperature difference is reflected in the temperatures measured by the sensors. Liquids removal in combination with the addition of new LFG collection infrastructure from the recent GCCS expansion is likely providing more pathways for

extraction of the warmer landfill gas from deeper in the waste mass, thus the increased average temperatures.

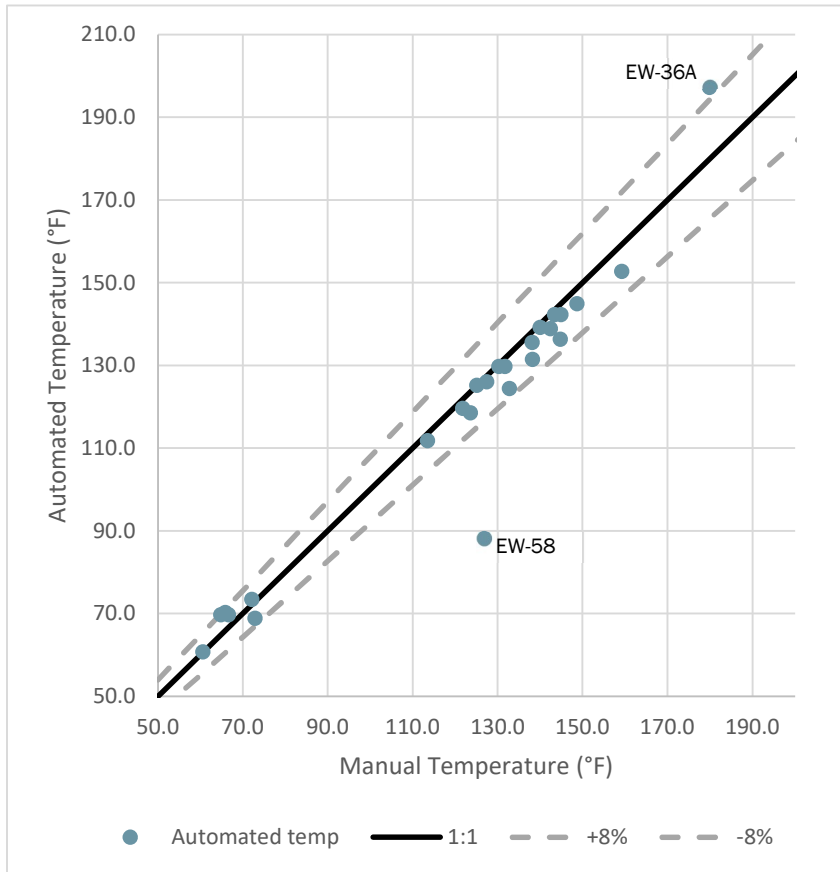
- **Low average temperatures at certain wells:** Occasionally the automated temperature probes display repeated temperature readings of 0 °F. This requires manual verification of the operation of the probe. Batteries were replaced at EW-51 and EW-65 during the month of November. Average temperatures for EW-34 and EW51 were under 50 °F and will continue to be investigated for their accuracy.

Figure 3. Average Automated Wellhead Temperatures



1.3.2 Comparison with Manual Temperature Measurements

Figure 4. Automated vs. Manual Temperature Measurements



Per the approval issued by VDEQ on August 2, 2023, the Facility ceased dedicated daily manual temperature measurements in the Permit No. 588 Landfill. In lieu of this comparison, the City has agreed to compare instantaneous hourly automated temperature measurements with temperatures measured at each wellhead with a handheld sensor during monthly compliance monitoring. These comparisons are shown in Figure 4, with the $\pm 8\%$ deviation goals as prescribed in the VDEQ approval.

Temperature comparisons outside the $\pm 8\%$ deviation goal lines were found for wells EW-36A and EW-58. At EW-36A, field technicians

experimented with different methods to overcome the thickness of the stainless-steel well casing and better measure the temperature in the gas stream. The 10% differential achieved by the most recent reading on 11/9/23 represents more accurate readings since October. SCS will continue investigating alternatives to measure temperature more accurately with a portable instrument. Field technicians are continuing to investigate temperature disparities at EW-58. Connections to the temperature probe were checked and the sensor was cleaned on 11/29/23. The temperature sensors for EW-34 and EW-40 were removed due to the extraction well being decommissioned. These sensors will be reinstalled at another extraction device and will be monitored going forward.

1.3.3 Monthly Regulatory Wellhead Temperature Measurements

Routine monthly temperature monitoring for purposes of complying with 40 CFR 60.36f(a)(5) was conducted November 6, 2023, with follow-up monitoring several days after. Additionally, SCS typically measures wellhead temperatures at the SWP No. 588 Landfill on a semi-monthly basis. During this monitoring period, temperature exceedances were resolved at EW-52, 55, 60, 64, 65, 91, and 92. A HOV request was submitted for EW-53, EW-61, EW-84, EW-86, EW-89, EW-90, and EW-100 to VDEQ on August 8, 2023. SCS received approval for this HOV request on September 28, 2023. See Table 3 for the statuses of all exceedances recorded during this monitoring period. An

HOV request was submitted for EW-52, EW-64, EW-81, EW-85, EW-88, EW-89, EW-91, and EW-99 on November 8, 2023. The approval of this HOV request remains pending as of 11/30/23.

Table 3. November Temperature Exceedance Summary

Well ID	Initial Exceedance Date	Last date/temperature measured	Duration of Exceedance	Status as of 11/30/23
EW-52	8/15/23	11/30/23 140.0°F	107 days	Resolved, within 120-day timeline
EW-53	8/28/23	11/20/23 119.4°F	n/a	Resolved, HOV approved 9/28/23
EW-55	10/23/23	11/2/23 133.5°F	10 days	Resolved, within 15-day timeline
EW-55	11/6/23	11/17/23 138.0°F	11 days	Resolved, within 15-day timeline
EW-60	11/6/23	11/17/23 128.8°F	11 days	Resolved, within 15-day timeline
EW-61	6/27/23	11/22/23 163.1°F	n/a	Resolved, HOV approved 9/28/23
EW-64	8/24/23	11/2/23 144.9°	70 days	Resolved, within 120-day timeline
EW-65	11/20/23	11/20/23 107.2°	1 day	Resolved, within 15-day timeline
EW-65	11/22/23	11/30/23 156.1°F	8 days	Ongoing, within 15-day timeline
EW-80	11/20/23	11/30/23 150.0°F	8 days	Ongoing, within 15-day timeline
EW-81	9/25/23	11/30/23 168.8°F	66 days	Ongoing, within 120-day timeline
EW-84	4/27/23	11/20/23 163.0°F	n/a	Resolved, HOV approved 9/28/23
EW-85	10/10/23	11/30/23 160.1°F	51 days	Ongoing, within 60-day timeline
EW-86	9/11/23	11/20/23 149.8°F	n/a	Resolved, HOV approved 9/28/23
EW-88	9/25/23	11/30/23 162.4°F	66 days	Ongoing, within 120-day timeline
EW-89	5/30/23	11/30/23 186.4°F	n/a	Resolved, HOV approved 9/28/23
EW-90	8/28/23	11/20/23 168.1°F	n/a	Resolved, HOV approved 9/28/23
EW-91	11/20/23	11/22/23 144.1°F	2 days	Resolved, within 15-day timeline
EW-92	10/23/23	11/2/23 137.7°	10 days	Resolved, within 15-day timeline
EW-92	11/9/23	11/20/23 143.4°	11 days	Resolved, within 15-day timeline
EW-100	4/27/23	11/20/23 161.1°	n/a	Resolved, HOV approved 9/28/23

1.3.4 LFG Sampling

SCS collected LFG samples from wells with temperature exceedances lasting more than 7 days using 1.5-L Summa canisters on October 12, 2023, October 19, 2023, October 26, 2023, November 2, 2023, and November 9, 2023 to fulfill the requirement in 40 CFR 63.1961(a)(5). The samples were sent to Enthalpy Analytical for lab analysis of carbon monoxide (CO) and hydrogen (H₂) content. Lab results are summarized in Table 4.

Table 4. LFG Wellhead Sampling Summary

Sample Date		10/12/23	10/19/23	10/26/23	11/02/23	11/09/23
36A	CO (ppmv)	726	767	673	630	672
	H2 (Vol. %)	15.3	16.4	13.4	12.9	14.3
52	CO (ppmv)	161	163	210	253	971
	H2 (Vol. %)	5.28	4.56	6.91	7.30	19.5
55	CO (ppmv)	--	--	210	--	477
	H2 (Vol. %)	--	--	7.32	--	9.36
60	CO (ppmv)	--	--	--	--	490
	H2 (Vol. %)	--	--	--	--	12.3
64	CO (ppmv)	ND	ND	ND	--	--
	H2 (Vol. %)	0.29	0.23	0.31	--	--
81	CO (ppmv)	214	214	202	212	418
	H2 (Vol. %)	4.44	4.01	3.89	3.53	10.8
85	CO (ppmv)	430	616	596	452	580
	H2 (Vol. %)	9.34	10.8	12.1	11.8	12.0
87	CO (ppmv)	491	549	--	--	--
	H2 (Vol. %)	14.6	17.8	--	--	--
88	CO (ppmv)	236	231	226	247	153
	H2 (Vol. %)	5.84	7.16	6.85	7.71	5.12
89	CO (ppmv)	1120	1100	1100	1150	1110
	H2 (Vol. %)	31.2	25.5	30.0	29.6	27.4
91	CO (ppmv)	392	417	--	--	--
	H2 (Vol. %)	8.48	9.40	--	--	--
92	CO (ppmv)	--	--	1340	--	1360
	H2 (Vol. %)	--	--	23.7	--	23.5
Blower Inlet	CO (ppmv)	--	--	--	ND	--
	H2 (Vol. %)	--	--	--	1.63	--

The presence of hydrogen in the samples collected during this monitoring period indicates that combustion reactions are unlikely. A composite sample was collected from the Parnel Blower Inlet on November 2, 2023. It was found to be non-detect for carbon monoxide and show 1.63% hydrogen at the time of collection.

The wells with corresponding charts in Figures 5, 6, 7, and 8 have been sampled for carbon monoxide and hydrogen for the last five weeks or more. Trends appear to be fairly consistent over time at for three wells. Well EW-52 experienced a spike in reported carbon monoxide and hydrogen concentrations in early September, which coincided with temperatures temporarily increasing to approximately 170°F, from approximately 145°F.

Figure 5. EW-52 Enhanced Monitoring Trends

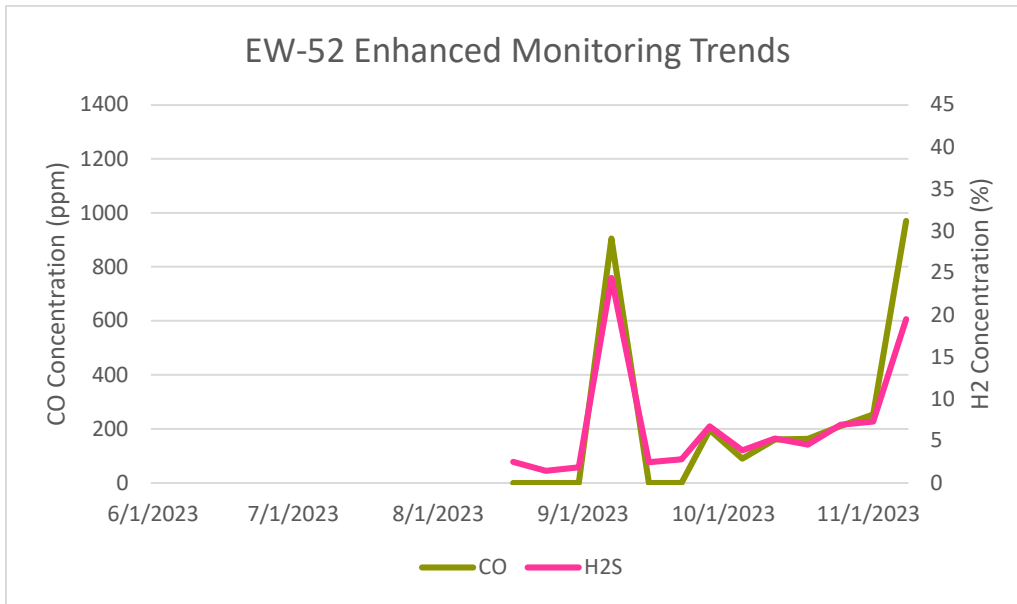


Figure 6. EW-81 Enhanced Monitoring Trends

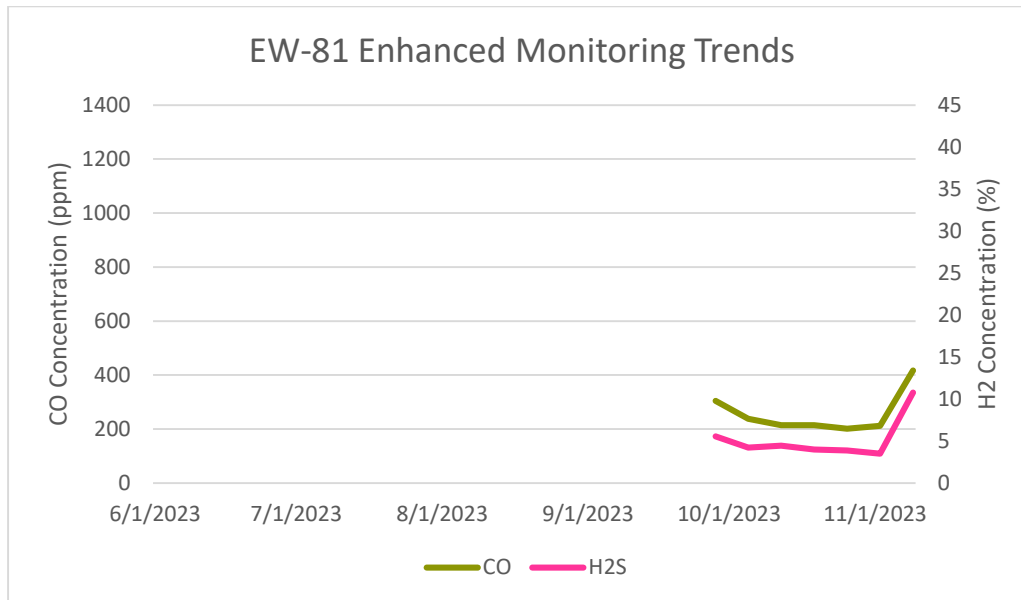


Figure 7. EW-88 Enhanced Monitoring Trends

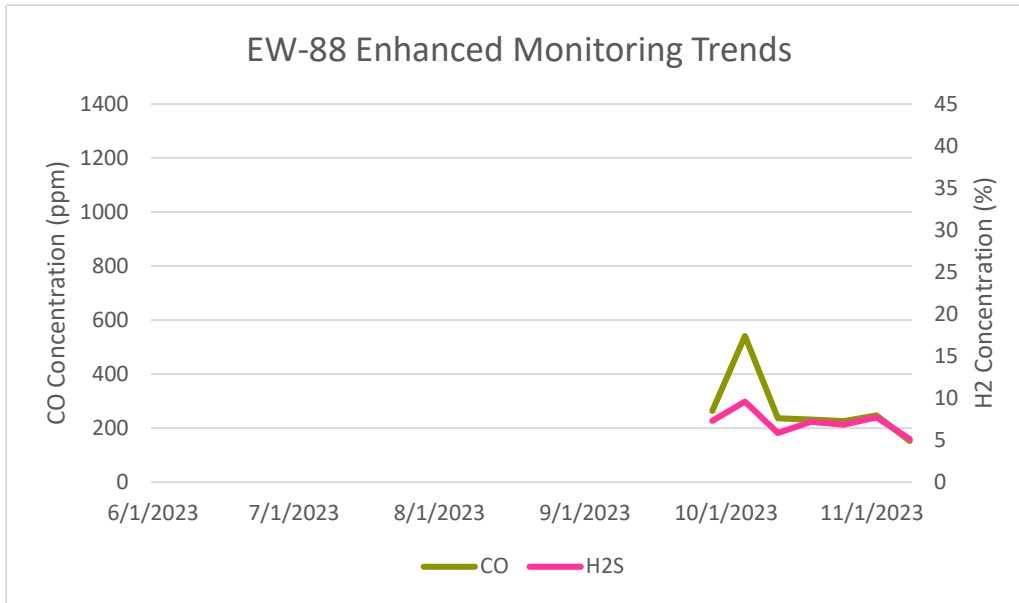
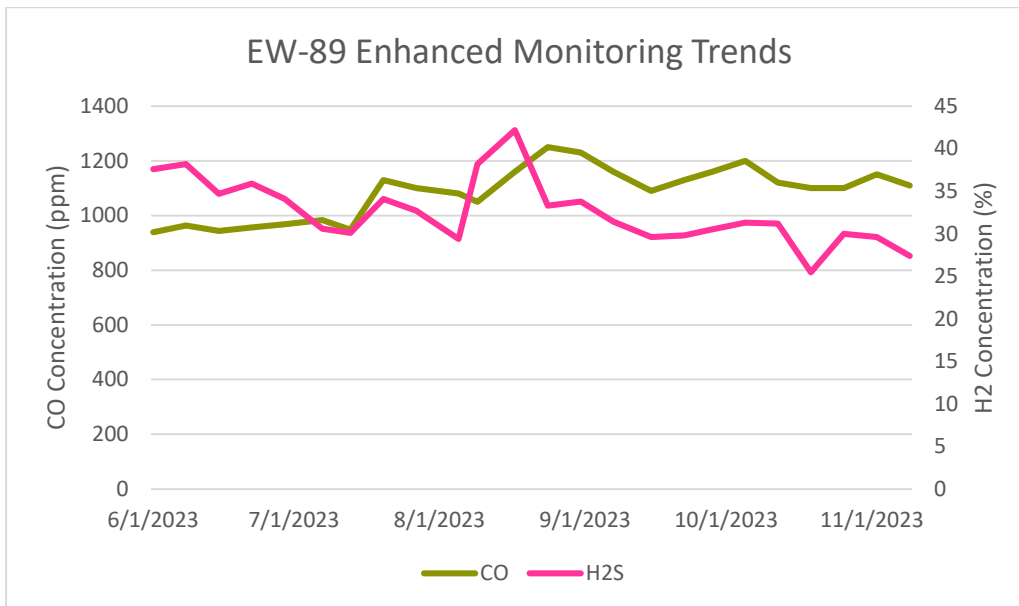


Figure 8. EW-89 Enhanced Monitoring Trends



1.4 LARGE-DIAMETER DUAL-PHASE EXTRACTION WELLS

SCS completed design work on an expansion of the existing GCCS during the month of December 2022. The proposed expansion includes at least 5 large diameter dual-phase extraction wells. SCS

submitted the design to VDEQ prior to December 31, 2022. The City commenced solicitation of contractor's bids for this project by advertising for bids and received one bid for the project from SCS Field Services Construction (SCS-CONS). On January 26, 2023, the City awarded the project to SCS-CONS. The City's construction contractor left site as of the GCCS expansion project completion on October 12, 2023. VDEQ Concurrence on Wells

1.5 VDEQ CONCURRENCE ON WELLS

As described in previous monthly compliance reports, the City engaged with VDEQ in discussions about the proposed approach for landfill GCCS improvements and expansions. Upon completion of the landfill gas collection system, SCS will submit updated as-built drawings depicting the completed system to VDEQ. The City intends to delay installation of interim or final cover systems until the City and VDEQ agree that the GCCS is sufficient.

2.0 SIDEWALL ODOR MITIGATION

The City has designed and is constructing a system to control fugitive emissions emanating from the quarry sidewalls. Specific aspects of the proposed design features are described in the following sections.

2.1 PERIMETER GAS COLLECTION SYSTEM

SCS's design of the GCCS expansion described in Section 1.4 included perimeter LFG wells. These wells are closer to the sidewall to intercept landfill gas that potentially could migrate to the quarry wall. These wells will supplement the sidewall odor mitigation system described in Section 2.2. The City completed bidding and contracting of construction for the perimeter LFG wells as part of the large diameter dual extraction well installation described in Section 1.4.

As described in the April 2023 Monthly Compliance Report for the SWP No. 588 Landfill, construction of the perimeter gas collection system was completed. SCS submitted a letter to VDEQ documenting completion of the Perimeter Gas Collection System on May 1, 2023.

2.2 SIDEWALL ODOR MITIGATION SYSTEM

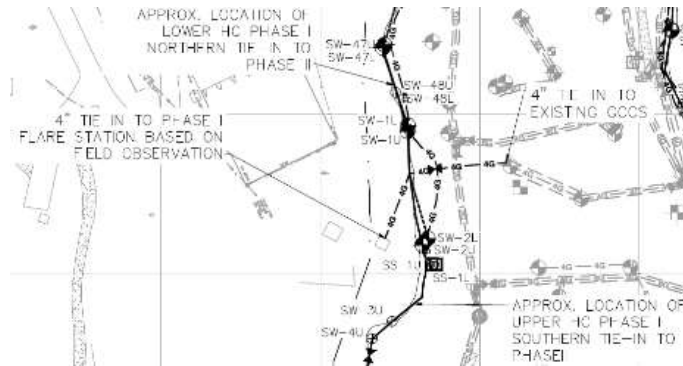
On behalf of the City and in an effort to capture emissions from the quarry sidewall, SCS designed a sidewall odor mitigation system (SOMS) during the month of October 2022. On October 20, 2022 SCS provided an overview of the proposed system to VDEQ staff. The design of this system was prepared and submitted to VDEQ on November 1, 2022. A project manual detailing the specifications of the system was developed concurrently with the design of the system.

2.3 PILOT SYSTEM CONSTRUCTION

SCS-CONS completed substantial construction of Phase 1 of the SOMS during the month of February 2023, SCS-FS began monitoring Phase 1 connected Horizontal Collector (HC) wellheads during the month of March, and SCS-FS continued weekly wellhead monitoring into the month of May 2023. Phase 1 is considered the pilot system portion of the SOMS. SCS submitted a design engineer certification to VDEQ on February 10, 2023 that documented the substantial completion of Phase 1 of the SOMS. Details of Phase 1 construction progress and monitoring can be found in the monthly compliance reports for the SWP No. 588 landfill.

Figure 9 shows the Phase 1 as-built, which includes the locations of the HC wellheads and HC sumps installed in Phase I, as well as the 4" header connection to the existing LFGCCS. The lower collector installed as part of Phase II was tied-in to the north end of the Phase I lower collector, and the upper collector installed as part of Phase II was tied-in to the south end of the Phase I upper collector.

Figure 9. SOMS Phase I As-Built¹



Both the upper and lower collectors of Phase 1 of the system have been connected to the substantially completed Phase 2 of the system. Collection of landfill gas by both the upper and lower collectors indicates that the system is working as intended. Based on this data, Phase 2 was constructed utilizing the same general configuration.

2.4 FULL SYSTEM CONSTRUCTION

SCS-CONS substantially completed construction of Phase 2 of the SOMS during the month of June 2023 as Phase 2 was connected to vacuum as of June 14, 2023. Cover soil placement continued into the month of October, and ceased when the construction crew left site on October 12, 2023 upon project completion. Figure 10 shows SOMS Phase 2 wellhead installation and connections at HC wells along the southeastern perimeter of the landfill.

Figure 10. Phase 2 SOMS Wellhead Connections



¹ Location data was collected using mapping grade global positioning system equipment.

During the month of November 2023, SCS-FS collected monitoring data at each wellhead under vacuum. A summary of those measurements is shown in Table 5.

Table 5. Sidewall HC Wellhead Gas Quality Measurements – System Averages

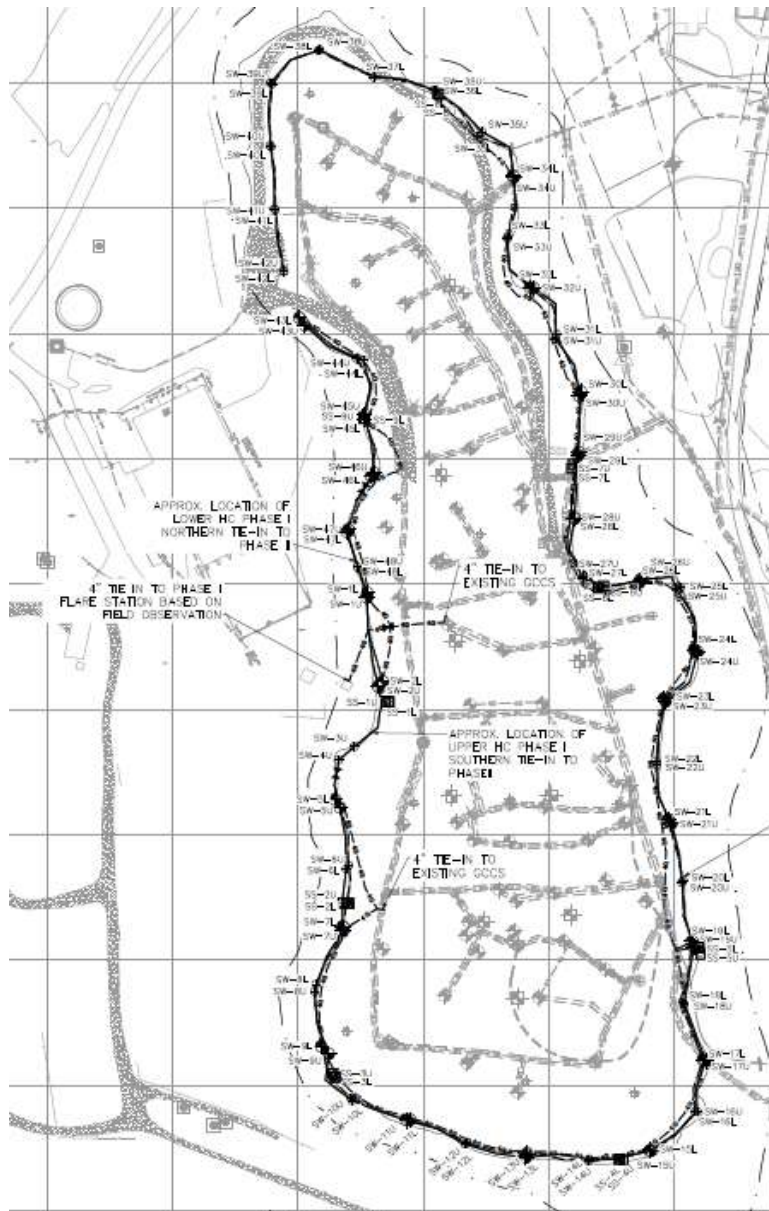
Record Date	Average CH4 [%]	Average CO2 [%]	Average O2 [%]	Average Bal Gas [%]
11/8/2023	6.1	11.0	15.9	67.0

Isolation valves have been installed on the SOMS to allow for manipulation of flow routed to the supplemental flare, currently being leased. The flare was constructed by Perennial Energy Incorporated (PEI). The gas is being re-routed to the supplemental flare because of the lower quality of the gas. The City is attempting to improve the quality of the gas directed to the primary flare and energy generation facility.

The sidewall system average gas composition indicates lower methane content than typical landfill gas collection systems. The gas quality measurements indicate that the SOMS is functioning as designed because landfill gas is being withdrawn and oxygen intrusion is acceptable. The wide-ranged gas composition may indicate that some areas of the landfill may be experiencing higher landfill gas concentrations than areas where methane content is seemingly insignificant. SCS-FS will adjust SOMS wellheads based on gas quality to increase flow from sections of the system with high methane content and reduce flow from sections of the system with low methane content. Phase 2 lower and upper collectors locations, including HC wellhead riser and sump locations, are shown in the as-built depicted as Figure 11².

² During construction, redundant risers were put in place to accommodate supplemental wellhead and installation in the future. Figure 11 shows all riser and sump locations. The final submittal to VDEQ, Revised June 26, 2023, shows the locations of actual wellhead installation. The facility may relocate wellheads based on field conditions.

Figure 11. Phase 2 Sidewall Odor Mitigation System Progress As-Built³



At this time, not every SOMS horizontal collector riser has a wellhead installed, but HC risers may receive a wellhead at a future date as warranted by field conditions.

During the month of November, there were some visible emissions around a few portions of the sidewall. Colder ambient temperatures likely increased visibility of the fugitives in these sections. There were three visible sidewall emissions locations, and these areas of the sidewall received application of an enhanced Posi-Shell® mixture.

The Posi-Shell® serves as a durable seal to fill remaining voids in the sidewall system which landfill gas may be escaping through. The Posi-Shell® is enhanced through the addition of 4 pounds of

³ Location data was collected using mapping grade global positioning system equipment.

Portland cement and 0.06 pounds of fiber reinforcement for every pound of Posi-Shell® used. The material was applied to the problem areas in order to mitigate fugitive emissions. Based on field visual observations, the application appears effective at reducing emissions. Posi-Shell® application on top of the installed liner in the southeastern area of the landfill shown in Figure 12.

Figure 12. Phase 2 SOMS Lower and Upper Collector Construction Maintenance



3.0 WASTE TEMPERATURE MONITORING

On behalf of the City, SCS designed a temperature monitoring system to collect temperature data throughout the waste mass. The steps taken by the City to implement this system are described in the following sections.

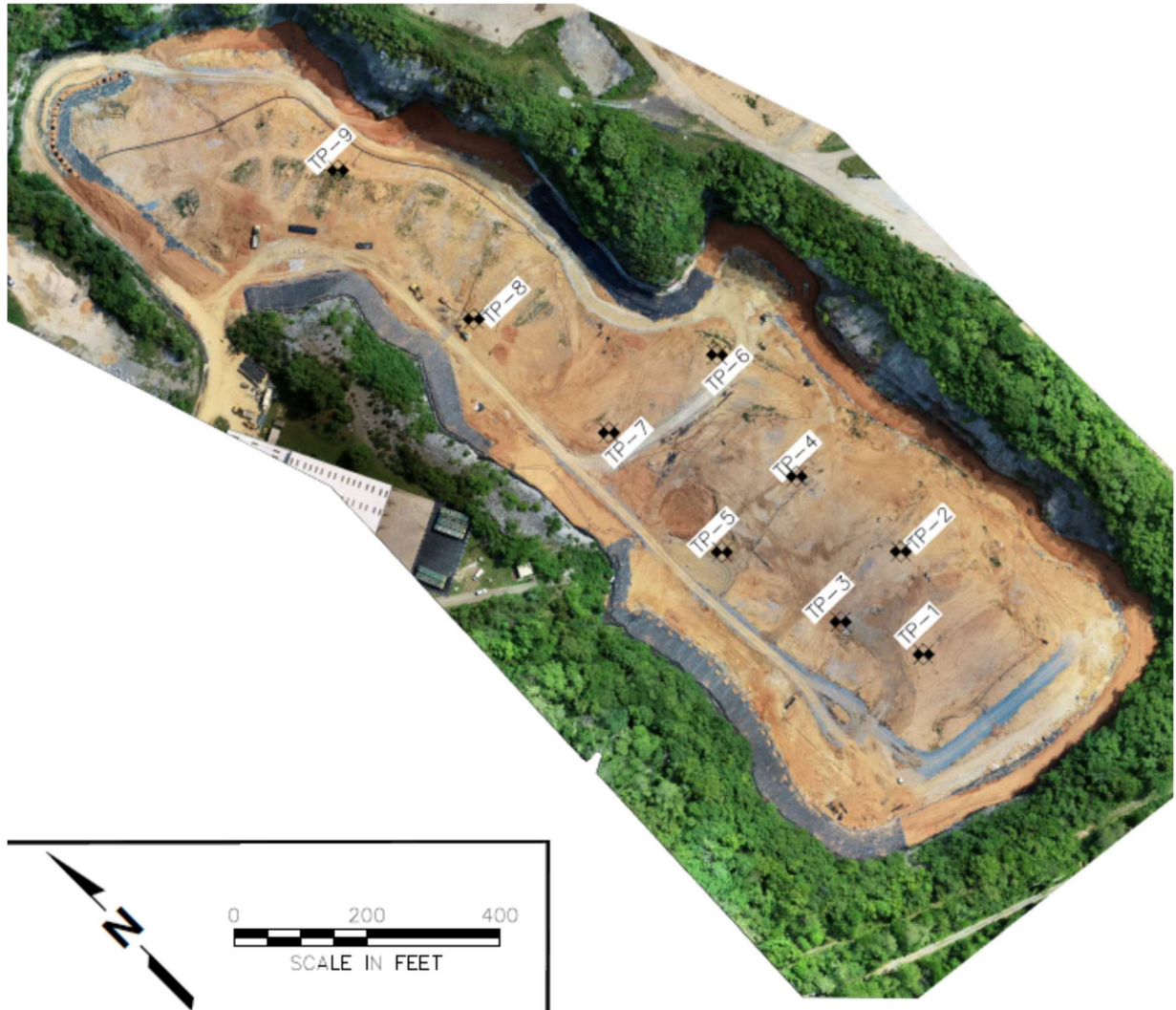
3.1 TEMPERATURE MONITORING SYSTEM DESIGN

The temperature monitoring system consists of 9 boreholes drilled into the waste mass. A steel casing was placed in each borehole and the hole was backfilled around the casing with aggregate. A series of temperature sensors was placed inside the steel casing. At the top of each borehole, an IIoT transmitter collects the data from the sensors and transmits it to a cloud-based RMC system. The City submitted design of the temperature monitoring system to VDEQ on November 30, 2022.

3.2 TEMPERATURE MONITORING SYSTEM INSTALLATION

Installation of the in-situ Landfill Temperature Monitoring System began in October of 2022 and installation of replacement sensors was completed in February of 2023. Details of construction progress can be found in the monthly compliance reports for the SWP No. 588 Landfill. The locations of the temperature probes are shown in Figure 13.

Figure 13. Temperature Monitoring Probe Locations



SCS began collecting temperature data daily on February 15, 2023. The temperature sensors continued to transmit temperature data during the month of November. Average daily temperatures recorded by the sensors for the Month of November are included in Appendix D. Each week the average temperatures from a select day of that week are downloaded and compared to temperatures recorded during the previous week. Average daily temperatures recorded on select days during the month of November are shown in Appendix B. The average temperatures recorded during the months of March through November are shown in Figures 14 through 22 on the following pages.

Figure 14 shows daily average temperatures in Temperature Probe 1 (TP-1) during the months of March through November. Based on the data, temperatures were consistent from March through May and saw increases during the months of June, July and August at depths or 100 feet and below. In September, average temperatures showed little change when compared to August and in some cases, show a small decrease. Temperatures have stayed consistent from readings taken in September, October, and November.

TP-1 was originally drilled to a depth of 180 feet, but the contractor was unable to install the casing beyond a depth of 160 feet. TP-1 did not record temperatures between July 23, 2023 and July 30, 2023 due to a dead battery. The battery was replaced and TP-1 began recording temperatures again on July 31, 2023.

Figure 14. Average Temperatures within TP-1 During the Months of March through November

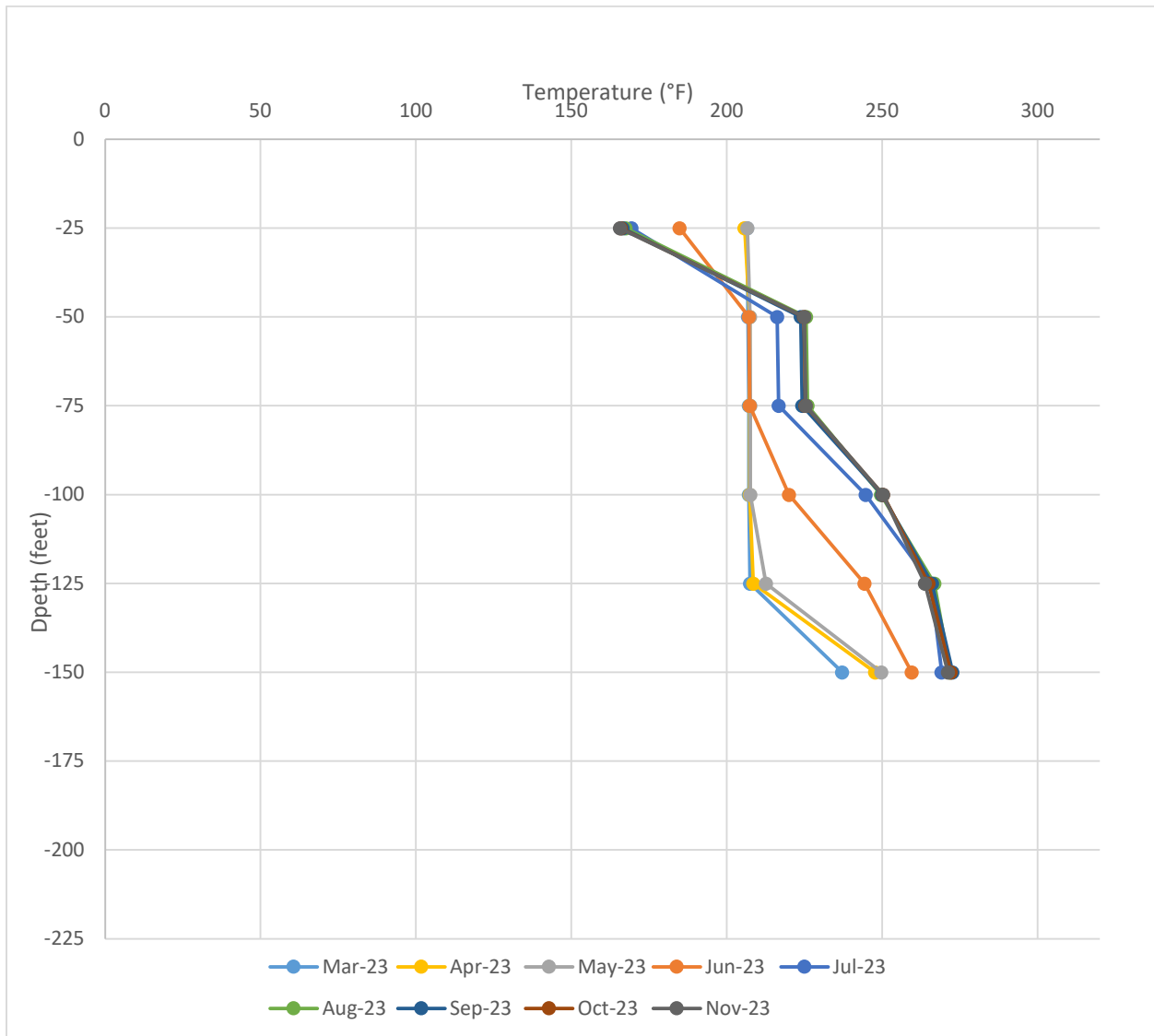


Figure 15 shows daily average temperatures in Temperature Probe 2 (TP-2) during the months of March through November. Based on the data, temperatures have been consistent during the last nine months.

TP-2 was originally drilled to a depth of 160 feet. TP-2 did not record temperatures between August 15, 2023 and September 17, 2023 due to a dead battery. A replacement battery was installed in September of 2023 and TP-2 recording temperatures again on September 18, 2023.

Figure 15. Average Temperatures within TP-2 During the Months of March through November

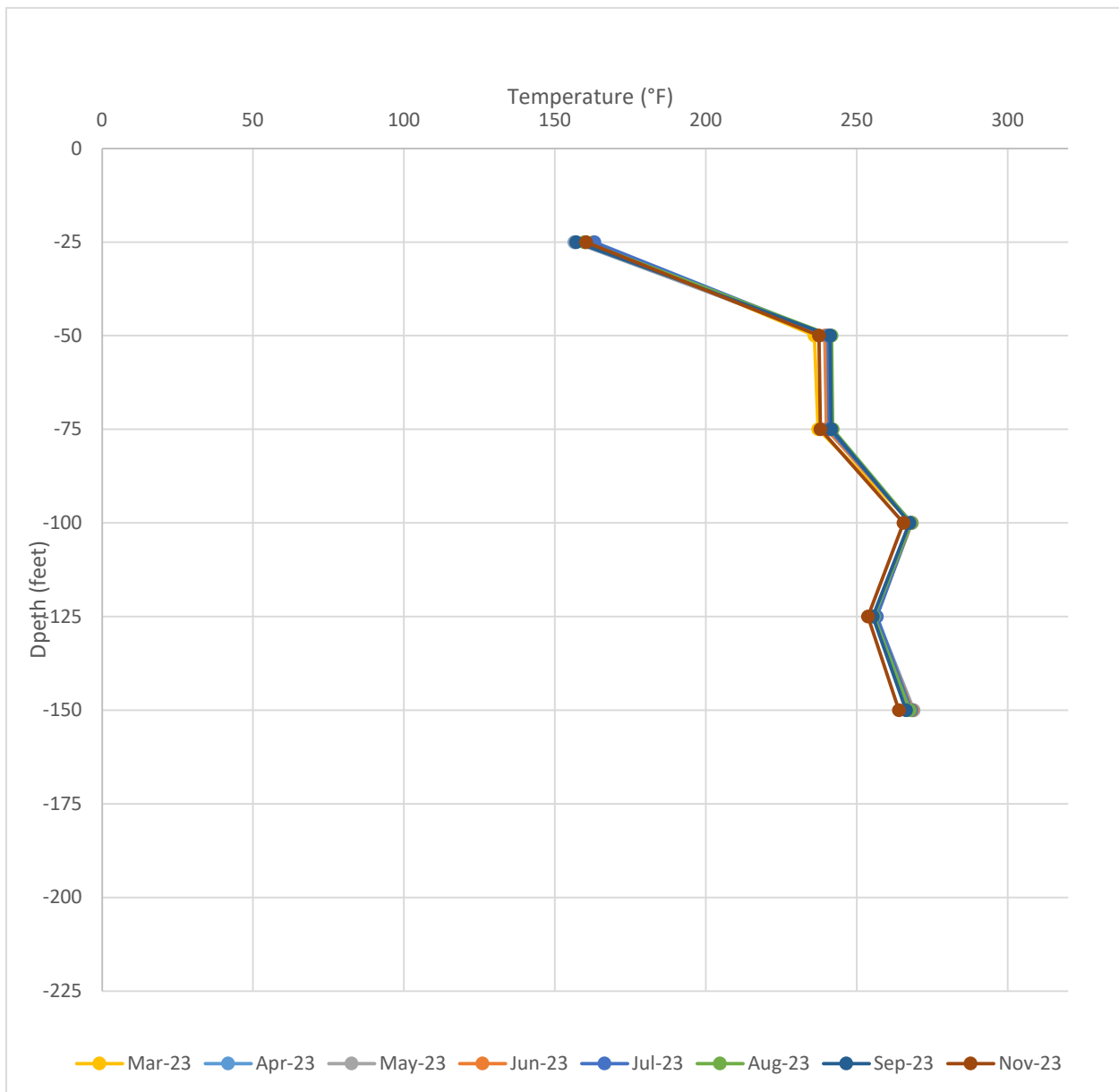


Figure 16 shows daily average temperatures in Temperature Probe 3 (TP-3) during the months of March through November. Based on the data, temperatures have been generally consistent during the last nine months. There has been an increase in temperatures during the month of October and November at the 50-foot and 75-foot depths. SCS noted that a forcemain check valve near an adjacent well had failed. This may have limited liquids removal in the area and resulted in higher temperatures. SCS will continue to review temperature data recorded by this probe.

Figure 16. Average Temperatures within TP-3 During the Months of March through November

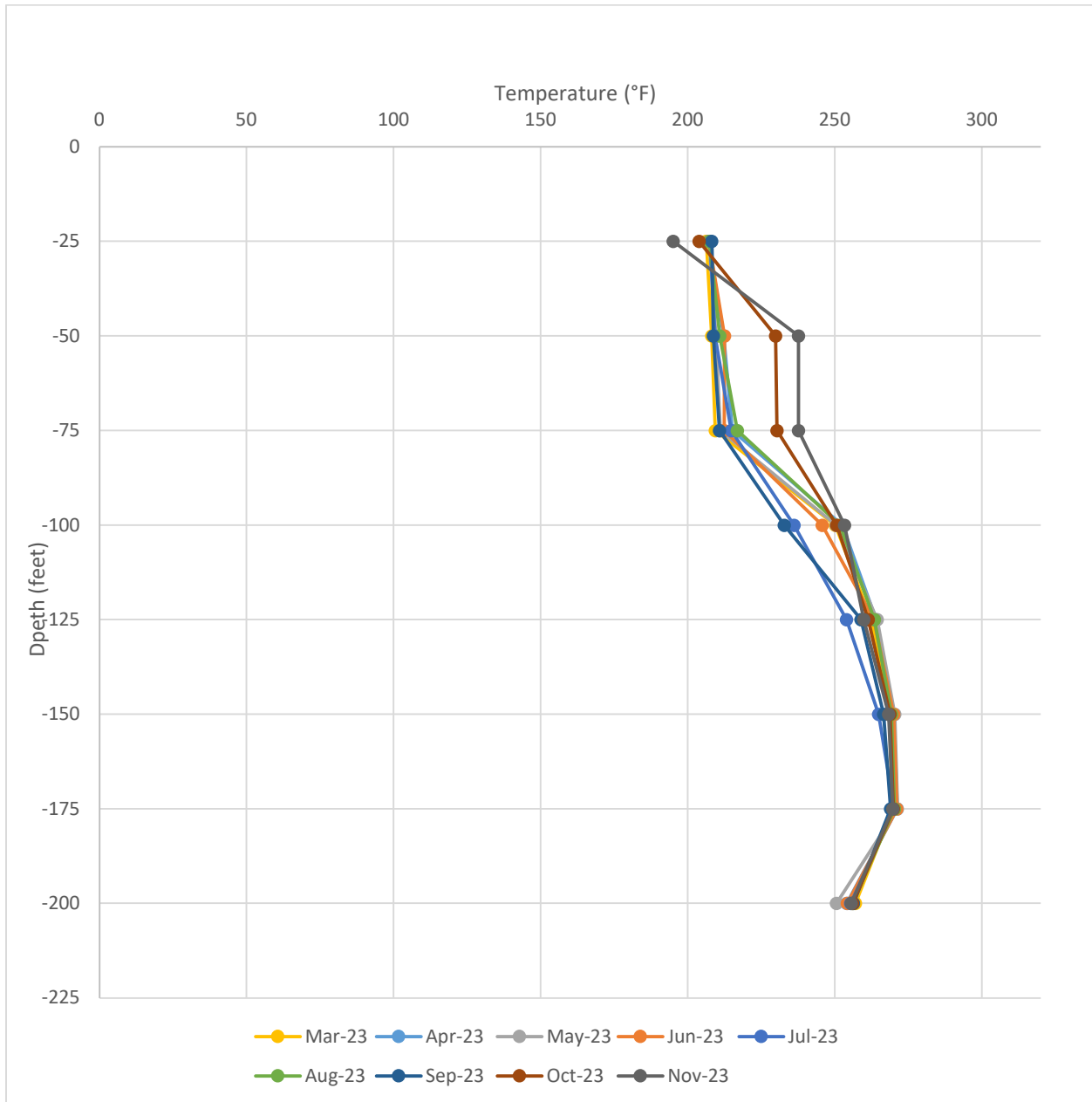


Figure 17 shows daily average temperatures in Temperature Probe 4 (TP-4) during the months of March through November. Based on the data, temperatures appeared to drop during the months of April and May, but returned to levels closer to baseline during the month of June, July, August, September, and October. November temperatures mimic those from April and May until the 125-foot level where it returns to baseline.

Figure 17. Average Temperatures within TP-4 During the Months of March through November

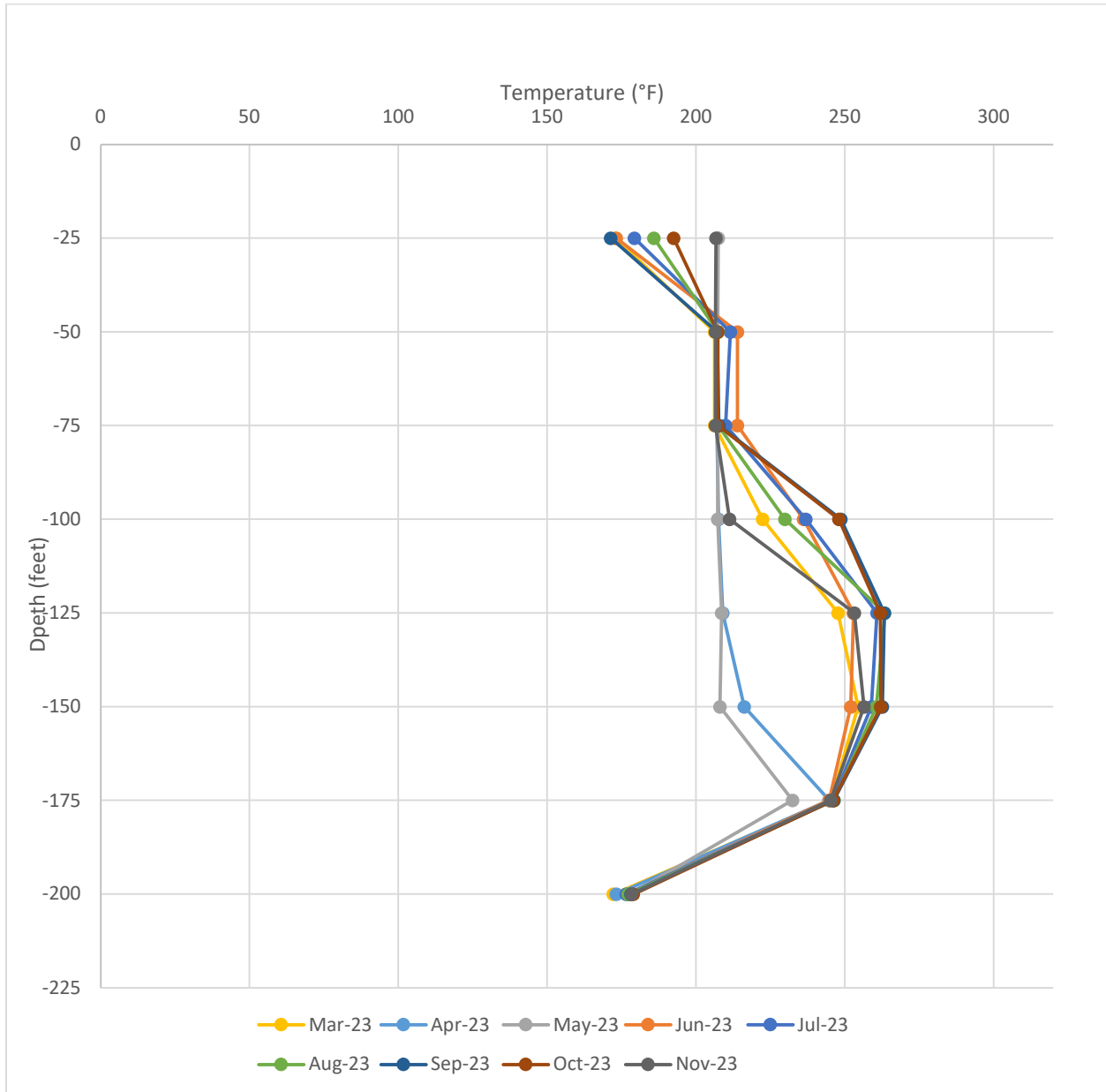


Figure 18 shows daily average temperatures in Temperature Probe 5 (TP-5) during the months of March through November. Based on the data, temperatures have been consistent during the last nine months.

TP-5 was damaged in late October and the sensors at the 125-foot, 150-foot, 175-foot, and 200-foot depths stopped functioning. SCS did troubleshooting and the sensors were repaired for the month of November.

Figure 18. Average Temperatures within TP-5 During the Months of March through November

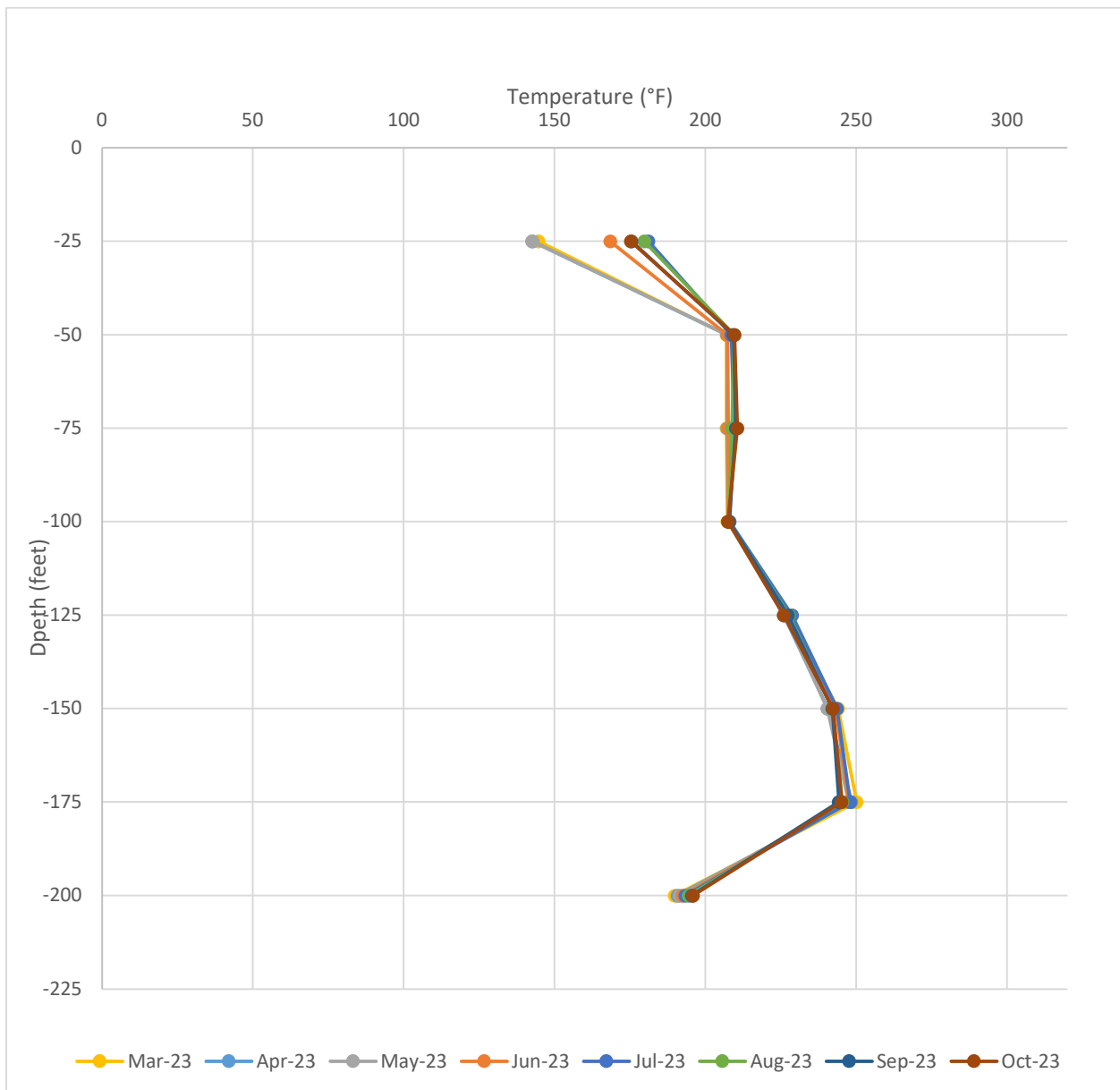


Figure 19 shows daily average temperatures in Temperature Probe 6 (TP-6) during the months of March through November. Based on the data, temperatures have been generally consistent during the last nine months below the 25-foot level. A decrease at the 25-foot level was observed during the months of June, September, and October. November saw a slight increase from October. Temperatures returned to baseline during the months of July and August.

TP-6 was originally drilled to a depth of 208 feet and casing was installed to the full depth. During the installation of the installation of replacement sensors, a blockage within the casing prevented placement of sensors below the 125-foot depth.

Figure 19. Average Temperatures within TP-6 During the Months of March through November

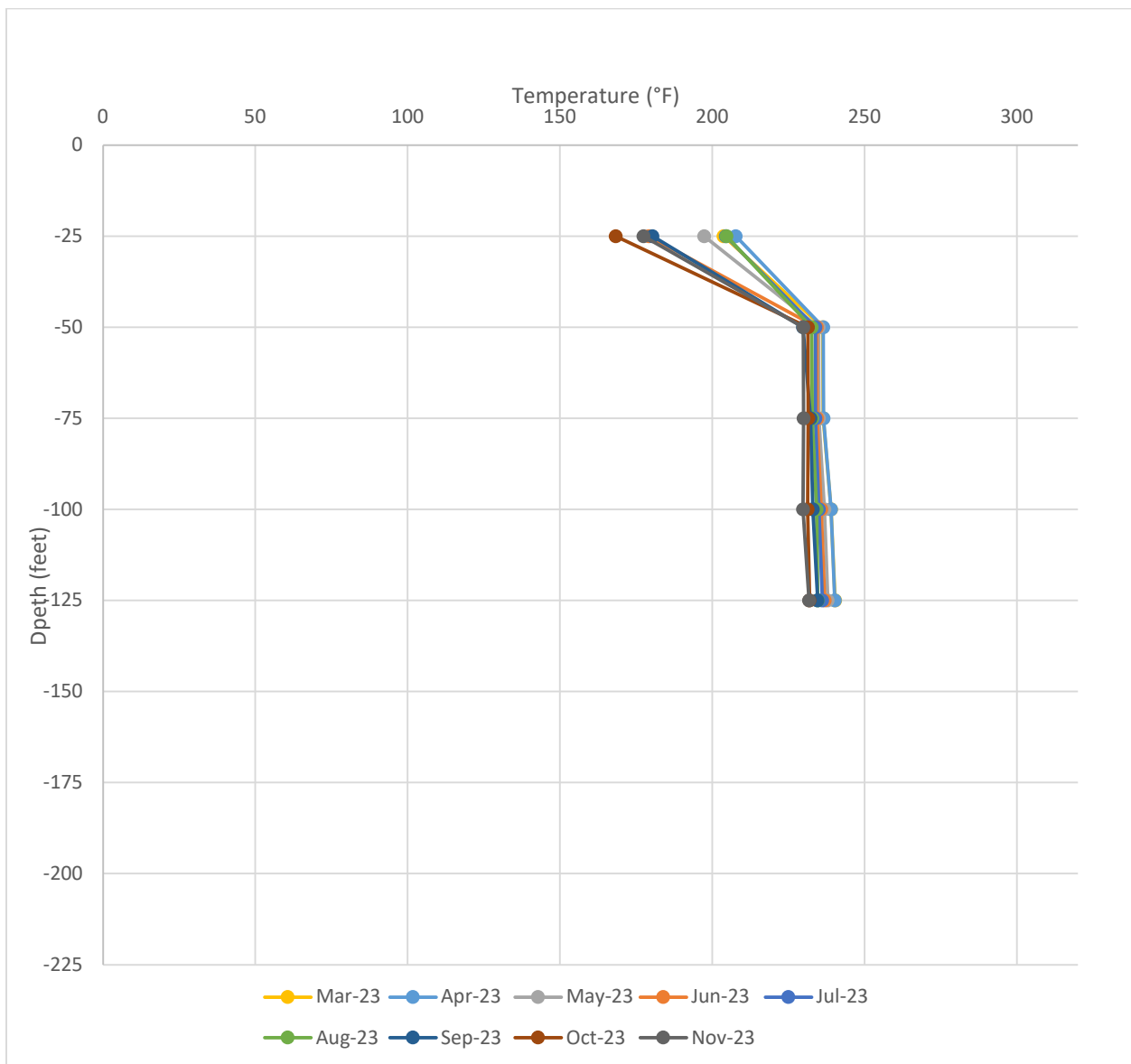


Figure 20 shows daily average temperatures in Temperature Probe 7 (TP-7) during the months of March through November. Based on the data, temperatures have been consistent during the last nine months. TP-7 did not record temperatures between August 15, 2023 and September 17, 2023 due to a dead battery. A replacement battery was installed in September of 2023 and TP-7 recording temperatures again on September 18, 2023.

Figure 20. Average Temperatures within TP-7 During the Months of March through November

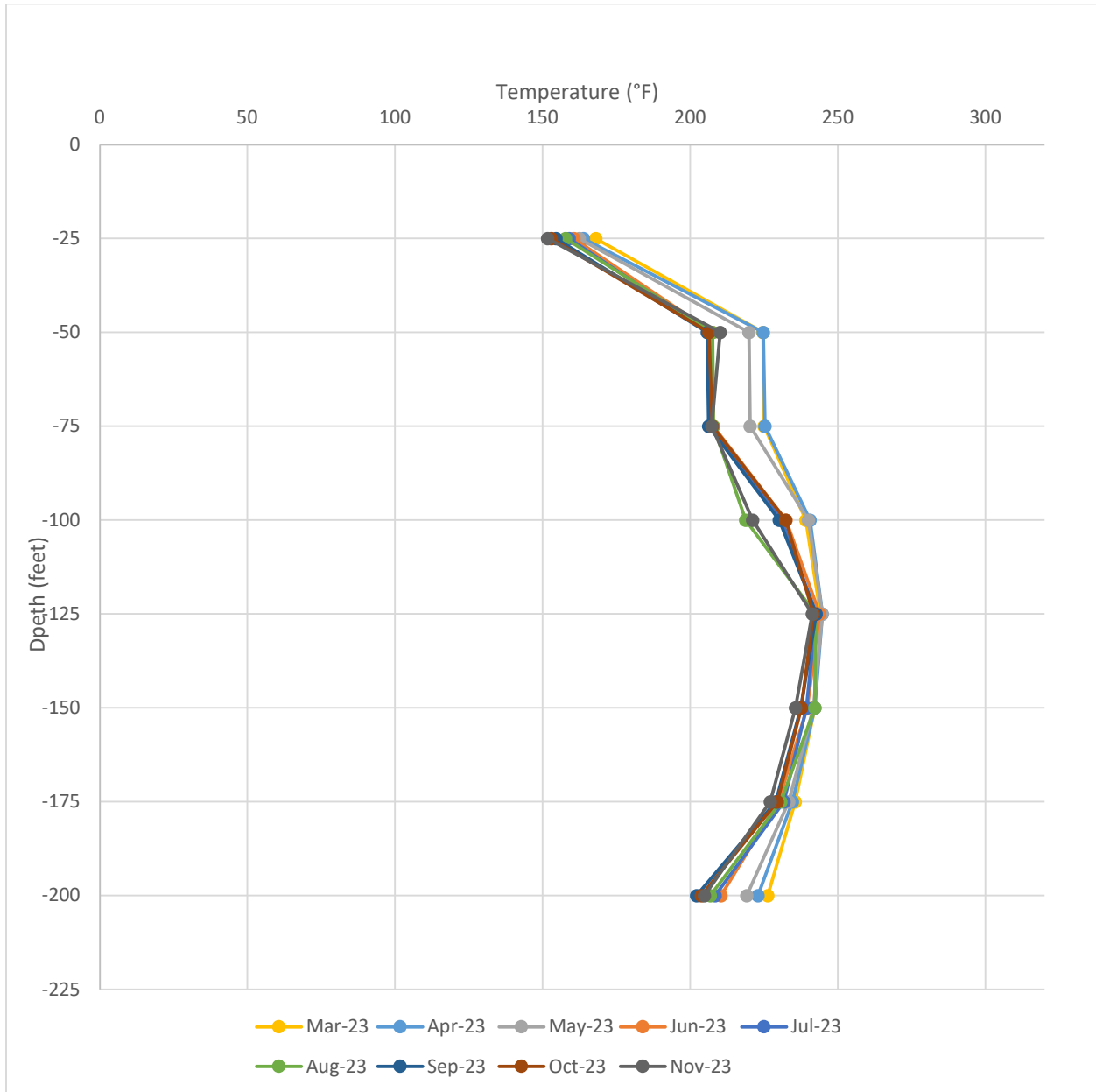


Figure 21 shows daily average temperatures in Temperature Probe 8 (TP-8) during the months of March through November. Based on the data, temperatures have increased during the last eight months. The rate of increase appears to have slowed between September and November.

TP-8 Did not read from November 8 to November 27 due to faulty battery which was replaced on November 28.

Figure 21. Average Temperatures within TP-8 During the Months of March through November

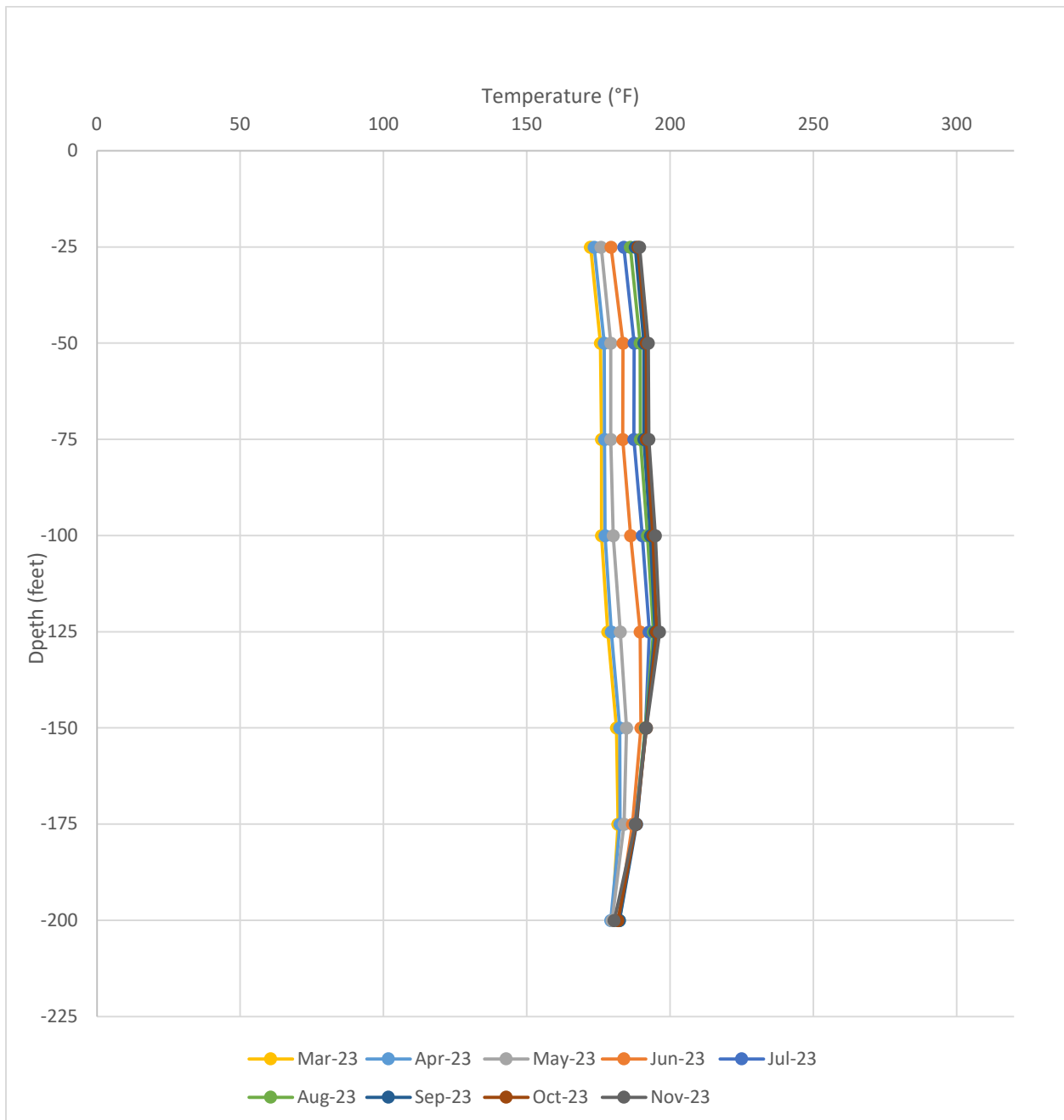
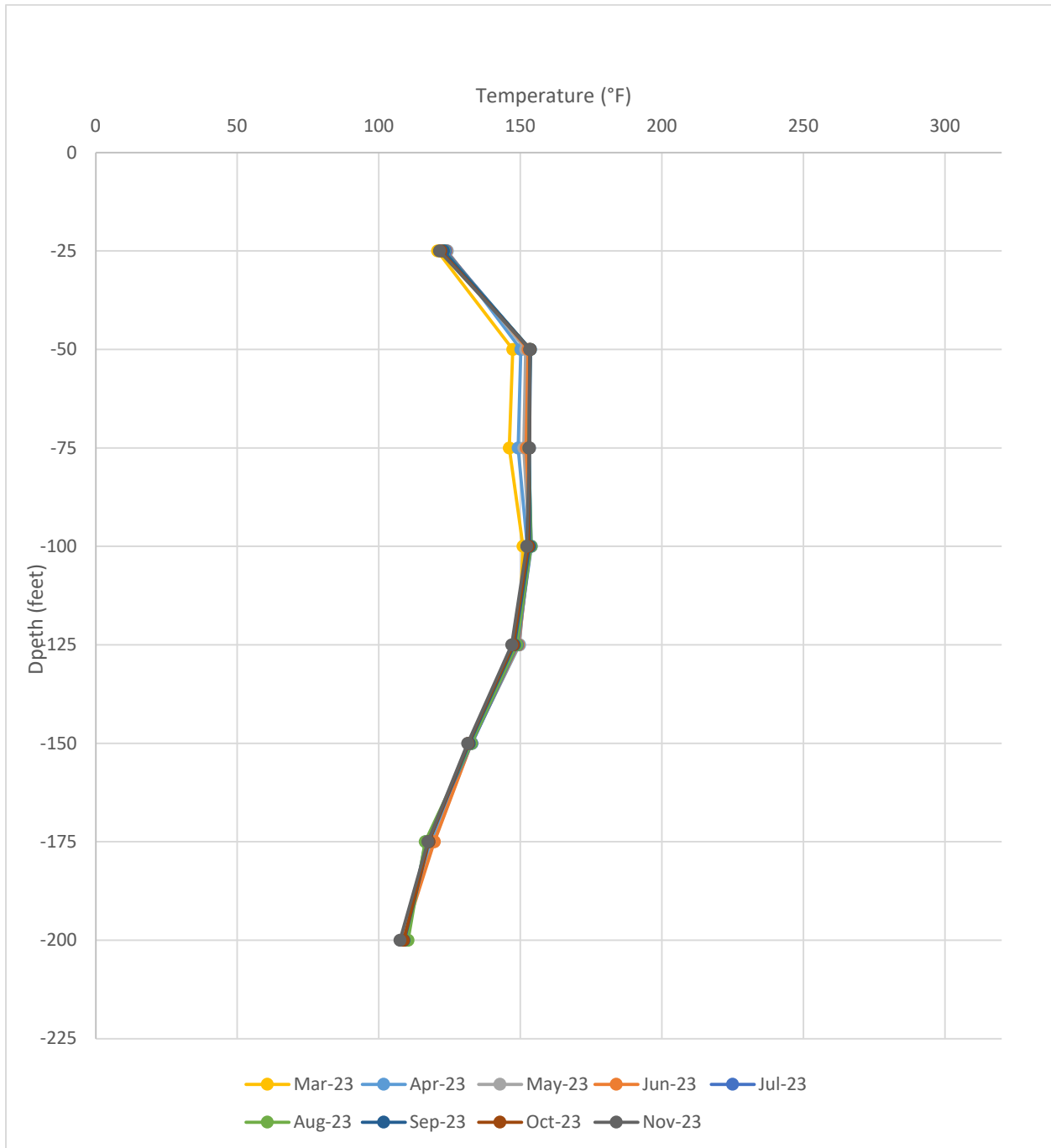


Figure 22 shows daily average temperatures in Temperature Probe 9 (TP-9) during the months of March through November. Based on the data, temperatures have been consistent during the last nine months.

Figure 22. Average Temperatures within TP-9 During the Months of March through November



The data indicates that temperatures within the landfill are generally stable and are typical of those observed at elevated temperature landfills (ETLFs). During the months of May through September, there has been substantial construction at the landfill including deep dual extraction wells that may have impacted temperatures within the waste mass adjacent to the probes. While quantifying the effect of the construction of addition wells is difficult, changes in wellhead temperature have been observed in existing wells adjacent to newly installed wells. The temperatures recorded are substantially lower than those associated with landfill fires or other combustion processes, which can exceed 1000 °F. This further indicates that the elevated temperatures are due to sources other than combustion.

4.0 LEACHATE EXTRACTION AND MONITORING

The City has begun taking steps to improve the extraction of leachate from the waste mass and collect analytical data on leachate characteristics. The following sections detail steps taken to achieve these goals.

4.1 EXISTING SYSTEM OPTIMIZATION

During bimonthly gas extraction well monitoring, SCS also collected stroke counter data from the pumps installed in the GCCS extraction wells. Stroke count measurements are also collected weekly as part of routine pump maintenance. These stroke counts were collected from 42 wells on October 30, 2023, November 9, 2023, November 17, 2023, and November 29, 2023. The data collected is summarized in Table 6. Cells marked with “*” represent dates when the pump was removed from the well for maintenance or had not yet been installed.

Table 6. Summary of Dual Extraction Well Pump Stroke Counter Data

Well	October 30, 2023	November 9, 2023	November 17, 2023	November 29, 2023
EW33B	13	13	13	17
EW36A	609040	775967	109268	110426
EW49	777885	777885	777885	777893
EW50	1284068	1301690	1309348	1316885
EW51	1005496	*	*	*
EW52	318094	354915	356040	367549
EW53	2327974	2330759	2330759	2330786
EW54	597284	597284	597284	597295
EW55	660393	703741	708383	713756
EW57	20668	20668	20668	24490
EW58	2490474	2490474	2499817	2490483
EW59	2454032	2485860	2488810	2491012
EW60	529865	571314	611279	616567
EW61	244061	244061	244061	244061
EW62	199873	201408	202311	202311
EW64	177589	177593	177593	177601
EW67	864971	865001	865001	865688

Well	October 30, 2023	November 9, 2023	November 17, 2023	November 29, 2023
EW68	2219102	2222470	2235605	2245683
EW70	15	15	15	15
EW72	23	23	23	23
EW73	23	23	23	23
EW74	16	16	16	16
EW75	18	18	18	18
EW76	23	23	23	23
EW78	68100	71913	71913	71913
EW81	968837	153052	283570	283570
EW82	698211	888253	973855	98268
EW83	829303	162240	498766	428888
EW85	78778	120375	124109	124111
EW87	665065	940701	940713	940763
EW88	297754	297754	297804	342522
EW89	0	0	0	0
EW90	170671	170676	170676	170676
EW91	787184	289999	659103	390250
EW92	767911	114114	182453	387453
EW94	519848	519848	519848	520385
EW96	158461	158461	196500	527901
EW98	1347784	1400464	1480883	1532388
EW100	299698	299698	376908	376908

Based on this data and stroke counts taken on November 29, 2023, SCS can estimate the number of gallons of liquid pumped from each well. SCS assumed that each stroke from a float-style pneumatic pump correlates to approximately 0.3 gallons of liquid removed from the well. Additionally, Blackhawk piston-style pumps remove approximately 0.11 gallons per stroke recorded. Five-gallon bucket tests are also used to determine the amount of liquid removal by Blackhawk Pumps. This data will then be used to repair or replace pumps or replace nonfunctional stroke counters. Estimates of the quantities of liquids removed between the reading dates are shown in Table 7.

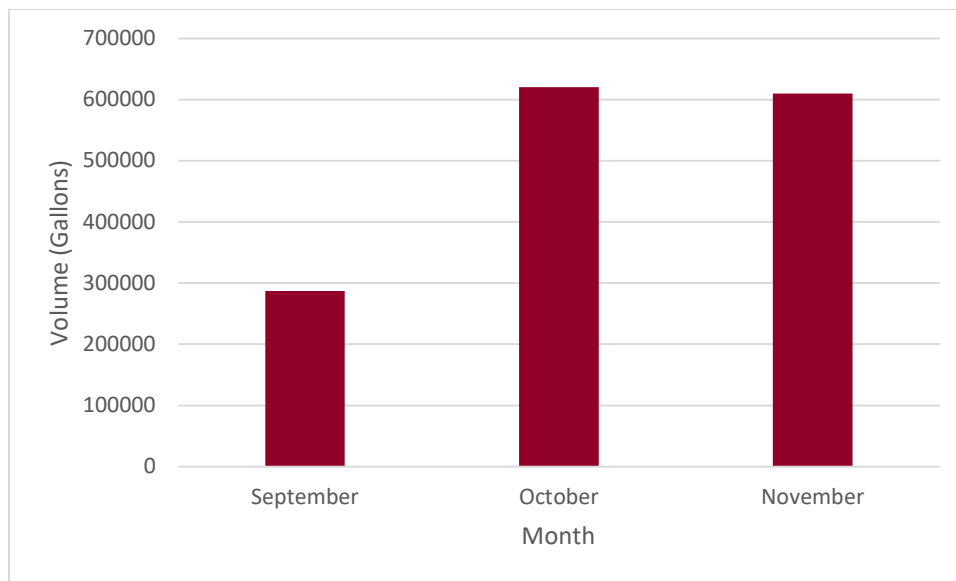
Table 7. Summary of Dual Extraction Well Pump Liquids Removal

Well	Liquids Removed (gal) October 26, 2023 to October 30, 2023	Liquids Removed (gal) October 30, 2023 to November 9, 2023	Liquids Removed (gal) November 9, 2023 to November 17, 2023	Liquids Removed (gal) November 17, 2023 to November 29, 2023
EW33B	0	0	0	1.2
EW36A	0	1143.9	15300	347.4
EW49	0	0	0	2.4

Well	Liquids Removed (gal) October 26, 2023 to October 30, 2023	Liquids Removed (gal) October 30, 2023 to November 9, 2023	Liquids Removed (gal) November 9, 2023 to November 17, 2023	Liquids Removed (gal) November 17, 2023 to November 29, 2023
EW50	203.4	5286.6	2297.4	2261.1
EW51	0	*	*	*
EW52	4728	11046.3	337.5	3452.7
EW53	105	835.5	0	8.1
EW54	0	0	0	3.3
EW55	1671.6	13004.4	1392.6	1611.9
EW57	1180.2	0	0	1146.6
EW58	1.8	0	2802.9	0
EW59	7008	9548.4	885	660.6
EW60	3005.4	12434.7	11989.5	1586.4
EW61	0	0	0	0
EW62	322.2	460.5	270.9	0
EW64	0	1.2	0	2.4
EW67	0	9	0	206.1
EW68	9	1010.4	3940.5	3023.4
EW70	0	0	0	0
EW72	0	0	0	0
EW73	0	0	0	0
EW74	0	0	0	0
EW75	0	0	0	0
EW76	0	0	0	0
EW78	753	1143.9	0	0
EW81	12581.7	15300	15300	0
EW82	12.5	15300	15300	15300
EW83	6334.3	15300	15300	15300
EW85	492	12479.1	1120.2	1
EW87	21491.7	15300	3.6	15
EW88	0	0	15	13415.4
EW89	0	0	0	0
EW90	0	1.5	0	0
EW91	4719.9	15300	15300	15300
EW92	19005.7	15300	15300	15300
EW94	0	0	0	161.1
EW96	0	0	11411.7	15300
EW98	0	15804	24125.7	15451.5
EW100	0	0	23163	0

SCS estimates that approximately 610,000 gallons of liquids were removed from the landfill gas collection and control system during the month of November. This figure includes the amount of liquids that were removed by the Blackhawk pumps that were installed in September 2023. SCS-FS continues to implement an aggressive maintenance schedule for landfill gas liquids removal pumps. The Blackhawk pumps at EW-91 and EW-92 continue to be the best performing pumps at a combined 122,000 gallons in November. EW-98 was the highest performing float-style pump at 55,000 gallons removed. The progress in landfill gas liquids removal over the last three months is depicted in Figure 23.

Figure 23. Estimated Volume of Liquids Removed from Landfill Gas Wells



The City and SCS understand that operations of dewatering pumps are critical to address issues related to heat, odors, and the efficient operation of the GCCS. The landfill conditions present a challenging environment for pump operations. Pumps require servicing after relatively short intervals. During the month of November 2023, pump maintenance occurred on October 31, 2023; November 7, 2023; November 14, 2023; November 21, 2023, and November 28, 2023. Additionally, minor pump modifications and repairs were made throughout the month to extend pump runtimes before failure. The SWP No. 588 Landfill's float-style pumps are bump checked and Blackhawk piston drive rods are cleaned routinely each week.

In some cases, low volumes of landfill liquids removed correlate to low measured liquid levels within the gas wells. During the landfill gas well liquids monitoring event, the following wells were noted to be dry or have low liquid levels: EW-49, EW-51, EW-54, EW-58, EW-64, EW-70, EW-72, EW-73, EW-74, EW-75, EW-76, and EW-90. When this condition is identified, pumps may be relocated to wells with consistently higher liquid levels. EW-51 and EW-73 had their pneumatic pumps removed due to being dry. These pumps will be redeployed at an applicable extraction well in the future. The liquids removed from these two wells are reflected as part of this report but will be removed in December and going forward.

Representatives from both Blackhawk and Jeneer were on site during the month of November to assess the performance of pumps deployed in the SWP No. 588 Landfill. During this visit, the software was updated for the Jeneer pump in EW-89. A second Jeneer pump was installed at EW-93.

During the construction of the LFGCCS expansion outlined in Sections 1.4 and 2.1, multiple types of leachate extraction pumps were installed. The City and SCS will continue to evaluate the performance of those pumps in the coming months. Based on that evaluation, the City will select the pump type that is most effective given the landfill conditions.

4.2 SAMPLING AND ANALYSIS PLAN

On November 1, 2022, SCS submitted to VDEQ the Dual Phase Landfill Gas Extraction Well Leachate Monitoring Plan for the Bristol Integrated Solid Waste Management Facility Solid Waste Permit No. 588 Landfill and the plan was subsequently revised on December 1, 2022. Refer to the November 2022 and December 2022 Compliance Reports for the SWP No. 588 Landfill for additional information.

4.2.1 Sample Collection

On November 7 - 9, 2023, SCS collected leachate samples from nine Dual Phase LFG-EWs (EW-50, EW-52, EW-53, EW-55, EW-59, EW-62, EW-78, EW-87, and EW-98). At the time of sample collection dissolved oxygen, oxidation-reduction potential, pH, specific conductance, temperature, and turbidity were measured and recorded. The sample collection log is included in **Appendix F**.

SCS' field staff were not able to collect samples from the following wells for the following reasons:

- Pump was not running at the time of monitoring for the following wells: EW-33B, EW-49, EW-53, EW-59, EW-60, EW-61, EW-62, EW-65, EW-68, EW-69, EW-70, EW-71, EW-73, EW-74, EW-76, and EW-85.
- Pump was disconnected at the time of monitoring for the following wells: EW-54, EW-56, EW-57, EW-58, EW-64, EW-94, and EW-100.
- There was no sample port, and the pump was not running at the time of monitoring for the following wells: EW-67, EW-75, EW-88, EW-89, and EW-90. The City and SCS-FS are coordinating to get sample ports installed on these wells.
- Pump was running at the time of monitoring, but there is no sample port for the following wells: EW-36A, EW-81, EW-82, EW-83, EW-85, EW-91, EW-92, and EW-96. The City and SCS-FS are coordinating to get a sample port installed on this well.
- There is no pump and the well appeared dry at the time of monitoring for the following wells: EW-79 and EW-80.
- There is no pump at the time of the monitoring for the following wells: EW-51, EW-63, EW-72, EW-77, EW-84, EW-86, EW-93, EW-95, EW-97, and EW-99.

The samples were delivered to Enthalpy Analytical (Enthalpy) in Richmond, Virginia and Pace Analytical Services, LLC (Pace) in Baton Rouge, Louisiana for analysis. The Enthalpy's and Pace's Virginia Division of Consolidated Laboratory Services (VELAP) certifications are provided on the certificate of analysis (COA) included in **Appendix F**. The samples were analyzed for the parameters utilizing the analytical methods described in the Dual Phase Landfill Gas Extraction Well Leachate Monitoring Plan.

4.2.2 Quality Assurance and Quality Control

Field quality control (QC) involved the collection and analysis of trip blanks to verify that the sample collection and handling processes did not impair the quality of the samples. Trip blanks were prepared for VOC analysis via Solid Waste (SW)-846 Method 8260D. In conjunction with the preparation of the groundwater sample collection bottle set, laboratory personnel filled each trip blank sample bottle with distilled/deionized water and transported them with the empty bottle kits to SCS. Field personnel handled the trip blanks like a sample; they remained un-opened, were transported in the sample cooler, and were returned to the laboratory for analyses. A trip blank is used to indicate potential contamination due to the potential migration of VOCs from the air at the site or in the sample shipping containers, through the septum or around the lid of the sampling vials and into the sample.

Laboratory quality assurance/quality control (QA/QC) involves the routine collection and analysis of method reagent blanks, matrix spike (MS) and matrix spike duplicate (MSD) samples, and laboratory control samples (LCS). A summary of each of these is presented below:

- **Method Blank** – The method blank is deionized water subjected to the same reagents and manipulations to which site samples are subjected. Positive results in the method blanks may indicate either contamination of the chemical reagents or the glassware and implements used to store or prepare the sample and resulting solutions.
- **MS/MSD** – A MS is an aliquot of a field sample with a known concentration of target parameter added to it. An MSD is an intra-laboratory split sample spiked with a known concentration of target parameter. Spiking for each occurs prior to sample analysis. MS/MSD samples are collected for every batch of twenty or fewer samples. Matrix spike recoveries are used to indicate what effect the sample matrix may have on the reported concentration and/or the performance of the sample preparation and analysis.
- **LCS** – These samples consist of distilled/deionized water injected with the parameters of interest for single parameter methods and selected parameters for multi-parameter methods according to the appropriate analytical method. LCS samples are prepared and analyzed for each batch containing twenty or fewer samples. LCS recoveries are used to monitor analytical accuracy.

Surrogate recoveries are also measured as a part of laboratory QA/QC. Surrogates are organic compounds that are like the parameters of interest in chemical composition, extraction, and chromatography, but are not normally found in environmental samples. These compounds are inserted into blank, standards, samples, and spiked samples prior to analysis for organic parameters only. Percent recoveries are calculated for each surrogate. Spike recoveries at or below acceptance criteria indicate whether analytical results can be considered biased high or biased low.

Toluene was detected in the trip blank at a concentration of 5.46 ug/L for the November 2023 monitoring event. No method blank detects were identified for the November 2023 monitoring event. The laboratory analysis reports for the November 2023 monitoring event trip blanks are included in **Appendix F**. The November 2023 monitoring event laboratory QA/QC reports, including the method blank results, are included in the COA in **Appendix F**.

4.2.3 Data Validation

To identify analytical data that may not represent valid results, data from the monitoring events were validated by the Laboratory and SCS in accordance with United States Environmental Protection Agency (EPA) guidance⁴. Data flagged with a “J” qualifier indicates the quantitation of the parameter is less than the laboratory’s limit of quantitation but greater than the laboratory’s limit of detection (LOD); thus, the concentration is considered estimated. Samples with parameter detections less than five times that of the trip blank, field blank, and/or method blank detection but greater than the laboratory’s LOD are flagged with a “B” qualifier. Samples with common laboratory contaminant parameter detections less than 10 times that of the trip blank, field blank, and/or method/laboratory blank detection but greater than the laboratory’s LOD are flagged with a “B” qualifier. Data with a “B” qualifier are considered not validated as the detection may be anomalous due to cross-contamination during sampling, transportation of samples, or laboratory analysis.

No leachate results were flagged with a “B” qualifier for the November 2023 monitoring event as the toluene detects in the leachate samples were greater than five times the concentration detected in the trip blank. The November 2023 detections flagged with a “J” qualifier are shown on **Table 8**.

4.2.4 Laboratory Analytical Results

The analytical results for the November 2023 leachate samples collected from extraction wells EW-50, EW-52, EW-53, EW-55, EW-59, EW-62, EW-78, EW-87, and EW-98 are summarized in **Table 8**. The associated COAs are included in **Appendix F**. Parameter results from November 2023 and previous monitoring events (November 2022 – October 2023) are presented on a table in **Appendix F**. Time-series plots of each VOC for the wells that have historically been sampled are also included in **Appendix F**.

⁴ United States Environmental Protection Agency. Guidance for Data Usability in Risk Assessment (Part A-14). April 1992.

United States Environmental Protection Agency. Office of Superfund Remediation and Technology Innovation. National Functional Guidelines for Inorganic Superfund Methods Data Review. January 2017.

United States Environmental Protection Agency. Office of Superfund Remediation and Technology Innovation. National Functional Guidelines for Organic Superfund Methods Data Review. January 2017.

Table 8. Monthly LFG-EW Leachate Monitoring Event Summary

Well ID	EW-50	EW-52	EW-53	EW-55	EW-59	EW-62	EW-78	EW-87	EW-98	LOD	LOQ
Parameter	November 2023 Concentration										
Ammonia as N (mg/L)	1260	2490	1830	2070	---	---	1800	2590	---	146	200
	---	---	---	---	---	1170	---	---	2080	183	250
	---	---	---	---	2440	---	---	---	---	---	366
Biological Oxygen Demand (mg/L)	1910	30400	27500	32015	29600	3640	480	32135	21500	0.2	2
Chemical Oxygen Demand (mg/L)	---	---	---	---	---	---	4710	---	---	1000	1000
	6200	---	---	---	---	5620	---	---	---	2000	2000
	---	---	48100	57900	43700	---	---	---	37600	5000	5000
	---	77100	---	---	---	---	---	63900	---	10000	10000
Nitrate as N (mg/L)	ND	---	---	---	---	---	ND	---	---	0.15	0.35
	---	---	---	---	---	ND	---	---	---	0.35	1.35
	---	---	---	ND	---	---	---	---	---	0.75	1.75
	---	ND	---	---	---	---	---	---	---	1.1	5.1
	---	---	ND	---	ND	---	---	ND	ND	1.5	5.5
Nitrite as N (mg/L)	0.06 J	---	---	---	---	---	ND	---	---	0.05	0.25
	---	---	---	ND	---	ND	---	---	---	0.25	1.25
	---	ND	ND	---	ND	---	---	ND	ND	1	5
Total Kjeldahl Nitrogen (mg/L)	---	---	---	2240	---	---	---	---	2120	80	200
	1440	3290	2630	---	2530	1120	2270	3170	---	100	250
Total Recoverable Phenolics (mg/L)	---	---	---	---	---	---	3.65	---	---	0.15	0.25
	7.88	---	36.4	---	---	4.76	---	---	---	0.6	1
	---	38.8	---	47.4	---	---	---	47.1	---	0.75	1.25
	---	---	---	---	46.9	---	---	---	29.1	1.5	2.5

Table 8. Monthly LFG-EW Leachate Monitoring Event Summary

Well ID	EW-50	EW-52	EW-53	EW-55	EW-59	EW-62	EW-78	EW-87	EW-98	LOD	LOQ
Parameter	November 2023 Concentration										
SEMI-VOLATILE ORGANIC COMPOUND (ug/L)											
Anthracene	ND	---	---	---	---	ND	---	---	---	20	40
	---	---	---	---	---	---	ND	---	---	50	100
	---	---	---	---	---	---	---	---	ND	100	200
	---	---	ND	ND	ND	---	---	ND	---	400	800
	---	ND	---	---	---	---	---	---	---	1000	2000
TOTAL METALS (mg/L)											
Arsenic	0.23	0.33	0.53	0.43	0.35	0.78	0.34	0.27	0.2	0.003	0.003
Barium	0.572	0.81	2.28	2.51	1.96	0.418	0.67	2.06	2.84	0.01	0.05
Cadmium	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.001	0.003
Chromium	0.391	---	---	---	---	---	---	---	---	0	0.003
	---	---	0.51	---	---	---	0.251	0.403	---	0.003	0.003
	---	1.04	---	0.402	0.246	0.343	---	---	0.222	0.004	0.01
Copper	0.00607	0.00352	0.0212	0.00756	ND	0.00341	0.00387	ND	ND	0.003	0.003
Lead	ND	0.13	0.0046	0.014	ND	ND	0.0032	0.0043	ND	0.003	0.003
Mercury	ND	---	---	---	---	ND	---	---	---	0.0000002	0.0000002
	---	---	---	---	---	---	ND	---	---	0.0000004	0.0000004
	---	0.00576	0.00606	0.00578	ND	---	---	0.00954	ND	0.000004	0.000004
Nickel	0.1178	0.4227	0.1242	0.07791	0.05944	0.1493	0.2492	0.1332	0.05277	0.01	0.01
Selenium	ND	0.00425	0.00314	0.00315	ND	ND	ND	0.0032	ND	0.003	0.003
Silver	ND	ND	ND	ND	ND	ND	ND	ND	ND	0.0006	0.01
Zinc	0.0471 J	---	0.0534	0.74	0.053	0.0618	0.0722	0.845	0.0313 J	0.025	0.05
	---	30.4	---	---	---	---	---	---	---	0.25	0.5

Table 8. Monthly LFG-EW Leachate Monitoring Event Summary

Well ID	EW-50	EW-52	EW-53	EW-55	EW-59	EW-62	EW-78	EW-87	EW-98	LOD	LOQ
Parameter	November 2023 Concentration										
VOLATILE FATTY ACIDS (ug/L)											
Acetic Acid	ND	---	---	---	---	ND	ND	---	4160	250	500
	---	---	4950	6650	5350	---	---	7300	---	500	1000
	---	9900	---	---	---	---	---	---	---	1000	2000
Butyric Acid	ND	---	1670	1760	1370	ND	ND	2730	740	250	500
	---	3420	---	---	---	---	---	---	---	500	1000
Lactic Acid	ND	---	968	1800	969	ND	ND	1170	324	250	500
	---	6030	---	---	---	---	---	---	---	500	1000
Propionic Acid	ND	---	2170	2310	2080	387	ND	3350	1420	250	500
	---	2580	---	---	---	---	---	---	---	500	1000
Pyruvic Acid	ND	---	ND	ND	ND	ND	ND	ND	ND	250	500
	---	ND	---	---	---	---	---	---	---	500	1000
VOLATILE ORGANIC COMPOUNDS (ug/L)											
2-Butanone (MEK)	---	---	---	---	---	---	78.8 J	---	---	30	100
	---	---	---	17700	10600	---	---	---	---	150	500
	3990	---	---	---	---	---	---	---	---	300	1000
	---	25700	---	---	---	---	---	---	---	750	2500
	---	---	22300	---	---	17600	---	26700	31200	1500	5000
Acetone	---	---	---	---	---	---	104	---	---	70	100
	5560	---	---	---	---	---	---	---	---	700	1000
	---	64700	---	---	---	---	---	---	---	1750	2500
	---	---	43100	61100	36800	32800	---	53900	67800	3500	5000
Benzene	80.8	---	---	---	---	31.3	---	---	---	2	5
	---	---	---	---	---	---	323	---	---	4	10
	---	---	1070	654	982	---	---	1960	1190	20	50
	---	870	---	---	---	---	---	---	---	100	250

Table 8. Monthly LFG-EW Leachate Monitoring Event Summary

Well ID	EW-50	EW-52	EW-53	EW-55	EW-59	EW-62	EW-78	EW-87	EW-98	LOD	LOQ
Parameter	November 2023 Concentration										
VOLATILE ORGANIC COMPOUNDS (ug/L)											
Ethylbenzene	26.3	---	---	---	---	45.4	---	---	---	2	5
	---	---	---	---	---	---	26.9	---	---	4	10
	---	---	62	54	76.5	---	---	224	60.5	20	50
	---	ND	---	---	---	---	---	---	---	100	250
Tetrahydrofuran	199	---	---	---	---	325	---	---	---	50	50
	---	---	---	---	---	---	358	---	---	100	100
	---	---	4780	3320	785	---	---	5370	4600	500	500
	---	4620	---	---	---	---	---	---	---	2500	2500
Toluene	47.3	---	---	---	---	50.4	---	---	---	2.5	5
	---	---	---	---	---	---	48.7	---	---	5	10
	---	---	62.5	51.5	114	---	---	167	114	25	50
	---	ND	---	---	---	---	---	---	---	125	250
Xylenes, Total	56	---	---	---	---	48	---	---	---	5	15
	---	---	---	---	---	---	25.3 J	---	---	10	30
	---	---	116 J	104 J	132 J	---	---	306	138 J	50	150
	---	ND	---	---	---	---	---	---	---	250	750

--- = not available

J = Constituent was detected at a concentration above the laboratory's LOD but below the laboratory's LOQ. Concentration is estimated and not validated.

LOD = laboratory's Limit of Detection

LOQ = laboratory's Limit of Quantitation

mg/L = milligrams per liter

ND = Not Detected

ug/L = micrograms per liter

5.0 SETTLEMENT MONITORING AND MANAGEMENT

The City is taking steps to track and manage settlement occurring in the landfill. A summary of actions taken to quantify and manage settlement is included in the sections below.

5.1 SETTLEMENT MONITORING AND MANAGEMENT PLAN

On behalf of the City, SCS submitted a settlement monitoring and management plan to VDEQ on November 15, 2022. Refer to the November Monthly Compliance Report for the SWP No. 588 Landfill for additional information.

5.2 MONTHLY SURVEYS

5.2.1 Topographic Data Collection

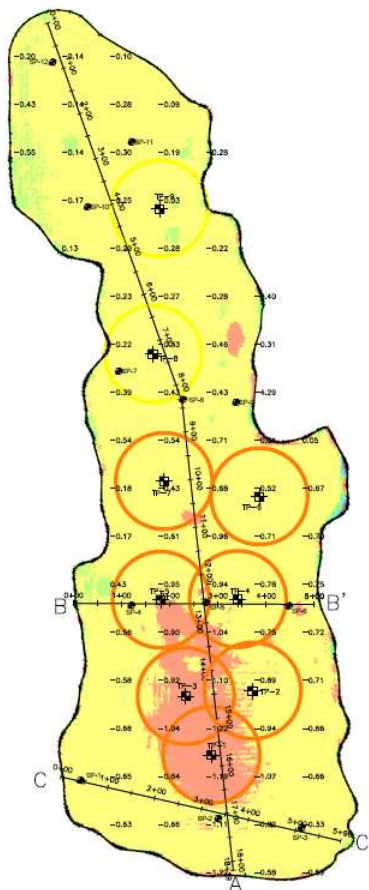
The City, through SCS, collected topographic data of the Solid Waste Permit No. 588 Landfill using photogrammetric methods via an unmanned aerial vehicle (UAV or drone). On November 16, 2023, the flight was completed and the topographic data collected. The topographic data collected is shown on Sheet 4 in Appendix E.

The topography within the landfill footprint was compared to topographic data collected by SCS using photogrammetric methods on October 12, 2023. A drawing depicting the October 12, 2023 topography is included as Sheet 3 in Appendix E.

Based on a comparison of the topographic data collected on those two dates, settlement occurred that reduced the volume of waste in the landfill by approximately 15,700 cubic yards. During that same time period, approximately 700 cubic yards of construction related fill were placed on the landfill. This fill was primarily soil stock-piled and placed as part of operational maintenance of the active GCCS and Sidewall Odor Mitigation System. This resulted in a net volume decrease of approximately 15,000 cubic yards.

A visual depiction of settlement and filling at the landfill during this time is depicted in Figure 25. Areas in red indicate where elevations decreased and areas in green indicate areas where elevations have increased. Darker colors indicate greater changes in elevation. This drawing is also included as Sheet 5 in Appendix E.

Figure 25. 1-Month Elevation Change Color Map



The locations of in-waste temperature monitoring probes are also shown on Figure 25, Figure 26, and Figure 27. The circles around the probes indicate how high the average temperatures measured by the probe are. The circles shown are offset from the probes for clarity only and do not necessarily indicate temperatures measured at locations away from the probe. Probes with a yellow circle around them, typically measure an average temperature across the full depth of the probe of less than 200 degrees Fahrenheit. Probes with an orange circle around them, typically measure an average temperature across the full depth of the probe greater than 200 degrees Fahrenheit and less than 250 degrees Fahrenheit. Probes with a red circle around them, typically measure an average temperature across the full depth of the probe greater than 250 degrees Fahrenheit and less than 300 degrees Fahrenheit. There were no probes measuring an average temperatures greater than 250 degrees Fahrenheit and less than 300 degrees Fahrenheit during the month of November.

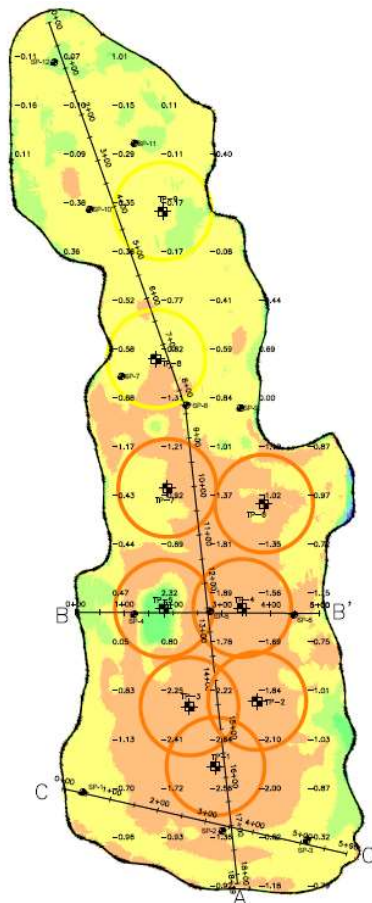
The largest settlement occurred primarily in the middle-southern end of the landfill where the waste settled by approximately 1.2 feet or more in some areas. The southern end of the landfill is the location of the gas wells and temperature probes exhibiting higher temperatures. These higher settlement values are typical of elevated temperature landfill conditions. A small portion of the landfill exhibited an increase in elevation in some areas, likely due to continued soil placement associated with construction of the Sidewall Odor Mitigation System. Some soil stockpile locations associated with the Sidewall Odor Mitigation System showed large elevation changes due to material removal from the stockpiles.

SCS calculated the waste footprint for purposes of analysis to be 752,610 square feet. Based on that area and the net volume change, the average elevation decrease was approximately 0.54 feet.

SCS also compared the topographic data collected in November to the topographic data collected on August 8, 2023. Based on a comparison of the topographic data collected on those two dates, settlement occurred that reduced the volume of waste in the landfill by approximately 25,100 cubic yards. During that same time period approximately 1,700 cubic yards of construction-related fill were placed on the landfill. This fill was primarily soil placed as part of the sidewall odor mitigation system construction. This resulted in a net volume decrease of approximately 23,400 cubic yards.

A visual depiction of settlement and filling at the landfill during this time is depicted in Figure 26. Areas in red indicate where elevations decreased and areas in green indicate areas where elevations have increased. Darker colors indicate greater changes in elevation. This drawing is also included as Sheet 6 in Appendix E.

Figure 26. 3-Month Elevation Change Color Map



Based on the area of the landfill and the net volume change, the average elevation decrease was approximately 0.84 feet.

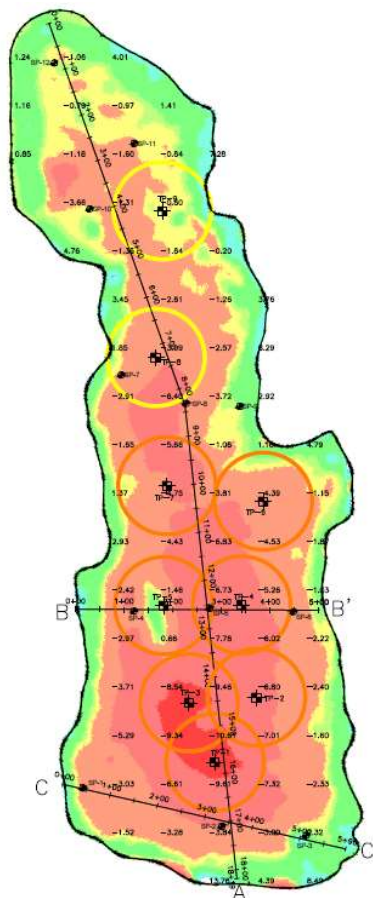
The largest settlement occurred primarily in the southern end of the landfill where the waste settled by approximately 2 feet or more in some areas. The southern end of the landfill is the location of the gas wells and temperature probes exhibiting higher temperatures. These higher settlement values are typical of elevated temperature landfill conditions. Settlement in the northern portion of the

landfill was generally less substantial or was offset by soil placement associated with construction activities. Changes in elevation in these areas are more representative of typical settlement at municipal landfills. Some portions of the landfill perimeter exhibited an increase in elevation, likely due to sediment deposition during storm events and soil placement associated with construction of the Sidewall Odor Mitigation System. There were some large variations in elevation associated with soil stockpiling operations.

SCS also compared the topographic data collected in November to the drone topographic data collected on November 8, 2022 by SCS. Based on a comparison of the topographic data collected on those two dates, settlement occurred that reduced the volume of waste in the landfill by approximately 81,500 cubic yards. During that same time period approximately 20,000 cubic yards of construction-related fill were placed on the landfill. This fill was primarily soil placed as part of the sidewall odor mitigation system construction. This resulted in a net volume decrease of approximately 61,500 cubic yards.

A visual depiction of settlement and filling at the landfill during this time is depicted in Figure 27. Areas in red indicate where elevations decreased and areas in green indicate areas where elevations have increased. Darker colors indicate greater changes in elevation. This drawing is also included as Sheet 7 in Appendix E.

Figure 27. 1-Year Elevation Change Color Map



The largest settlement occurred primarily in the southern end of the landfill where the waste settled by approximately 10 feet or more in some areas. These significant settlement values are typical of elevated temperature landfill conditions. The landfill perimeter exhibited an increase in elevation, likely due to soil placement associated with construction of the Sidewall Odor Mitigation System. There were variations in elevation associated with soil stockpiling operations.

Based on the landfill area and the net volume change, the average elevation decrease was approximately 2.2 feet.

SCS will collect topographic data covering the landfill surface again in December using photogrammetric methods via UAV. This data will be compared to the data collected in October 2023, November 2023, and December 2022.

5.2.2 Settlement Plate Surveys

On November 7, 2022 SCS field services installed 12 settlement plates on the Solid Waste Permit No. 588 landfill. The construction and installation of the settlement plates generally conforms to the design outline in the Settlement Monitoring and Management Plan. The tops of the PVC pipes were spray painted orange to improve visibility. The settlement plate locations are depicted in Figure 28 and on Sheet 1 in Appendix E.

Figure 28. Settlement Plate Locations



The locations of the settlement plates were surveyed by the City’s surveyor on November 14, 2022. The settlement plates were surveyed again on December 13, 2022; January 3, 2023; February 6, 2023; March 8, 2023; April 3, 2023; May 11, 2023; June 5, 2023; July 10, 2023; August 17, 2023; September 11, 2023; October 11, 2023; and November 6, 2023. The surveyed coordinates⁵ and elevation changes of the settlement plates are shown in Table 9.

Table 9. Settlement Plate Locations

Settlement Plate	Northing	Easting	Elevation on November 6, 2023	Elevation Change Since October 11, 2023	Strain ⁶ Since October 11, 2023	Elevation Change Since Installation	Strain Since Installation
SP-1	3,397,886.8	10,412,079.3	1,831.0	-0.5	-0.7%	-3.4	-5.2%
SP-2	3,397,809.4	10,412,365.7	1,803.3	-1.1	-0.7%	-7.3	-4.5%
SP-3 ⁷	3,397,787.5	10,412,537.9	N/A	N/A	N/A	N/A	N/A
SP-4 ⁸	3,398,250.6	10,412,187.2	1,809.4	-0.7	-0.4%	-8.1	-5.2%
SP-5	3,398,255.7	10,412,339.0	1,794.3	-1.1	-0.4%	-6.5	-2.5%
SP-6	3,398,248.9	10,412,510.4	1,775.2	-0.7	-0.5%	-2.4	-1.8%
SP-7 ⁹	3,398,735.1	10,412,158.1	1,826.1	-0.6	-0.5%	-2.5	-2.2%
SP-8	3,398,678.7	10,412,290.8	1,802.8	-0.6	-0.2%	-4.5	-1.8%
SP-9	3,398,673.4	10,412,400.9	1,782.8	-0.5	-0.5%	-3.1	-3.1%
SP-10	3,399,079.9	10,412,093.0	1,838.5	-0.3	-0.1%	-1.7	-0.6%
SP-11	3,399,216.2	10,412,183.7	1,815.5	-0.2	-0.1%	-0.8	-0.3%
SP-12	3,399,381.8	10,412,019.5	1,810.3	0.1	0.1%	-0.3	-0.3%

Settlement Plates 1, 2, 6, 7, and 9 demonstrated larger settlements than at other locations. Settlement Plates 2 and 7 were damaged during construction operations. Settlement Plates 1 and 6 are located in the southern end of the landfill. This area is where waste was most recently placed and is expected to show the most rapid settlement. This area is also the location of the gas wells and temperature probes exhibiting higher temperatures. These higher settlement values are typical of elevated temperature landfill conditions.

The change in elevation at Settlement Plates 10, 11, and 12 was lower and more representative of typical settlement at municipal landfills. The change in elevation at Settlement Plates 4, 5, and 8 falls somewhere in between these two categories. SCS believes that Settlement Plate 4 was disturbed by grading work on an adjacent roadway. Settlement Plate 3 was damaged and unable to be measured during September and October of 2023.

⁵ Settlement plate locations and coordinates are based on a local coordinate system.

⁶ Strain is defined as the change in elevation divided by the estimated waste depth.

⁷ SCS suspects that SP-3 was damaged as a result of construction activities.

⁸ Based on field observations SP-4 appears to have been disturbed during grading on an adjacent roadway.

⁹ Based on field observations SP-7 appears to have been disturbed during grading on an adjacent stockpile.

The settlement plates will be surveyed again during the month of December. The elevations surveyed will be compared to the elevations surveyed the previous months.

6.0 INTERMEDIATE COVER AND EVOH COVER SYSTEM

The City is taking steps to provide intermediate and temporary cover of the wastes in the landfill. The sections below outline the steps taken by the City.

6.1 INTERMEDIATE COVER INSTALLATION

The City completed hauling and placement of a 12-inch thick intermediate cover across the entire landfill prior to October 10, 2022. The cover was placed in accordance with 9VAC20-81-140(B)(1)(d). SCS coordinated with the City to dig a series of test holes to verify cover thickness in select locations. Details of these verifications were discussed in the October 2022 Monthly Compliance Report for the SWP No. 588 Landfill.

6.2 EVOH COVER SYSTEM DESIGN

SCS submitted responses, including revised documents, on March 20, 2023 to comments received from VDEQ concerning the Interim EVOH Cover System Preliminary Design Plans. The submitted documents included a revised operations manual and settlement calculations for the proposed stormwater basin. On April 28, 2023, SCS submitted the EVOH Cover System Stormwater Management Plan to VDEQ for the No. 588 landfill. SCS received a comment letter dated May 16, 2023 concerning the stormwater management plan. SCS prepared a response letter with revised drawings, documents, and calculations. The response package was submitted to VDEQ on June 23, 2023.

SCS is preparing construction drawings for the EVOH Cover System, including revisions discussed in the response to comments letters. The construction drawings build upon the preliminary design plans and the stormwater management plan. Potential modifications to the stormwater management plan submitted to VDEQ on April 28, 2023 will be included in the construction drawings. Stormwater modeling calculations will be provided as an attachment. Other additions to the construction drawings include additional design cross sections, landfill gas management plans and details, access road design, and other items.

SCS held a call with VDEQ personnel on August 31, 2023 to discuss potential changes to the EVOH Cover System design. The modifications include installing three separate stormwater basins within the quarry rather than one single basin. The proposed stormwater pumping infrastructure will be expanded to meet the requirements of the three basins. SCS submitted a letter to VDEQ on October 17, 2023 documenting the proposed changes. SCS is preparing a revised stormwater management plan to submit to VDEQ.

SCS continues to prepare specifications, drawings, and contract documents for the construction of the EVOH Cover System.

6.3 EVOH COVER SYSTEM PROCUREMENT

Drawings used for the purposes of bidding, procurement and construction of the EVOH cover system will generally conform to the layout and details in the drawings described in section 6.2. SCS also prepared and submitted to VDEQ a specification for the EVOH geomembrane on January 30, 2023

based upon industry standards and discussions with material manufacturers. This specification and drawing set represent the first steps in the procurement process. SCS and the City have coordinated with potential suppliers to specify a product that is not currently anticipated to have long lead times. SCS has received a pro-forma data sheet from one manufacturer which is preparing a customized EVOH product for the No. 588 landfill.

6.4 EVOH COVER SYSTEM INSTALLATION

Installation of the EVOH cover system will begin after the installation of other infrastructure is complete.

7.0 STORMWATER MANAGEMENT

The City is taking steps to implement a stormwater management plan at the landfill. The sections below outline the steps taken by the City.

7.1 STORMWATER MANAGEMENT PLAN DEVELOPMENT

The stormwater management plan was submitted to VDEQ on April 28, 2023. The plan addresses the stormwater volume calculations, assumptions, design, and control measures. SCS received a comment letter dated May 16, 2023 concerning the stormwater management plan. SCS prepared a response letter with revised drawings, documents, and calculations. The response package was submitted to VDEQ on June 23, 2023. A follow-up discussion was held with VDEQ on August 31, 2023 to discuss modifications to the stormwater management plan. The new modifications include increasing the number of stormwater basins within the quarry and reducing required earthwork.

The revised plan will propose a stormwater pumping system to convey stormwater collected atop the EVOH cover system to an existing discharge point permitted under VPDES permit VAR050053. The proposed system includes the construction of three stormwater collection basins in the quarry and the installation of pairs of skid-mounted stormwater pumps. The stormwater will be conveyed by force main pipes to the existing stormwater basins located west of the quarry.

The plan proposes modifications to the existing stormwater basins west of the quarry to achieve discharge quantity targets. Modifications include increasing the basin depths and installing new outlet riser structures.

7.2 STORMWATER MANAGEMENT BASIN DESIGN AND CONSTRUCTION

The landfill surface will be regraded to form the SWM basins proposed in the stormwater management plan. The earthwork will be completed as the first stage of the interim EVOH cover system installation project. A revised landfill gas management plan is being prepared to facilitate the regrading of the landfill, which will affect existing landfill gas infrastructure. The landfill gas system will be modified to accommodate the earthwork.

Attention is being given to settlement concerns in the vicinity of the stormwater basin or basins. Calculations provided to VDEQ on June 23, 2023 demonstrate the weight of the ponded water should not cause excessive settlement relative to ongoing settlement observed within the quarry. Including additional stormwater basins within the quarry will distribute the weight of ponded water over a wider area relative to the single stormwater basin design.

7.3 STORMWATER MANAGEMENT PLAN IMPLEMENTATION

The stormwater management plan design drawings are being incorporated into the overall construction drawings for the interim EVOH cover system. The interim EVOH cover system installation and stormwater management features will be bid and constructed as one project to facilitate simultaneous progress and completion.

7.4 LONG-TERM STORMWATER CONTROL AND REMOVAL

The stormwater management plan is designed with resiliency and redundancy to promote long-term operation. Two stormwater pumps will be installed for each basin, with each pump capable of operating independently. The pumps may be operated in parallel in contingency scenarios. The City plans to install a backup generator for the stormwater pumps to allow for continued operation in the event of a temporary power loss. The pumps have been selected to include additional pumping capacity to allow for future settlement.

A variable frequency drive control system is planned for the stormwater pumping system. The water level will be gauged using a transducer cable or comparable monitoring system to allow for automation of the pumping system. Appropriate telemetry will be used to allow for remote monitoring of the pumping system.

The operations manual will be updated to discuss the long-term operation and maintenance of the pumping system and other stormwater management features. Periodic inspections of the stormwater management system will be completed. The regular inspections will include monitoring the rate of settlement. If excessive settlement occurs, repairs will be planned and conducted as necessary to maintain the stormwater management system and cover system integrity.

7.5 STORMWATER MONITORING

Stormwater monitoring will commence upon initial discharge of stormwater from the quarry stormwater pumping system. As stated in the stormwater management plan drawings, the stormwater shall be monitored in accordance with the facility's VPDES general permit for discharge of stormwater associated with industrial activity. Additional requirements include collecting additional stormwater samples at the discharge pipes for the quarry stormwater pumping system. The stormwater from the quarry basins will be sampled on a monthly basis prior to discharge to the upper stormwater ponds. The Operations Manual will be revised to include these additional requirements.

If the stormwater becomes contaminated or sampling indicates contamination above discharge limits, the stormwater will be diverted to the sanitary sewer system. The diversion to the sanitary sewer system will continue until the source of contamination is identified and resolved. The stormwater discharge pipe alignment will pass adjacent to the existing sanitary sewer manhole. A tee with isolation valves will be used to direct the stormwater to the upper basins or the sanitary sewer manhole.

8.0 MISCELLANEOUS

8.1 CEASE WASTE ACCEPTANCE

The City ceased acceptance of offsite waste at the Solid Waste Permit No. 588 landfill prior to September 12, 2022.

8.2 LONG-TERM PLAN

SCS submitted the Monitoring, Maintenance, and Repair Plan to VDEQ for the SWP No. 588 landfill on December 30, 2022. Refer to the December 2022 Monthly Compliance Report for the SWP No. 588 Landfill for additional information. The City has taken steps to implement the plan that were detailed in the March 2023 Monthly Compliance Report for the SWP No. 588 Landfill.

8.3 MONTHLY COMPLIANCE REPORTS


As described in the introduction this report is intended to provide comprehensive updates regarding progress towards completion of each item described in Appendix A of the Consent Decree between the City and VDEQ,

8.4 COMMUNITY OUTREACH PROGRAM

The City's consultant leading community outreach, McGuireWoods Consulting, described the actions taken as part of their community outreach efforts. For the month of November, those actions include:

- November – ongoing basis: Two posts on the BristolVALandfill.org site and the existing City of Bristol Landfill Notifications and Information page covering important updates including:
 - Progress updates related to remediation efforts at the quarry landfill
 - Began including updates as well related to steps towards closing landfill 498 in order to make sure residents are aware activities are occurring on another site in addition to ongoing work at the 588 landfill
-
- **Weekly updates on landing page on Bristolvalandfill.org titled “Air Sampling and Air Monitoring” that includes a summary of the air sampling and monitoring being conducted by Bristol, VA around the quarry landfill.**
 - Website now includes twenty-seven weekly monitoring reports starting with May 15th, 2023 and running through November 19th of 2023
- **E-mail communication sent to the list of members of the public signed up through the Bristol, VA website, the BristolVALandfill.org website, or at subsequent Open Houses to receive information via e-mail**

- E-mails sent included weekly remediation progress update and links to website updates and latest news articles on the following days:
 - Monday, November 13th
 - Friday, November 17th



Appendix A
Surface Emissions Monitoring Summary Letters

November 15, 2023
File No. 02218208.04

Mr. Jonathan Chapman
Enforcement Specialist
Virginia Department of Environmental Quality
SW Regional Office
355-A Deadmore Street
Abingdon, VA 24210

Subject: Weekly Surface Emissions Monitoring Event – November 8, 2023
Bristol Integrated Solid Waste Facility – Bristol, Virginia

Dear Mr. Chapman:

On behalf of the City of Bristol (City), SCS Engineers (SCS), is pleased to submit the results of the Weekly Surface Emissions Monitoring event performed at the Bristol Integrated Solid Waste Facility located in Bristol, Virginia on November 8, 2023. This Weekly Surface Emissions Monitoring (SEM) Event was performed in accordance with Appendix A.1.i of the Consent Decree between the Commonwealth of Virginia and the City of Bristol.

The monitoring generally conforms to the requirements of 40 CFR 63.1960(c) and (d), and 40 CFR 60.36f(c) and (d), and 40 CFR 60, Appendix A, Method 21. The landfill gas (LFG) collection system is required to operate such that the methane concentration is less than 500 ppm above background at the landfill surface.

The monitoring route includes the entire waste footprint of the Permit No. 588 Landfill. Sampling was conducted with a Thermo Scientific TVA-2020 Flame Ionization Detector (FID) at 30-meter intervals and where visual observations indicated the potential for elevated concentrations of LFG, such as distressed vegetation and surface cover cracks. In addition, in accordance with 40 CFR 63.1958(d)(ii)(2) and 40 CFR 60.34f(d), monitoring was conducted at all surface cover penetrations within the waste footprint, including at the temperature probes and the newly installed and connected gas extraction wells. The approximate monitoring route and sampling locations are presented in the attached Drawing.

At the time of monitoring, all areas of the Permit No. 588 Landfill footprint are subject to regulatory monitoring based on the regulatory time schedule stipulated in 40 CFR 63.1960(b) and 40 CFR 60.36f(b). The Permit No. 588 Landfill has a surface area of approximately 17.3 acres. Therefore, the minimum number of sampling points to cover the appropriate portion of the landfill footprint, utilizing a 30-meter grid interval, is approximately 82 (4.75 points per acre). A summary of the results of the surface emissions monitoring is provided in Table 1.



Table 1. Summary of Surface Emissions Monitoring

Description	Quantity
Number of Points Sampled	177
Number of Points in Serpentine Route	100
Number of Points at Surface Cover Penetrations	77
Number of Exceedances	2
Number of Serpentine Exceedances	0
Number of Pipe Penetration Exceedances	2

REMONITORING OF ONGOING EXCEEDANCES

In accordance with 40 CFR 63.1960(c)(4)(ii) and 40 CFR 60.36f(c)(4)(ii), corrective actions and a remonitoring event are to be performed within 10 days of the initial exceedance. In accordance with 40 CFR 63.1960(c)(4)(iii) and 40 CFR 60.36f(c)(4)(iii) additional corrective actions and a second 10-day retest are to be performed if the initial 10-day retest indicates methane values greater than the regulatory threshold. The Facility performs corrective actions, as necessary, including wellhead vacuum adjustments, the installation of well-bore seals, and addition of soil cover prior to weekly monitoring events at locations that previously exhibited elevated methane concentrations.

In accordance with 40 CFR 63.1960(c)(4)(v) and 40 CFR 60.36f(c)(4)(v) a new well or collection device must be installed or an alternate remedy must be submitted within 120-days at locations that continue to exhibit methane concentrations above the regulatory threshold for two consecutive retests.

A summary of ongoing exceedance points is provided in Table 2.

Table 2. Ongoing Weekly SEM Exceedances

Point ID	Initial Exceedance Date	11/8/23 Event	11/8/23 Event Result	Comments
EW-90	8/11/23	N/A	Failed	Subject to 40 CFR 63.1960(c)(4)(v)
EW-68	10/9/23	30-Day Retest	Passed	Exceedance Resolved
EW-95	10/9/23	30-Day Retest	Passed	Exceedance Resolved
EW-91	10/24/23	N/A	Passed	Requires 30-Day Retest
EW-92	10/24/23	N/A	Passed	Requires 30-Day Retest
EW-82	10/24/23	N/A	Passed	Requires 30-Day Retest
EW-98	10/24/23	2 nd 10-Day Retest	Passed	Requires 30-Day Retest
EW-66	10/30/23	10-Day Retest	Failed	Requires 2 nd 10-Day Retest

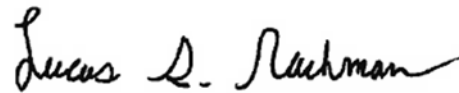
Mr. Jonathan Chapman
November 15, 2023
Page 3

If you have questions or require additional information, please contact either of the undersigned.

Sincerely,



William J. Fabrie
Staff Professional
SCS Engineers



Lucas S. Nachman
Senior Project Professional
SCS Engineers

LSN/WJF/cjw

cc: Randall Eads, City of Bristol
Mike Martin, City of Bristol
Joey Lamie, City of Bristol
Jonathan Hayes, City of Bristol
Jake Chandler, City of Bristol
Susan "Tracey" Blalock, VDEQ

Encl. Surface Emissions Monitoring Results
Bristol SEM Route Drawing

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 8, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
1	1.8 PPM	OK			Start Serpentine Route
2	6.6 PPM	OK			
3	2.3 PPM	OK			
4	2.2 PPM	OK			
5	1.7 PPM	OK			
6	1.5 PPM	OK			
7	1.4 PPM	OK			
8	1.4 PPM	OK			
9	1.3 PPM	OK			
10	2.6 PPM	OK			
11	3.7 PPM	OK			
12	1.6 PPM	OK			
13	3.6 PPM	OK			
14	10.1 PPM	OK			
15	5.4 PPM	OK			
16	1.9 PPM	OK			
17	2.9 PPM	OK			
18	2.0 PPM	OK			
19	11.8 PPM	OK			
20	14.4 PPM	OK			
21	9.9 PPM	OK			
22	1.7 PPM	OK			
23	6.1 PPM	OK			
24	14.9 PPM	OK			
25	49.3 PPM	OK			
26	191.0 PPM	OK			
27	1.0 PPM	OK			
28	1.0 PPM	OK			
29	55.8 PPM	OK			
30	60.7 PPM	OK			
31	41.9 PPM	OK			
32	21.0 PPM	OK			
33	20.8 PPM	OK			
34	78.7 PPM	OK			
35	44.8 PPM	OK			
36	8.5 PPM	OK			
37	33.8 PPM	OK			
38	2.5 PPM	OK			
39	7.3 PPM	OK			
40	7.3 PPM	OK			
41	2.4 PPM	OK			
42	3.4 PPM	OK			
43	1.7 PPM	OK			
44	1.3 PPM	OK			
45	0.8 PPM	OK			
46	0.9 PPM	OK			
47	1.0 PPM	OK			
48	0.9 PPM	OK			
49	0.8 PPM	OK			

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 8, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
50	0.8 PPM	OK			
51	0.7 PPM	OK			
52	0.6 PPM	OK			
53	1.8 PPM	OK			
54	5.4 PPM	OK			
55	0.6 PPM	OK			
56	0.6 PPM	OK			
57	3.9 PPM	OK			
58	0.9 PPM	OK			
59	1.2 PPM	OK			
60	2.0 PPM	OK			
61	7.1 PPM	OK			
62	3.7 PPM	OK			
63	25.2 PPM	OK			
64	19.4 PPM	OK			
65	52.1 PPM	OK			
66	47.9 PPM	OK			
67	9.8 PPM	OK			
68	15.9 PPM	OK			
69	89.5 PPM	OK			
70	34.0 PPM	OK			
71	3.8 PPM	OK			
72	9.5 PPM	OK			
73	122.0 PPM	OK			
74	170.0 PPM	OK			
75	98.3 PPM	OK			
76	4.4 PPM	OK			
77	7.1 PPM	OK			
78	280.0 PPM	OK			
79	320.0 PPM	OK			
80	41.8 PPM	OK			
81	62.0 PPM	OK			
82	9.1 PPM	OK			
83	3.1 PPM	OK			
84	15.6 PPM	OK			
85	1.1 PPM	OK			
86	0.7 PPM	OK			
87	0.7 PPM	OK			
88	0.5 PPM	OK			
89	0.4 PPM	OK			
90	0.4 PPM	OK			
91	6.7 PPM	OK			
92	4.8 PPM	OK			
93	18.2 PPM	OK			
94	31.6 PPM	OK			
95	48.6 PPM	OK			
96	17.4 PPM	OK			
97	53.1 PPM	OK			
98	39.5 PPM	OK			

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 8, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
99	37.6 PPM	OK			
100	52.4 PPM	OK			End Serpentine Route
101	148.0 PPM	OK			EW-35
102	94.1 PPM	OK			EW-52
103	11.6 PPM	OK			TP-4
104	22.4 PPM	OK			EW-60
105	4.4 PPM	OK			EW-48
106	10.0 PPM	OK			TP-6
107	1.4 PPM	OK			EW-61
108	6.3 PPM	OK			EW-34
109	1.9 PPM	OK			EW-50
110	26.0 PPM	OK			EW-67
111	91.6 PPM	OK			EW-47
112	125.0 PPM	OK			EW-54
113	35.0 PPM	OK			EW-55
114	47.0 PPM	OK			EW-92
115	235.0 PPM	OK			EW-91
116	13.7 PPM	OK			EW-96
117	1.9 PPM	OK			TP-2
118	1289.0 PPM	HIGH_ALRM	36.59857	-82.14760	EW-66
119	240.0 PPM	OK			EW-58
120	28.1 PPM	OK			EW-57
121	66.4 PPM	OK			TP-1
122	19.4 PPM	OK			EW-59
123	84.3 PPM	OK			EW-56
124	6.0 PPM	OK			EW-97
125	3.2 PPM	OK			EW-41
126	305.0 PPM	OK			EW-53
127	11.2 PPM	OK			EW-40
128	29.7 PPM	OK			TP-3
129	388.0 PPM	OK			EW-51
130	43.0 PPM	OK			EW-39
131	110.0 PPM	OK			TP-5
132	97.3 PPM	OK			EW-68
133	5.6 PPM	OK			EW-87
134	92.8 PPM	OK			EW-38
135	233.0 PPM	OK			TP-7
136	4.0 PPM	OK			EW-49
137	3.5 PPM	OK			EW-83
138	4.2 PPM	OK			EW-31R
139	3.9 PPM	OK			EW-65
140	1.4 PPM	OK			EW-81
141	0.6 PPM	OK			TP-8
142	1.1 PPM	OK			EW-64
143	1.8 PPM	OK			EW-30R
144	1.0 PPM	OK			EW-63
145	1.4 PPM	OK			EW-42
146	111.0 PPM	OK			TP-9

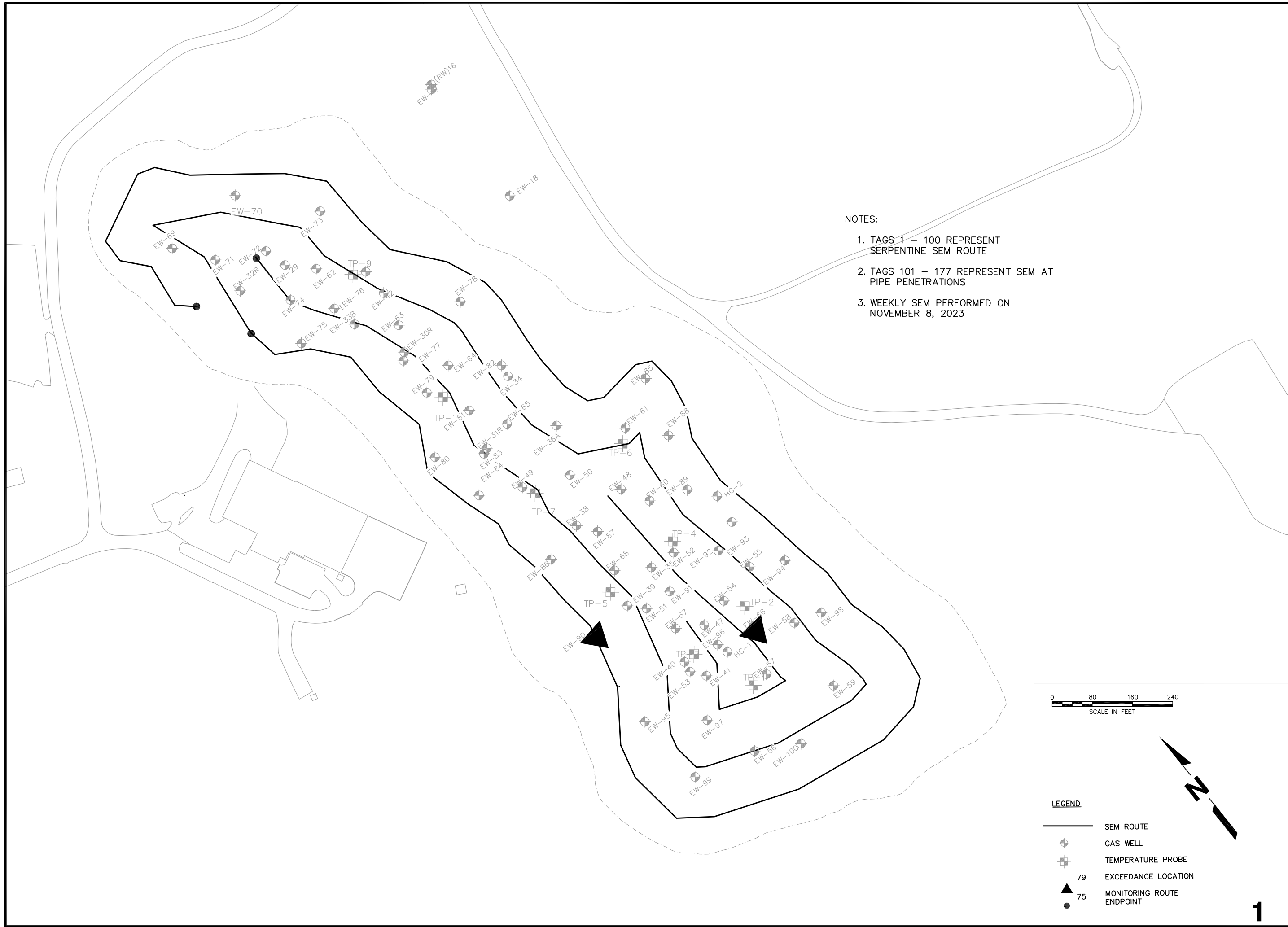
**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 8, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
147	3.3 PPM	OK			EW-33R
148	0.8 PPM	OK			EW-62
149	0.8 PPM	OK			EW-29R
150	1.2 PPM	OK			EW-74
151	0.7 PPM	OK			EW-32R
152	0.5 PPM	OK			EW-69
153	1.2 PPM	OK			EW-71
154	1.1 PPM	OK			EW-72
155	0.7 PPM	OK			EW-70
156	17.4 PPM	OK			EW-73
157	25.9 PPM	OK			EW-76
158	12.0 PPM	OK			EW-78
159	41.0 PPM	OK			EW-82
160	1.8 PPM	OK			EW-36A
161	116.0 PPM	OK			EW-85
162	32.4 PPM	OK			EW-88
163	4.6 PPM	OK			EW-89
164	4.5 PPM	OK			EW-93
165	31.9 PPM	OK			EW-94
166	12.7 PPM	OK			EW-98
167	8.6 PPM	OK			EW-100
168	197.0 PPM	OK			EW-99
169	159.0 PPM	OK			EW-95
170	1448.0 PPM	HIGH_ALARM	36.59877	-82.14825	EW-90
171	1.8 PPM	OK			EW-86
172	1.4 PPM	OK			EW-84
173	1.5 PPM	OK			EW-80
174	0.4 PPM	OK			EW-79
175	0.0 PPM	OK			EW-77
176	0.1 PPM	OK			EW-33B
177	0.1 PPM	OK			EW-75

Number of locations sampled:	177
Number of exceedance locations:	2

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 8, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
NOTES:					
Points 1 through 100 represent serpentine SEM route.					
Points 101 through 177 represent SEM at Pipe Penetrations					
Weather Conditions: Mostly Sunny, 72°F Wind: N 3 MPH					
<u>Sampling Calibration: Methane - 500 ppm, Zero Air - 0.0 ppm</u>					
11/8/2023	10:46	ZERO	0.0		PPM
11/8/2023	10:50	SPAN	498.0		PPM
<u>Background Reading:</u>					
11/8/2023	10:54	Upwind	2.1		PPM
11/8/2023	11:02	Downwind	1.5		PPM



- NOTES:
1. TAGS 1 – 100 REPRESENT SERPENTINE SEM ROUTE
 2. TAGS 101 – 177 REPRESENT SEM AT PIPE PENETRATIONS
 3. WEEKLY SEM PERFORMED ON NOVEMBER 8, 2023



- LEGEND
- SEM ROUTE
 - ⊕ GAS WELL
 - ⊕ TEMPERATURE PROBE
 - 79 EXCEEDANCE LOCATION
 - ▲ MONITORING ROUTE ENDPOINT
 - ENDPOINT

CLIENT CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2655 VALLEY DRIVE BRISTOL, VA 24201	SHEET TITLE WEEKLY SEM ROUTE	NO.	REVISION	DATE
	PROJECT TITLE SURFACE EMISSIONS MONITORING SOLID WASTE PERMIT #588	△		
SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC. 10200 WOODBURN AVENUE, SUITE 100 PH: (804) 376-7440 FAX: (804) 376-7433 D/W: BT: LSN C/W: BT: SN D/A: RW: BT: LSN APP: BT: DBK	FILE: 02218208.04	DATE: 11/8/23		
	SCALE: AS SHOWN			
	DRAWING NO.			
	1 of 1			

November 22, 2023
File No. 02218208.04

Mr. Jonathan Chapman
Enforcement Specialist
Virginia Department of Environmental Quality
SW Regional Office
355-A Deadmore Street
Abingdon, VA 24210

Subject: Weekly Surface Emissions Monitoring Event – November 15, 2023
Bristol Integrated Solid Waste Facility – Bristol, Virginia

Dear Mr. Chapman:

On behalf of the City of Bristol (City), SCS Engineers (SCS), is pleased to submit the results of the Weekly Surface Emissions Monitoring event performed at the Bristol Integrated Solid Waste Facility located in Bristol, Virginia on November 15, 2023. This Weekly Surface Emissions Monitoring (SEM) Event was performed in accordance with Appendix A.1.i of the Consent Decree between the Commonwealth of Virginia and the City of Bristol.

The monitoring generally conforms to the requirements of 40 CFR 63.1960(c) and (d), and 40 CFR 60.36f(c) and (d), and 40 CFR 60, Appendix A, Method 21. The landfill gas (LFG) collection system is required to operate such that the methane concentration is less than 500 ppm above background at the landfill surface.

The monitoring route includes the entire waste footprint of the Permit No. 588 Landfill. Sampling was conducted with a Thermo Scientific TVA-2020 Flame Ionization Detector (FID) at 30-meter intervals and where visual observations indicated the potential for elevated concentrations of LFG, such as distressed vegetation and surface cover cracks. In addition, in accordance with 40 CFR 63.1958(d)(ii)(2) and 40 CFR 60.34f(d), monitoring was conducted at all surface cover penetrations within the waste footprint, including at the temperature probes and the newly installed and connected gas extraction wells. The approximate monitoring route and sampling locations are presented in the attached Drawing.

At the time of monitoring, all areas of the Permit No. 588 Landfill footprint are subject to regulatory monitoring based on the regulatory time schedule stipulated in 40 CFR 63.1960(b) and 40 CFR 60.36f(b). The Permit No. 588 Landfill has a surface area of approximately 17.3 acres. Therefore, the minimum number of sampling points to cover the appropriate portion of the landfill footprint, utilizing a 30-meter grid interval, is approximately 82 (4.75 points per acre). A summary of the results of the surface emissions monitoring is provided in Table 1.



Table 1. Summary of Surface Emissions Monitoring

Description	Quantity
Number of Points Sampled	177
Number of Points in Serpentine Route	100
Number of Points at Surface Cover Penetrations	77
Number of Exceedances	3
Number of Serpentine Exceedances	0
Number of Pipe Penetration Exceedances	3

REMONITORING OF ONGOING EXCEEDANCES

In accordance with 40 CFR 63.1960(c)(4)(ii) and 40 CFR 60.36f(c)(4)(ii), corrective actions and a remonitoring event are to be performed within 10 days of the initial exceedance. In accordance with 40 CFR 63.1960(c)(4)(iii) and 40 CFR 60.36f(c)(4)(iii) additional corrective actions and a second 10-day retest are to be performed if the initial 10-day retest indicates methane values greater than the regulatory threshold. The Facility performs corrective actions, as necessary, including wellhead vacuum adjustments, the installation of well-bore seals, and addition of soil cover prior to weekly monitoring events at locations that previously exhibited elevated methane concentrations.

In accordance with 40 CFR 63.1960(c)(4)(v) and 40 CFR 60.36f(c)(4)(v) a new well or collection device must be installed or an alternate remedy must be submitted within 120-days at locations that continue to exhibit methane concentrations above the regulatory threshold for two consecutive retests.

A summary of ongoing exceedance points is provided in Table 2.

Table 2. Ongoing Weekly SEM Exceedances

Point ID	Initial Exceedance Date	11/15/23 Event	11/15/23 Event Result	Comments
EW-90	8/11/23	N/A	Failed	Subject to 40 CFR 63.1960(c)(4)(v)
EW-91	10/24/23	N/A	Passed	Requires 30-Day Retest
EW-92	10/24/23	N/A	Passed	Requires 30-Day Retest
EW-82	10/24/23	N/A	Passed	Requires 30-Day Retest
EW-98	10/24/23	N/A	Passed	Requires 30-Day Retest
EW-66	10/30/23	2 nd 10-Day Retest	Passed	Requires 30-Day Retest

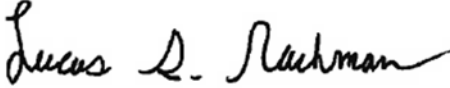
Mr. Jonathan Chapman
November 22, 2023
Page 3

If you have questions or require additional information, please contact either of the undersigned.

Sincerely,



William J. Fabrie
Staff Professional
SCS Engineers



Lucas S. Nachman
Senior Project Professional
SCS Engineers

LSN/WJF/cjw

cc: Randall Eads, City of Bristol
Mike Martin, City of Bristol
Joey Lamie, City of Bristol
Jonathan Hayes, City of Bristol
Jake Chandler, City of Bristol
Susan "Tracey" Blalock, VDEQ

Encl. Surface Emissions Monitoring Results
Bristol SEM Route Drawing

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 15, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
1	1.1 PPM	OK			Start Serpentine Route
2	6.2 PPM	OK			
3	1.0 PPM	OK			
4	1.0 PPM	OK			
5	1.0 PPM	OK			
6	1.0 PPM	OK			
7	0.9 PPM	OK			
8	1.0 PPM	OK			
9	2.1 PPM	OK			
10	121.0 PPM	OK			
11	3.1 PPM	OK			
12	2.2 PPM	OK			
13	44.1 PPM	OK			
14	28.2 PPM	OK			
15	11.3 PPM	OK			
16	3.9 PPM	OK			
17	5.8 PPM	OK			
18	3.0 PPM	OK			
19	18.4 PPM	OK			
20	8.1 PPM	OK			
21	81.4 PPM	OK			
22	8.2 PPM	OK			
23	2.9 PPM	OK			
24	5.5 PPM	OK			
25	4.9 PPM	OK			
26	4.3 PPM	OK			
27	1.4 PPM	OK			
28	2.7 PPM	OK			
29	14.0 PPM	OK			
30	10.9 PPM	OK			
31	80.7 PPM	OK			
32	25.7 PPM	OK			
33	6.7 PPM	OK			
34	26.0 PPM	OK			
35	36.7 PPM	OK			
36	21.2 PPM	OK			
37	4.2 PPM	OK			
38	28.3 PPM	OK			
39	17.9 PPM	OK			
40	16.3 PPM	OK			
41	14.9 PPM	OK			
42	6.6 PPM	OK			
43	2.0 PPM	OK			
44	1.8 PPM	OK			
45	1.8 PPM	OK			
46	2.9 PPM	OK			
47	1.6 PPM	OK			
48	1.8 PPM	OK			
49	1.6 PPM	OK			

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 15, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
50	1.7 PPM	OK			
51	3.9 PPM	OK			
52	6.7 PPM	OK			
53	2.0 PPM	OK			
54	3.2 PPM	OK			
55	7.2 PPM	OK			
56	1.7 PPM	OK			
57	1.3 PPM	OK			
58	0.7 PPM	OK			
59	2.8 PPM	OK			
60	1.8 PPM	OK			
61	1.0 PPM	OK			
62	98.3 PPM	OK			
63	20.1 PPM	OK			
64	11.9 PPM	OK			
65	52.1 PPM	OK			
66	70.0 PPM	OK			
67	31.2 PPM	OK			
68	124.0 PPM	OK			
69	8.0 PPM	OK			
70	5.8 PPM	OK			
71	11.5 PPM	OK			
72	9.6 PPM	OK			
73	47.9 PPM	OK			
74	249.0 PPM	OK			
75	78.1 PPM	OK			
76	3.8 PPM	OK			
77	1.4 PPM	OK			
78	210.0 PPM	OK			
79	103.0 PPM	OK			
80	227.0 PPM	OK			
81	103.0 PPM	OK			
82	24.2 PPM	OK			
83	66.2 PPM	OK			
84	37.2 PPM	OK			
85	24.3 PPM	OK			
86	1.7 PPM	OK			
87	5.2 PPM	OK			
88	2.5 PPM	OK			
89	1.7 PPM	OK			
90	0.6 PPM	OK			
91	12.4 PPM	OK			
92	29.8 PPM	OK			
93	60.4 PPM	OK			
94	270.0 PPM	OK			
95	177.0 PPM	OK			
96	33.8 PPM	OK			
97	9.1 PPM	OK			
98	11.8 PPM	OK			

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 15, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
99	16.8 PPM	OK			
100	13.4 PPM	OK			End Serpentine Route
101	227.0 PPM	OK			EW-35
102	335.0 PPM	OK			EW-52
103	23.2 PPM	OK			TP-4
104	10.3 PPM	OK			EW-60
105	21.4 PPM	OK			EW-48
106	52.1 PPM	OK			TP-6
107	77.5 PPM	OK			EW-61
108	5.9 PPM	OK			EW-34
109	0.4 PPM	OK			EW-50
110	7.7 PPM	OK			EW-67
111	30.8 PPM	OK			EW-47
112	56.1 PPM	OK			EW-54
113	88.3 PPM	OK			EW-55
114	17.9 PPM	OK			EW-92
115	381.0 PPM	OK			EW-91
116	1.0 PPM	OK			EW-96
117	1.4 PPM	OK			TP-2
118	1.0 PPM	OK			EW-66
119	8.0 PPM	OK			EW-58
120	52.2 PPM	OK			EW-57
121	37.0 PPM	OK			TP-1
122	9.2 PPM	OK			EW-59
123	37.6 PPM	OK			EW-56
124	0.3 PPM	OK			EW-97
125	20.4 PPM	OK			EW-41
126	57.9 PPM	OK			EW-53
127	14.3 PPM	OK			EW-40
128	8.5 PPM	OK			TP-3
129	183.0 PPM	OK			EW-51
130	274.0 PPM	OK			EW-39
131	26.3 PPM	OK			TP-5
132	150.0 PPM	OK			EW-68
133	2846.0 PPM	HIGH_ALRM	36.59935	-82.14782	EW-87
134	21.5 PPM	OK			EW-38
135	225.0 PPM	OK			TP-7
136	15.3 PPM	OK			EW-49
137	2.4 PPM	OK			EW-83
138	2.0 PPM	OK			EW-31R
139	2.7 PPM	OK			EW-65
140	0.8 PPM	OK			EW-81
141	0.9 PPM	OK			TP-8
142	1.0 PPM	OK			EW-64
143	0.6 PPM	OK			EW-30R
144	0.3 PPM	OK			EW-63
145	2.7 PPM	OK			EW-42
146	83.9 PPM	OK			TP-9

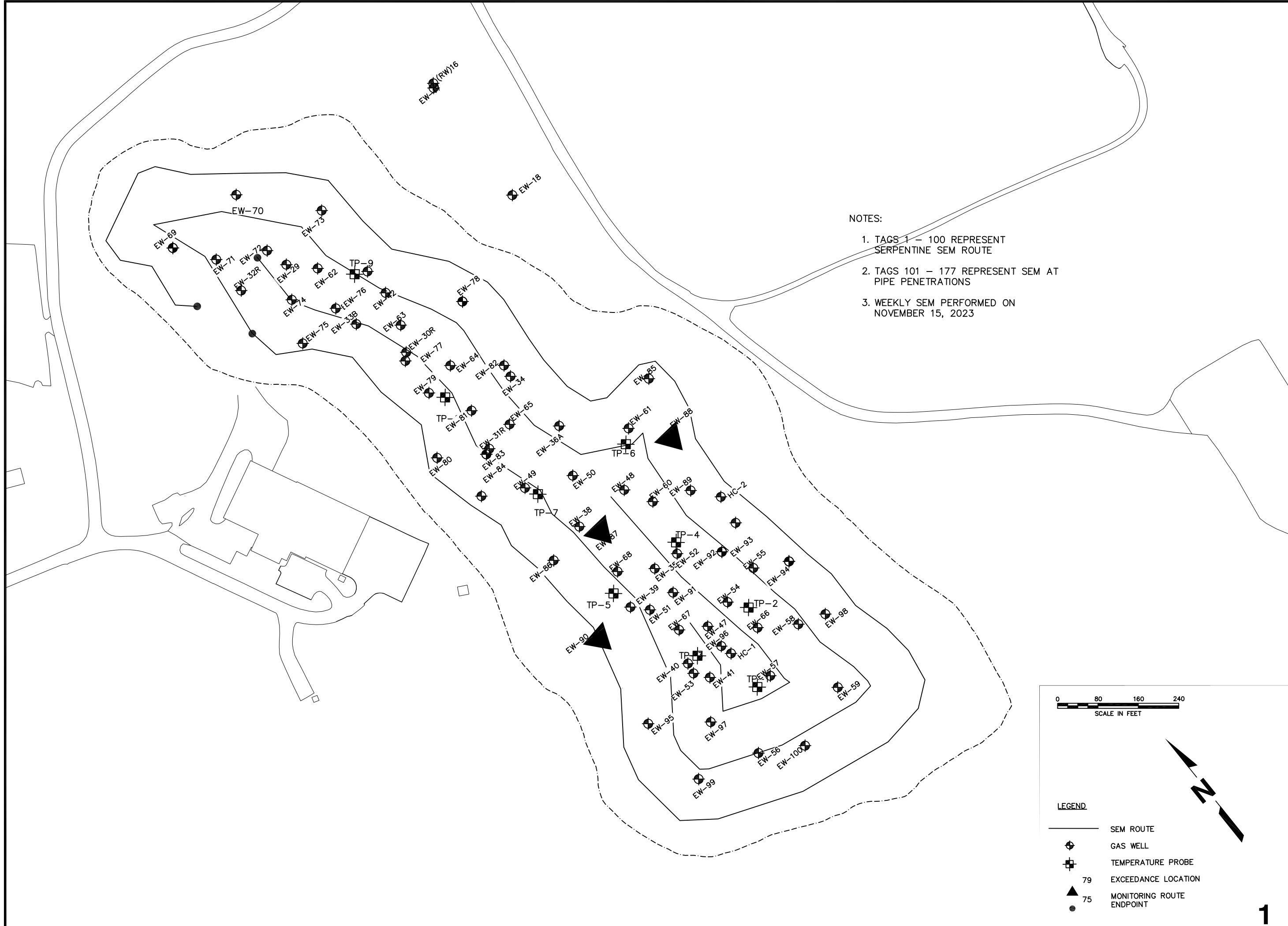
**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 15, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
147	0.6 PPM	OK			EW-33R
148	0.3 PPM	OK			EW-62
149	0.3 PPM	OK			EW-29R
150	0.1 PPM	OK			EW-74
151	0.0 PPM	OK			EW-32R
152	0.0 PPM	OK			EW-69
153	0.0 PPM	OK			EW-71
154	0.0 PPM	OK			EW-72
155	0.4 PPM	OK			EW-70
156	0.0 PPM	OK			EW-73
157	33.4 PPM	OK			EW-76
158	6.8 PPM	OK			EW-78
159	2.2 PPM	OK			EW-82
160	18.3 PPM	OK			EW-36A
161	1.4 PPM	OK			EW-85
162	844.0 PPM	HIGH_ALRM	36.59957	-82.14703	EW-88
163	41.0 PPM	OK			EW-89
164	13.8 PPM	OK			EW-93
165	26.9 PPM	OK			EW-94
166	98.1 PPM	OK			EW-98
167	43.1 PPM	OK			EW-100
168	0.7 PPM	OK			EW-99
169	77.9 PPM	OK			EW-95
170	4066.0 PPM	HIGH_ALRM	36.59877	-82.14825	EW-90
171	1.6 PPM	OK			EW-86
172	0.3 PPM	OK			EW-84
173	0.2 PPM	OK			EW-80
174	0.2 PPM	OK			EW-79
175	0.1 PPM	OK			EW-77
176	5.4 PPM	OK			EW-33B
177	0.1 PPM	OK			EW-75

Number of locations sampled:	177
Number of exceedance locations:	3

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 15, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
NOTES:					
Points 1 through 100 represent serpentine SEM route.					
Points 101 through 177 represent SEM at Pipe Penetrations					
Weather Conditions: Partly Cloudy, 63°F Wind: SE 3 MPH					
<u>Sampling Calibration: Methane - 500 ppm, Zero Air - 0.0 ppm</u>					
11/15/2023	11:22	ZERO	0.0		PPM
11/15/2023	11:26	SPAN	500.0		PPM
<u>Background Reading:</u>					
11/15/2023	11:28	Upwind	3.2		PPM
11/15/2023	11:42	Downwind	1.1		PPM



- NOTES:
- 1. TAGS 1 – 100 REPRESENT SERPENTINE SEM ROUTE
 - 2. TAGS 101 – 177 REPRESENT SEM AT PIPE PENETRATIONS
 - 3. WEEKLY SEM PERFORMED ON NOVEMBER 15, 2023

0 80 160 240
SCALE IN FEET

LEGEND

- SEM ROUTE
- ⊕ GAS WELL
- ⊕ TEMPERATURE PROBE
- 79 EXCEEDANCE LOCATION
- ▲ 75 MONITORING ROUTE ENDPOINT
- MONITORING ROUTE ENDPOINT

CLIENT
CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
2655 VALLEY DRIVE
BRISTOL, VA 24201

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC.
1529 JUDSON DRIVE, FARMINGTON, VA 23113
PH. (804) 378-7440 FAX. (804) 378-7433

PROJ. NO. 02218208.04
DWN. BY: LSN
CHK. BY: LSN
APP. BY: DBK

FILE: 02218208.04
DATE: 11/15/23
SCALE: AS SHOWN
DRAWING NO.

NO.	△	△	△	△	△	△	△
	REVISION						
DATE							
SHEET TITLE WEEKLY SEM ROUTE							
PROJECT TITLE SURFACE EMISSIONS MONITORING SOLID WASTE PERMIT #588							

November 29, 2023
File No. 02218208.04

Mr. Jonathan Chapman
Enforcement Specialist
Virginia Department of Environmental Quality
SW Regional Office
355-A Deadmore Street
Abingdon, VA 24210

Subject: Weekly Surface Emissions Monitoring Event – November 20, 2023
Bristol Integrated Solid Waste Facility – Bristol, Virginia

Dear Mr. Chapman:

On behalf of the City of Bristol (City), SCS Engineers (SCS), is pleased to submit the results of the Weekly Surface Emissions Monitoring event performed at the Bristol Integrated Solid Waste Facility located in Bristol, Virginia on November 20, 2023. This Weekly Surface Emissions Monitoring (SEM) Event was performed in accordance with Appendix A.1.i of the Consent Decree between the Commonwealth of Virginia and the City of Bristol.

The monitoring generally conforms to the requirements of 40 CFR 63.1960(c) and (d), and 40 CFR 60.36f(c) and (d), and 40 CFR 60, Appendix A, Method 21. The landfill gas (LFG) collection system is required to operate such that the methane concentration is less than 500 ppm above background at the landfill surface.

The monitoring route includes the entire waste footprint of the Permit No. 588 Landfill. Sampling was conducted with a Thermo Scientific TVA-2020 Flame Ionization Detector (FID) at 30-meter intervals and where visual observations indicated the potential for elevated concentrations of LFG, such as distressed vegetation and surface cover cracks. In addition, in accordance with 40 CFR 63.1958(d)(ii)(2) and 40 CFR 60.34f(d), monitoring was conducted at all surface cover penetrations within the waste footprint, including at the temperature probes and the newly installed and connected gas extraction wells. The approximate monitoring route and sampling locations are presented in the attached Drawing.

At the time of monitoring, all areas of the Permit No. 588 Landfill footprint are subject to regulatory monitoring based on the regulatory time schedule stipulated in 40 CFR 63.1960(b) and 40 CFR 60.36f(b). The Permit No. 588 Landfill has a surface area of approximately 17.3 acres. Therefore, the minimum number of sampling points to cover the appropriate portion of the landfill footprint, utilizing a 30-meter grid interval, is approximately 82 (4.75 points per acre). A summary of the results of the surface emissions monitoring is provided in Table 1. Note that there were two fewer points monitored during this event due to the decommissioning of vertical wells EW-31R and EW-40.



Table 1. Summary of Surface Emissions Monitoring

Description	Quantity
Number of Points Sampled	175
Number of Points in Serpentine Route	100
Number of Points at Surface Cover Penetrations	75
Number of Exceedances	2
Number of Serpentine Exceedances	0
Number of Pipe Penetration Exceedances	2

REMONITORING OF ONGOING EXCEEDANCES

In accordance with 40 CFR 63.1960(c)(4)(ii) and 40 CFR 60.36f(c)(4)(ii), corrective actions and a remonitoring event are to be performed within 10 days of the initial exceedance. In accordance with 40 CFR 63.1960(c)(4)(iii) and 40 CFR 60.36f(c)(4)(iii) additional corrective actions and a second 10-day retest are to be performed if the initial 10-day retest indicates methane values greater than the regulatory threshold. The Facility performs corrective actions, as necessary, including wellhead vacuum adjustments, the installation of well-bore seals, and addition of soil cover prior to weekly monitoring events at locations that previously exhibited elevated methane concentrations.

In accordance with 40 CFR 63.1960(c)(4)(v) and 40 CFR 60.36f(c)(4)(v) a new well or collection device must be installed or an alternate remedy must be submitted within 120 days at locations that continue to exhibit methane concentrations above the regulatory threshold for two consecutive retests.

A summary of ongoing exceedance points is provided in Table 2.

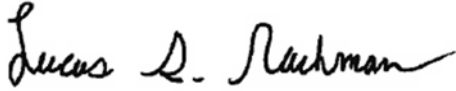
Table 2. Ongoing Weekly SEM Exceedances

Point ID	Initial Exceedance Date	11/20/23 Event	11/20/23 Event Result	Comments
EW-90	8/11/23	N/A	Passed	Subject to 40 CFR 63.1960(c)(4)(v)
EW-91	10/24/23	30-Day Retest	Passed	Exceedance Resolved
EW-92	10/24/23	30-Day Retest	Passed	Exceedance Resolved
EW-82	10/24/23	30-Day Retest	Passed	Exceedance Resolved
EW-98	10/24/23	30-Day Retest	Passed	Exceedance Resolved
EW-66	10/30/23	N/A	Passed	Requires 30-Day Retest
EW-87	11/15/23	10-Day Retest	Passed	Requires 30-Day Retest
EW-88	11/15/23	10-Day Retest	Passed	Requires 30-Day Retest

Mr. Jonathan Chapman
November 29, 2023
Page 3

If you have questions or require additional information, please contact either of the undersigned.

Sincerely,



Lucas S. Nachman
Senior Project Professional
SCS Engineers



Quinn F. Bernier, PE
Project Professional
SCS Engineers

LSN/QFB/cjw

cc: Randall Eads, City of Bristol
Mike Martin, City of Bristol
Joey Lamie, City of Bristol
Jonathan Hayes, City of Bristol
Jake Chandler, City of Bristol
Susan "Tracey" Blalock, VDEQ

Encl. Surface Emissions Monitoring Results
Bristol SEM Route Drawing

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 20, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
1	3.1 PPM	OK			Start Serpentine Route
2	11.5 PPM	OK			
3	2.7 PPM	OK			
4	2.3 PPM	OK			
5	3.5 PPM	OK			
6	4.8 PPM	OK			
7	4.8 PPM	OK			
8	4.7 PPM	OK			
9	4.7 PPM	OK			
10	4.7 PPM	OK			
11	40.7 PPM	OK			
12	9.6 PPM	OK			
13	5.9 PPM	OK			
14	9.0 PPM	OK			
15	13.6 PPM	OK			
16	87.1 PPM	OK			
17	3.8 PPM	OK			
18	7.8 PPM	OK			
19	10.8 PPM	OK			
20	11.3 PPM	OK			
21	21.4 PPM	OK			
22	9.4 PPM	OK			
23	14.0 PPM	OK			
24	23.7 PPM	OK			
25	9.5 PPM	OK			
26	4.0 PPM	OK			
27	3.1 PPM	OK			
28	14.8 PPM	OK			
29	3.7 PPM	OK			
30	4.0 PPM	OK			
31	4.4 PPM	OK			
32	10.1 PPM	OK			
33	10.2 PPM	OK			
34	212.0 PPM	OK			
35	21.8 PPM	OK			
36	5.6 PPM	OK			
37	31.4 PPM	OK			
38	66.3 PPM	OK			
39	3.8 PPM	OK			
40	3.6 PPM	OK			
41	4.9 PPM	OK			
42	5.2 PPM	OK			
43	2.2 PPM	OK			
44	2.1 PPM	OK			
45	2.7 PPM	OK			
46	3.5 PPM	OK			
47	1.9 PPM	OK			
48	2.0 PPM	OK			
49	2.0 PPM	OK			

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 20, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
50	3.1 PPM	OK			
51	2.2 PPM	OK			
52	4.3 PPM	OK			
53	3.2 PPM	OK			
54	2.8 PPM	OK			
55	2.2 PPM	OK			
56	1.9 PPM	OK			
57	2.4 PPM	OK			
58	2.5 PPM	OK			
59	2.3 PPM	OK			
60	3.6 PPM	OK			
61	17.4 PPM	OK			
62	3.7 PPM	OK			
63	47.4 PPM	OK			
64	6.6 PPM	OK			
65	28.4 PPM	OK			
66	37.5 PPM	OK			
67	34.1 PPM	OK			
68	5.0 PPM	OK			
69	3.8 PPM	OK			
70	27.7 PPM	OK			
71	31.1 PPM	OK			
72	121.0 PPM	OK			
73	5.0 PPM	OK			
74	2.0 PPM	OK			
75	9.6 PPM	OK			
76	249.0 PPM	OK			
77	15.5 PPM	OK			
78	413.0 PPM	OK			
79	30.7 PPM	OK			
80	28.8 PPM	OK			
81	13.8 PPM	OK			
82	12.4 PPM	OK			
83	7.8 PPM	OK			
84	6.8 PPM	OK			
85	31.8 PPM	OK			
86	8.8 PPM	OK			
87	6.3 PPM	OK			
88	2.8 PPM	OK			
89	2.9 PPM	OK			
90	2.7 PPM	OK			
91	2.8 PPM	OK			
92	8.9 PPM	OK			
93	43.2 PPM	OK			
94	121.0 PPM	OK			
95	63.9 PPM	OK			
96	4.3 PPM	OK			
97	14.8 PPM	OK			
98	6.4 PPM	OK			

**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 20, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
99	12.0 PPM	OK			
100	6.9 PPM	OK			End Serpentine Route
101	98.3 PPM	OK			EW-35
102	152.0 PPM	OK			EW-52
103	202.0 PPM	OK			TP-4
104	16.0 PPM	OK			EW-60
105	14.7 PPM	OK			EW-48
106	16.3 PPM	OK			TP-6
107	35.3 PPM	OK			EW-61
108	43.3 PPM	OK			EW-34
109	2.1 PPM	OK			EW-50
110	49.4 PPM	OK			EW-67
111	9.8 PPM	OK			EW-47
112	4.8 PPM	OK			EW-54
113	3.6 PPM	OK			EW-55
114	11.6 PPM	OK			EW-92
115	109.0 PPM	OK			EW-91
116	10.1 PPM	OK			EW-96
117	2.6 PPM	OK			TP-2
118	8.4 PPM	OK			EW-66
119	14.1 PPM	OK			EW-58
120	15.2 PPM	OK			EW-57
121	73.9 PPM	OK			TP-1
122	38.7 PPM	OK			EW-59
123	82.7 PPM	OK			EW-56
124	12.6 PPM	OK			EW-97
125	6.3 PPM	OK			EW-41
126	21.4 PPM	OK			EW-53
127	3.3 PPM	OK			TP-3
128	2.9 PPM	OK			EW-51
129	878.0 PPM	HIGH_ALARM	36.59892	82.14796	EW-39
130	16.5 PPM	OK			TP-5
131	40.7 PPM	OK			EW-68
132	282.0 PPM	OK			EW-87
133	68.8 PPM	OK			EW-38
134	10.6 PPM	OK			TP-7
135	9.2 PPM	OK			EW-49
136	3.4 PPM	OK			EW-83
137	1.6 PPM	OK			EW-31R
138	2.7 PPM	OK			EW-65
139	2.6 PPM	OK			EW-81
140	2.3 PPM	OK			TP-8
141	2.0 PPM	OK			EW-64
142	2.0 PPM	OK			EW-63
143	2.8 PPM	OK			EW-42
144	55.4 PPM	OK			TP-9
145	5.5 PPM	OK			EW-33R
146	1.8 PPM	OK			EW-62

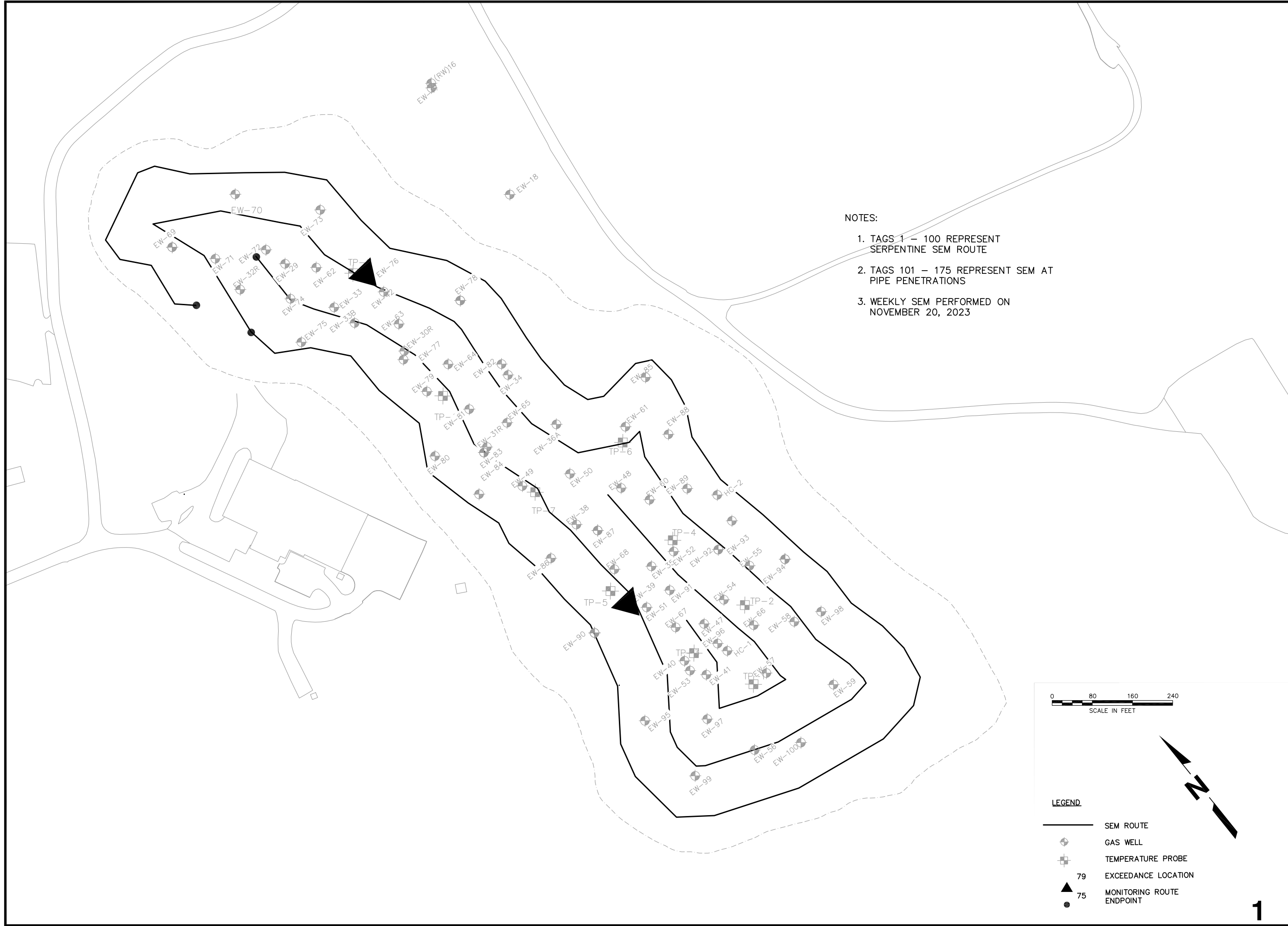
**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 20, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
147	1.6 PPM	OK			EW-29R
148	2.1 PPM	OK			EW-74
149	1.7 PPM	OK			EW-32R
150	0.6 PPM	OK			EW-69
151	0.6 PPM	OK			EW-71
152	2.7 PPM	OK			EW-72
153	2.5 PPM	OK			EW-70
154	3.5 PPM	OK			EW-73
155	1090.0 PPM	HIGH_ALARM	36.60124	82.14803	EW-76
156	78.1 PPM	OK			EW-78
157	16.7 PPM	OK			EW-82
158	5.3 PPM	OK			EW-36A
159	7.2 PPM	OK			EW-85
160	423.0 PPM	OK			EW-88
161	49.2 PPM	OK			EW-89
162	5.0 PPM	OK			EW-93
163	26.1 PPM	OK			EW-94
164	13.0 PPM	OK			EW-98
165	131.0 PPM	OK			EW-100
166	6.3 PPM	OK			EW-99
167	259.0 PPM	OK			EW-95
168	200.0 PPM	OK			EW-90
169	289.0 PPM	OK			EW-86
170	2.3 PPM	OK			EW-84
171	4.9 PPM	OK			EW-80
172	1.3 PPM	OK			EW-79
173	1.0 PPM	OK			EW-77
174	1.1 PPM	OK			EW-33B
175	2.0 PPM	OK			EW-75

Number of locations sampled:	175
Number of exceedance locations:	2

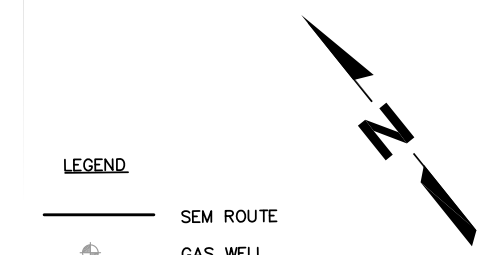
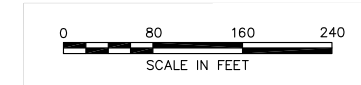
**EXHIBIT 1. SURFACE EMISSIONS MONITORING RESULTS
WEEKLY MONITORING EVENT - NOVEMBER 20, 2023
BRISTOL INTEGRATED SOLID WASTE FACILITY - BRISTOL, VIRGINIA**

ID #	Methane Concentration	Compliance	GPS Coordinates		Comments
			Lat.	Long.	
NOTES:					
Points 1 through 100 represent serpentine SEM route.					
Points 101 through 175 represent SEM at Pipe Penetrations					
Weather Conditions: Mostly Cloudy, 64°F Wind: N 5 MPH					
<u>Sampling Calibration: Methane - 500 ppm, Zero Air - 0.0 ppm</u>					
11/20/2023	11:08	ZERO	0.0		PPM
11/20/2023	11:20	SPAN	501.0		PPM
<u>Background Reading:</u>					
11/20/2023	11:22	Upwind	2.4		PPM
11/20/2023	11:30	Downwind	2.5		PPM



NOTES:

- 1. TAGS 1 – 100 REPRESENT SERPENTINE SEM ROUTE
- 2. TAGS 101 – 175 REPRESENT SEM AT PIPE PENETRATIONS
- 3. WEEKLY SEM PERFORMED ON NOVEMBER 20, 2023



LEGEND

- SEM ROUTE
- ◊ GAS WELL
- ⊕ TEMPERATURE PROBE
- 79 EXCEEDANCE LOCATION
- ▲ MONITORING ROUTE ENDPOINT
- ENDPOINT

WEEKLY SEM ROUTE SHEET TITLE		NO.	REVISION	DATE
SURFACE EMISSIONS MONITORING SOLID WASTE PERMIT #588 PROJECT TITLE		◀	◀	◀
CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY CLIENT				
2655 VALLEY DRIVE BRISTOL, VA 24201				
SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC. 2121 RIVERCHURCH DRIVE, SUITE 100 PH: (804) 378-7440 FAX: (804) 378-7433				
PROJ. NO. 02218208.04	DWG. BY. LSN	D/A R/W BY. LSN	APP. BY. DBK	
FILE: 02218208.04				
DATE: 11/20/23				
SCALE: AS SHOWN				
DRAWING NO.				

Appendix B

In-Waste Temperatures on Select Days in November

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Figure B- 1. Average Temperatures Recorded by TP-1 on November 1, 2023

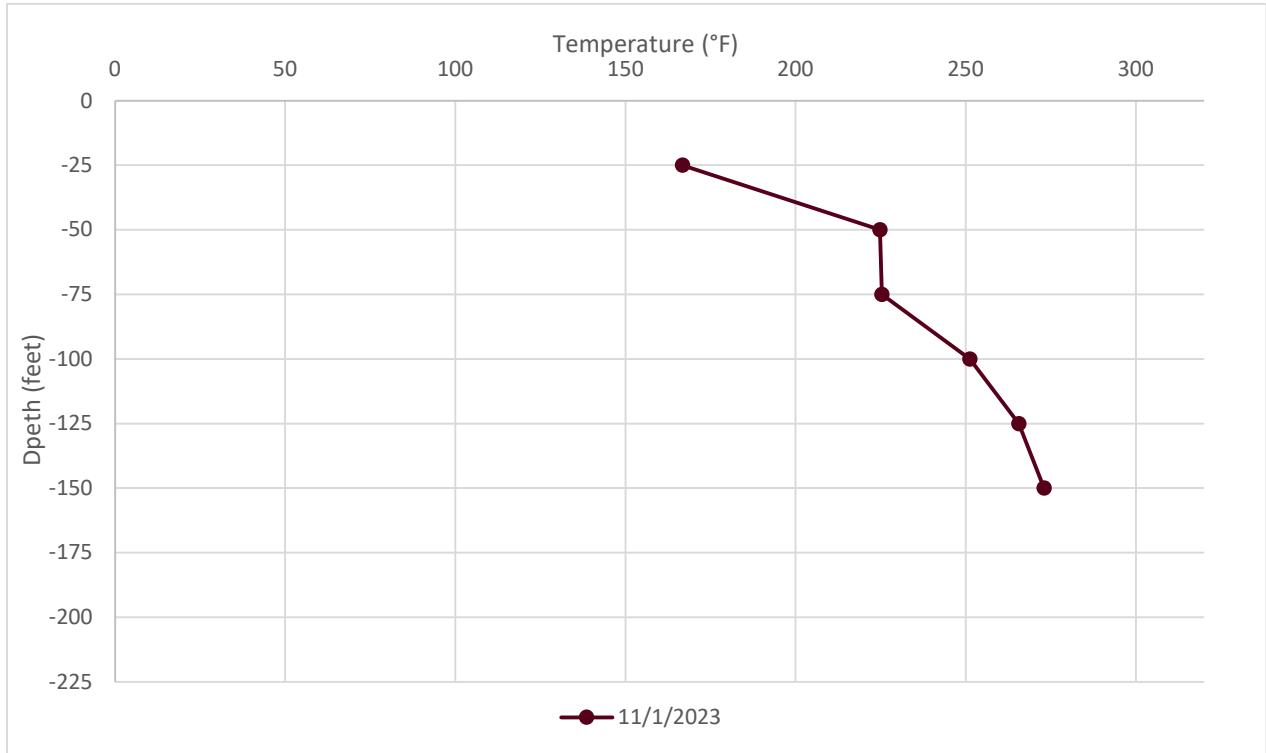


Figure B- 2. Average Temperatures Recorded by TP-1 on November 8, 2023

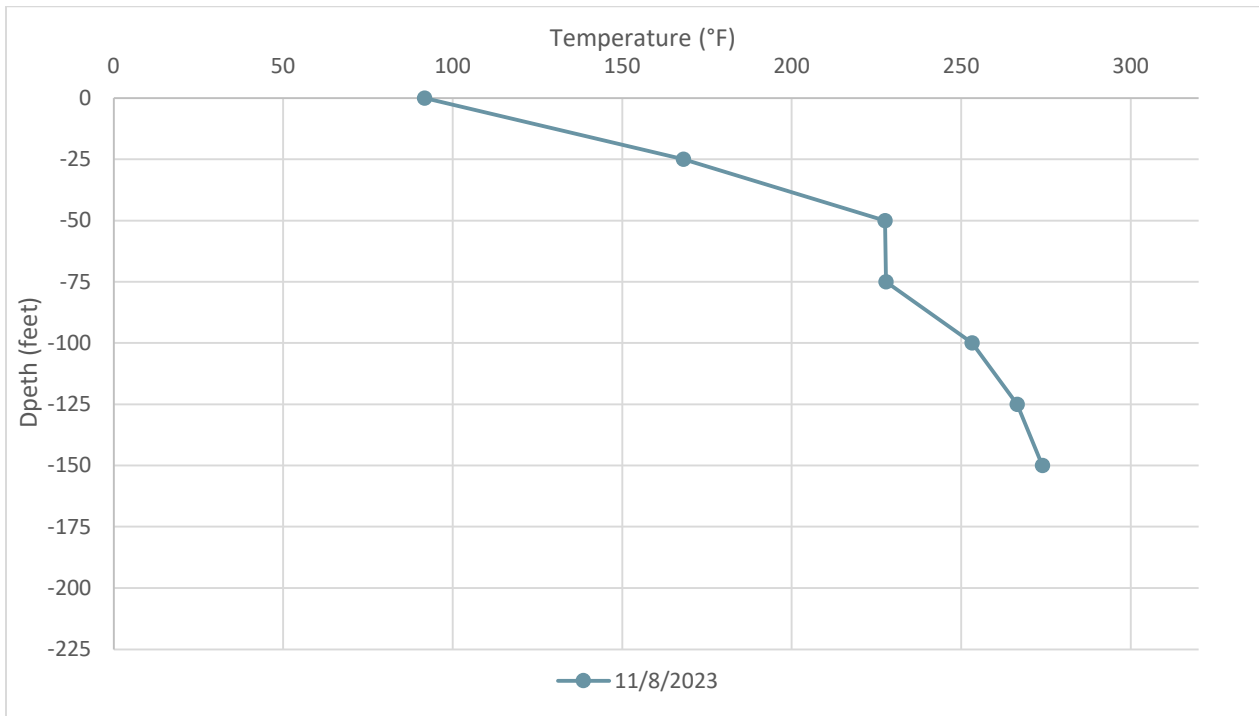


Figure B- 3. Average Temperatures Recorded by TP-1 on November 15, 2023

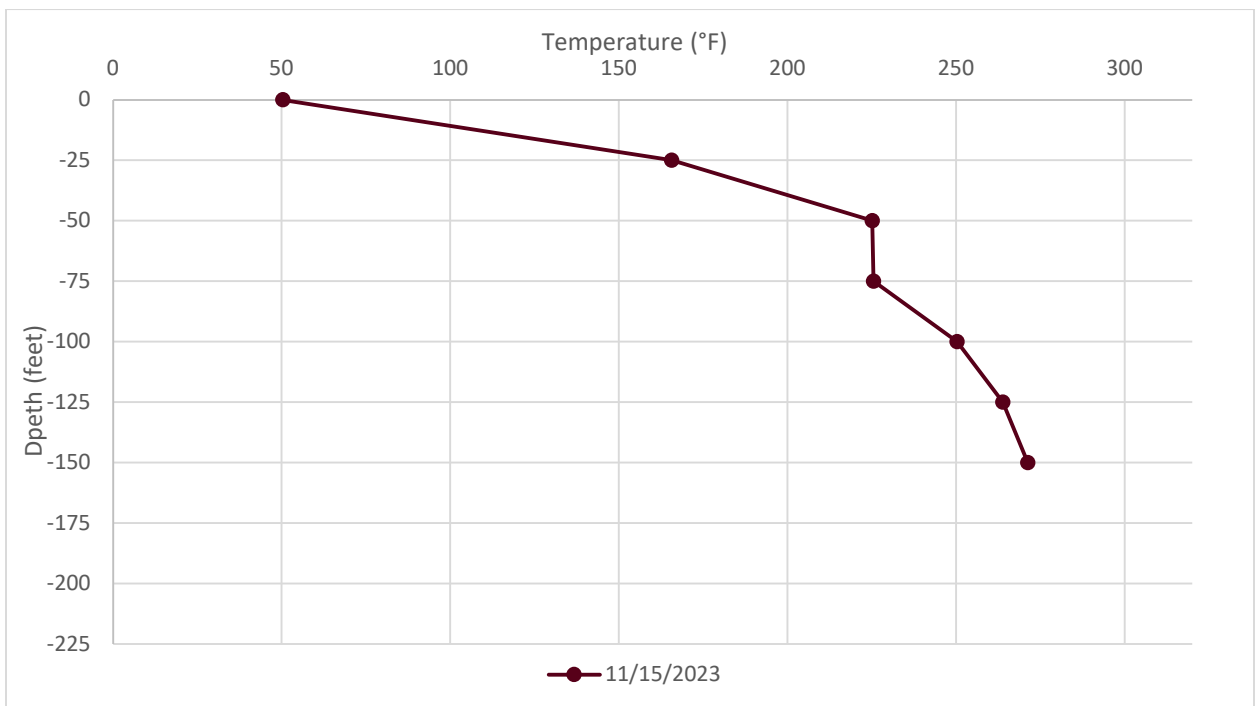


Figure B- 4. Average Temperatures Recorded by TP-1 on November 22, 2023

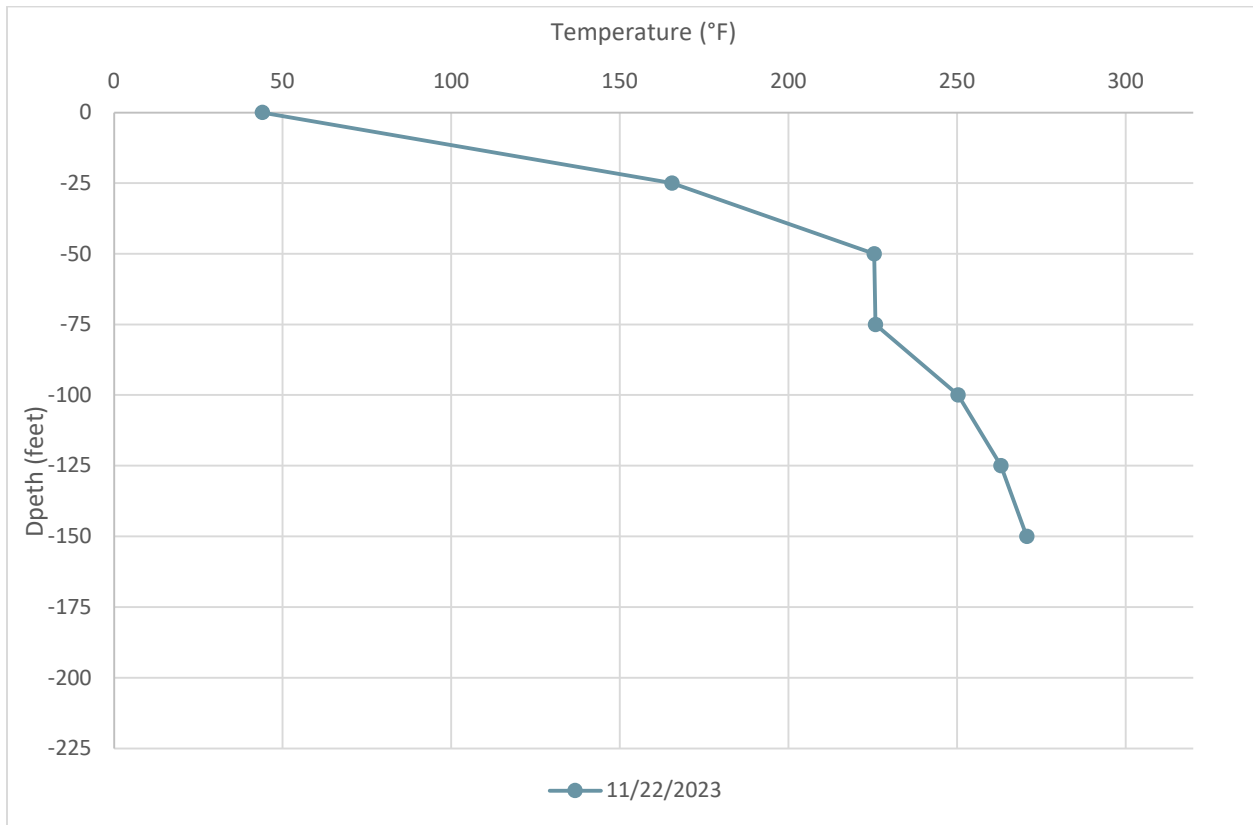


Figure B- 5. Average Temperatures Recorded by TP-1 on November 29, 2023

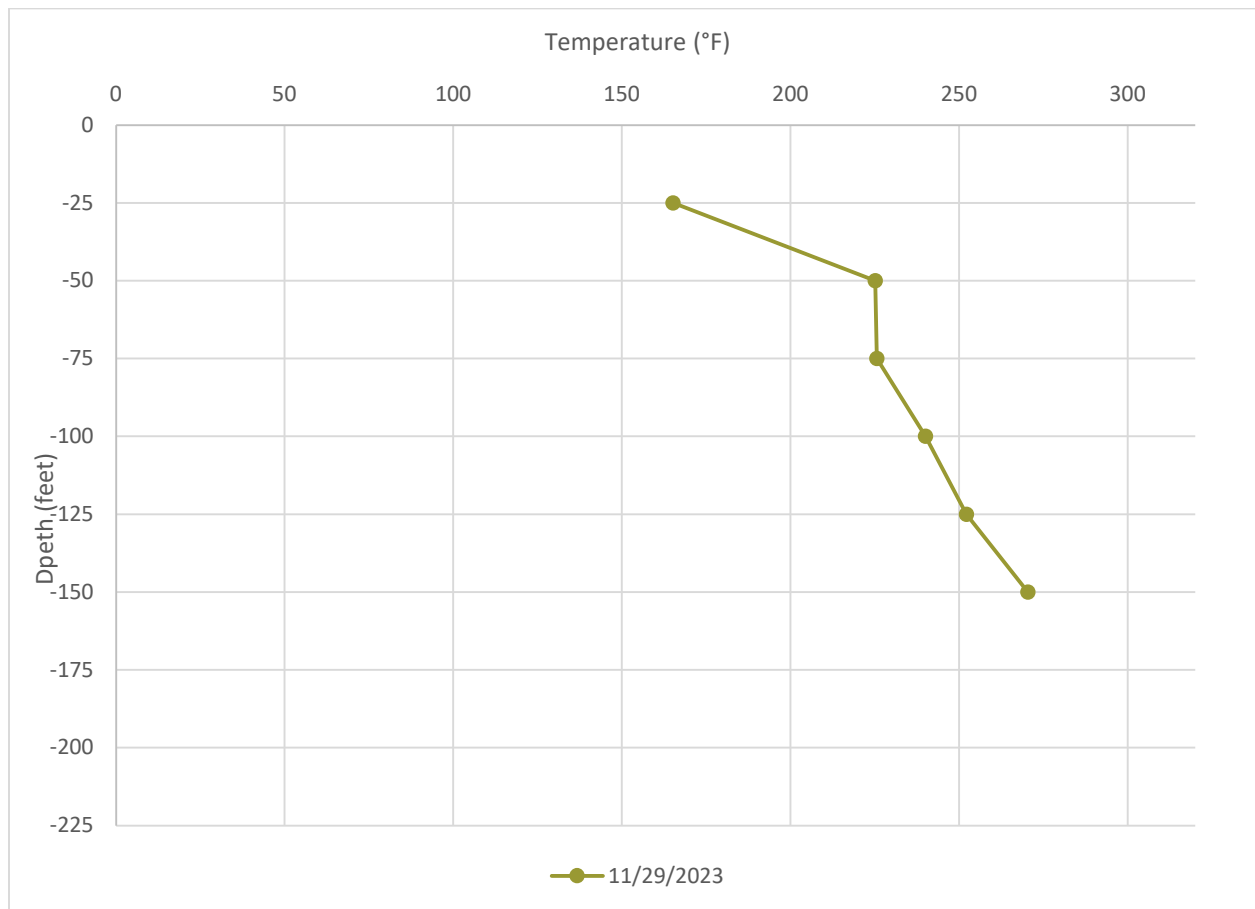


Figure B- 6. Average Temperatures Recorded by TP-2 on November 1, 2023

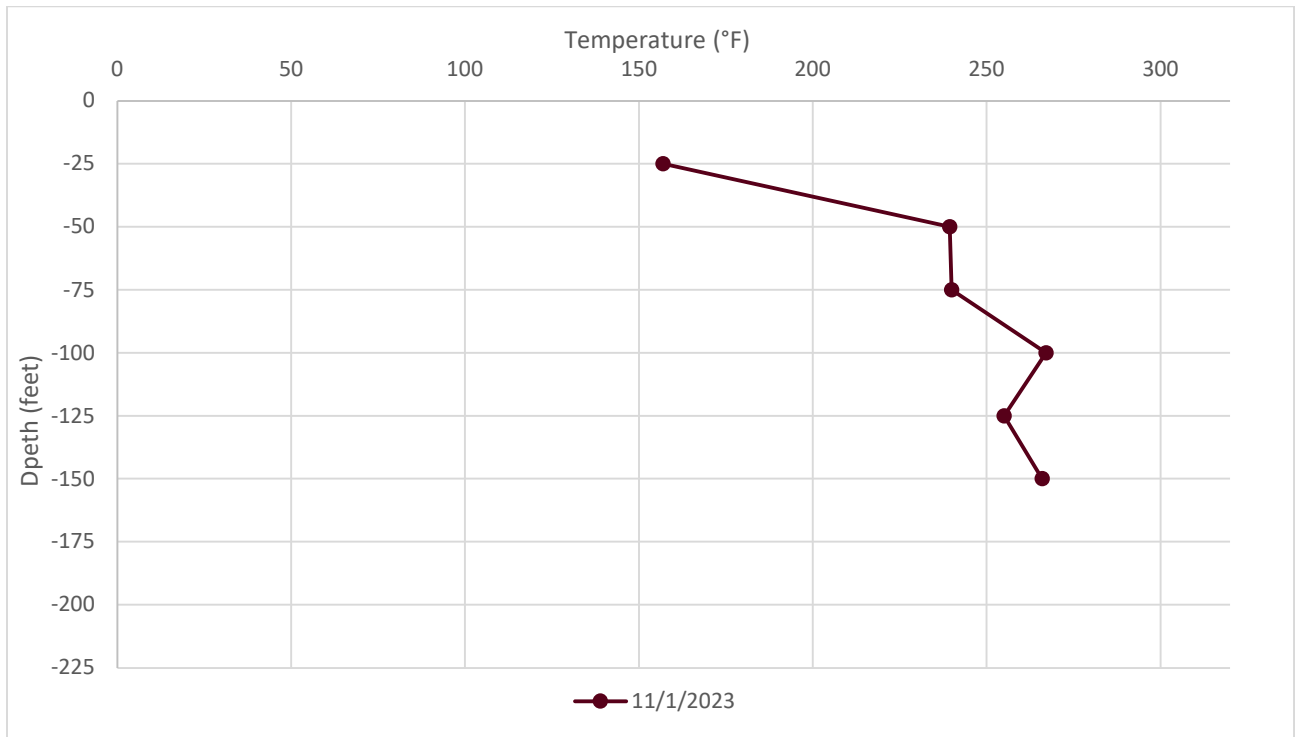


Figure B- 7. Average Temperatures Recorded by TP-2 on November 8, 2023

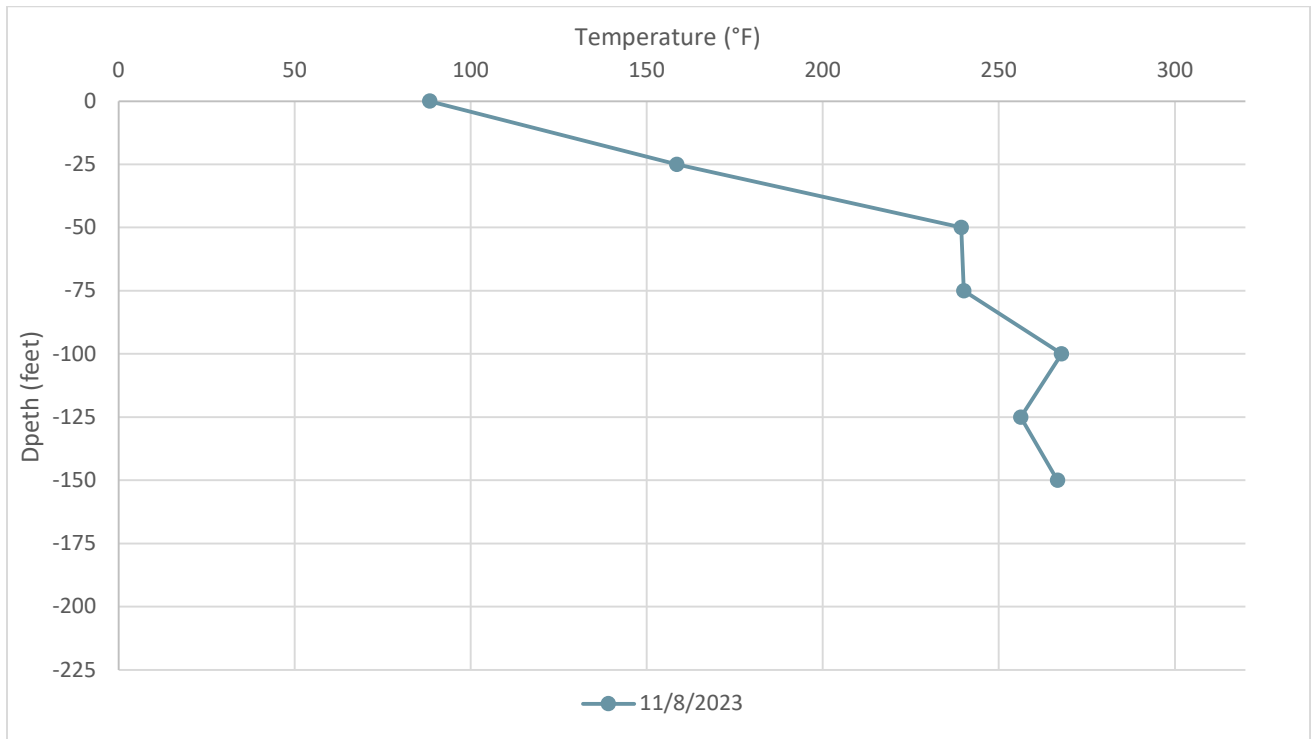


Figure B- 8. Average Temperatures Recorded by TP-2 on November 15, 2023

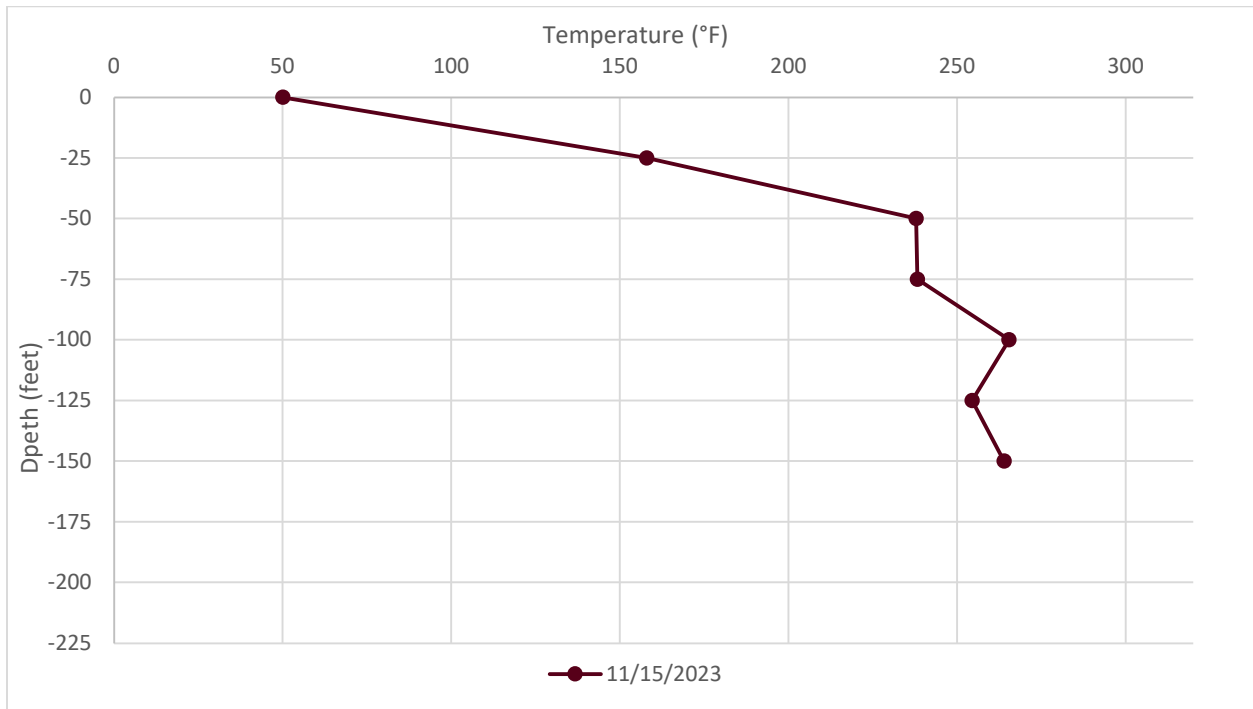


Figure B- 9. Average Temperatures Recorded by TP-2 on November 22, 2023

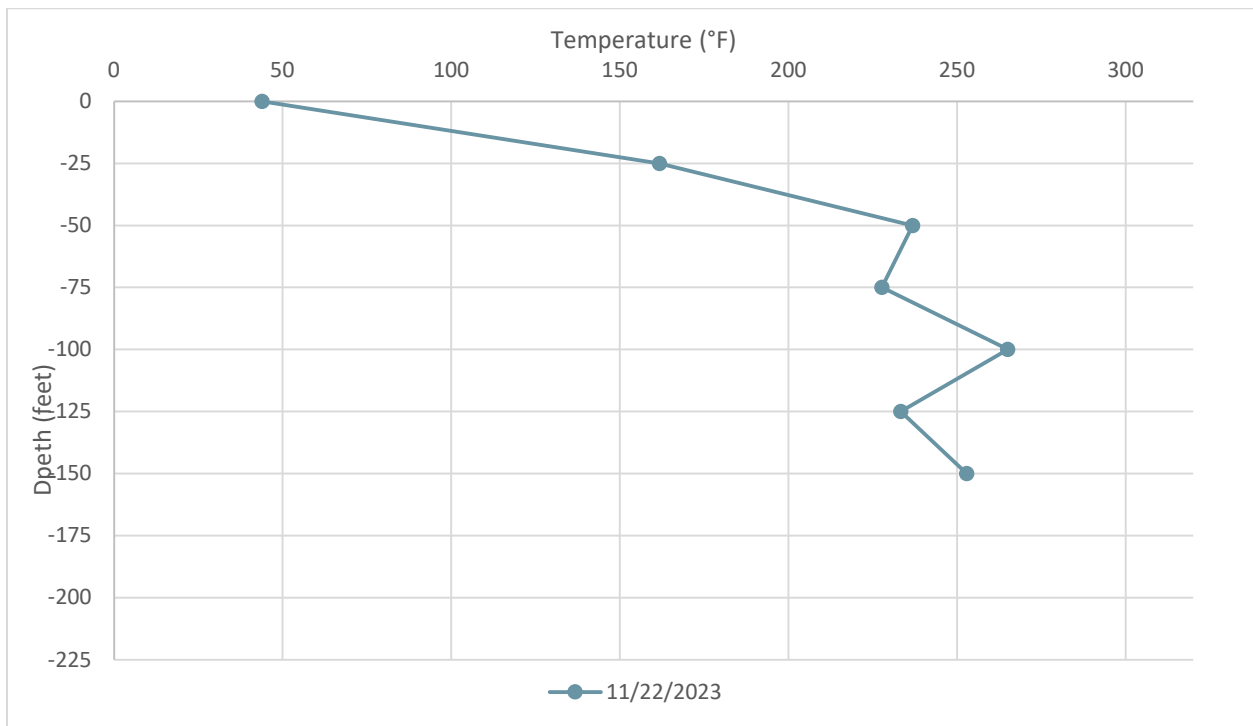


Figure B- 10. Average Temperatures Recorded by TP-2 on November 29, 2023

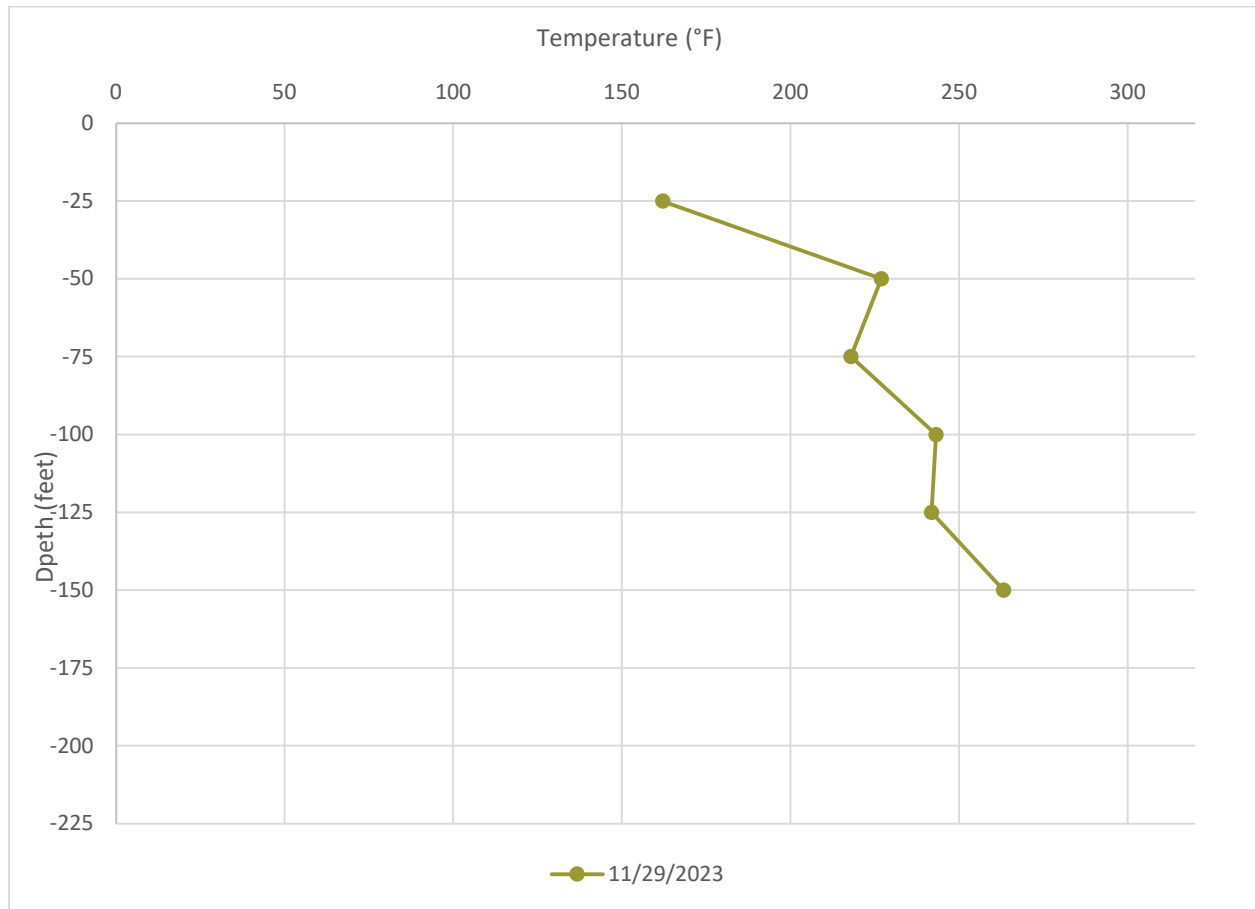


Figure B- 11. Average Temperatures Recorded by TP-3 on November 1, 2023

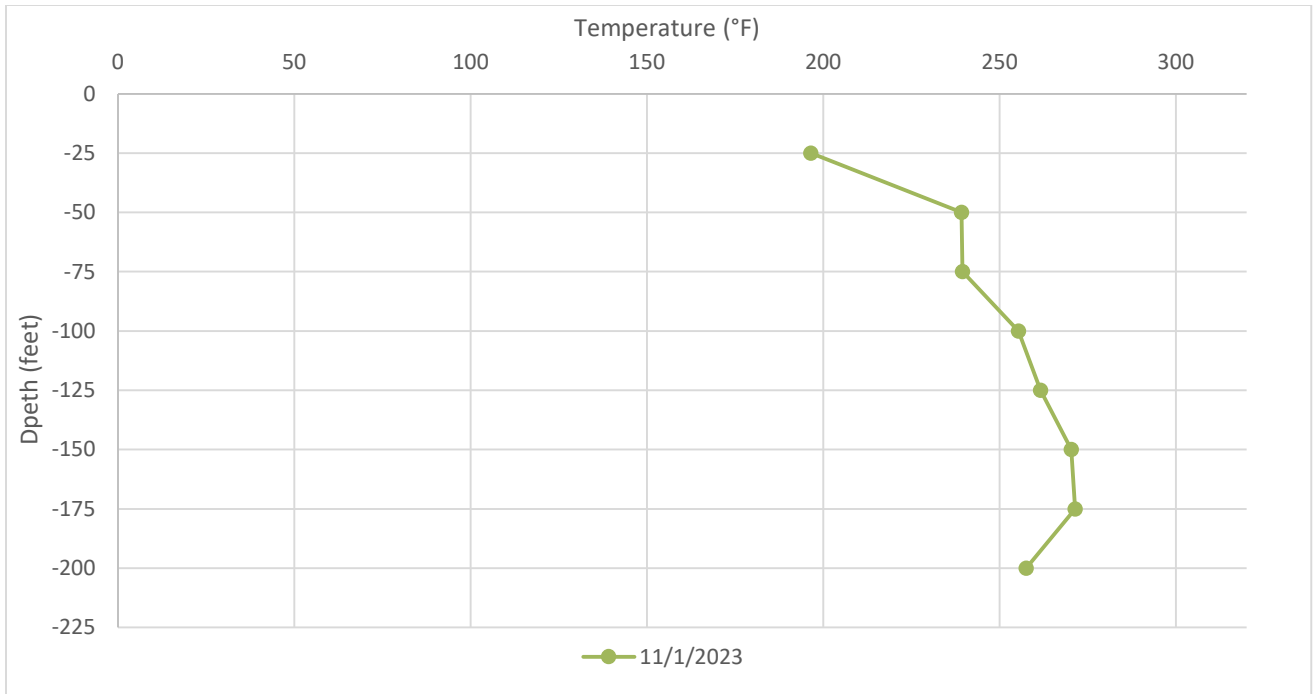


Figure B- 12. Average Temperatures Recorded by TP-3 on November 8, 2023

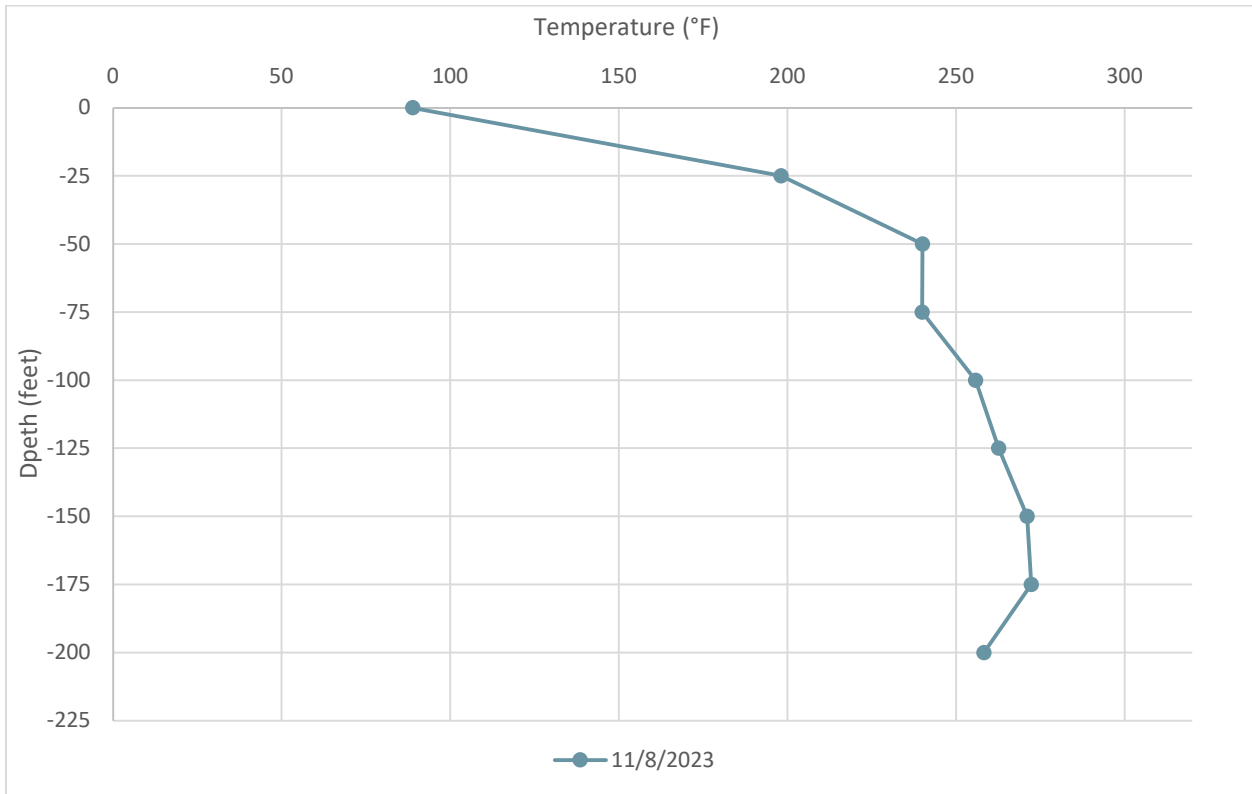


Figure B- 13. Average Temperatures Recorded by TP-3 on November 15, 2023

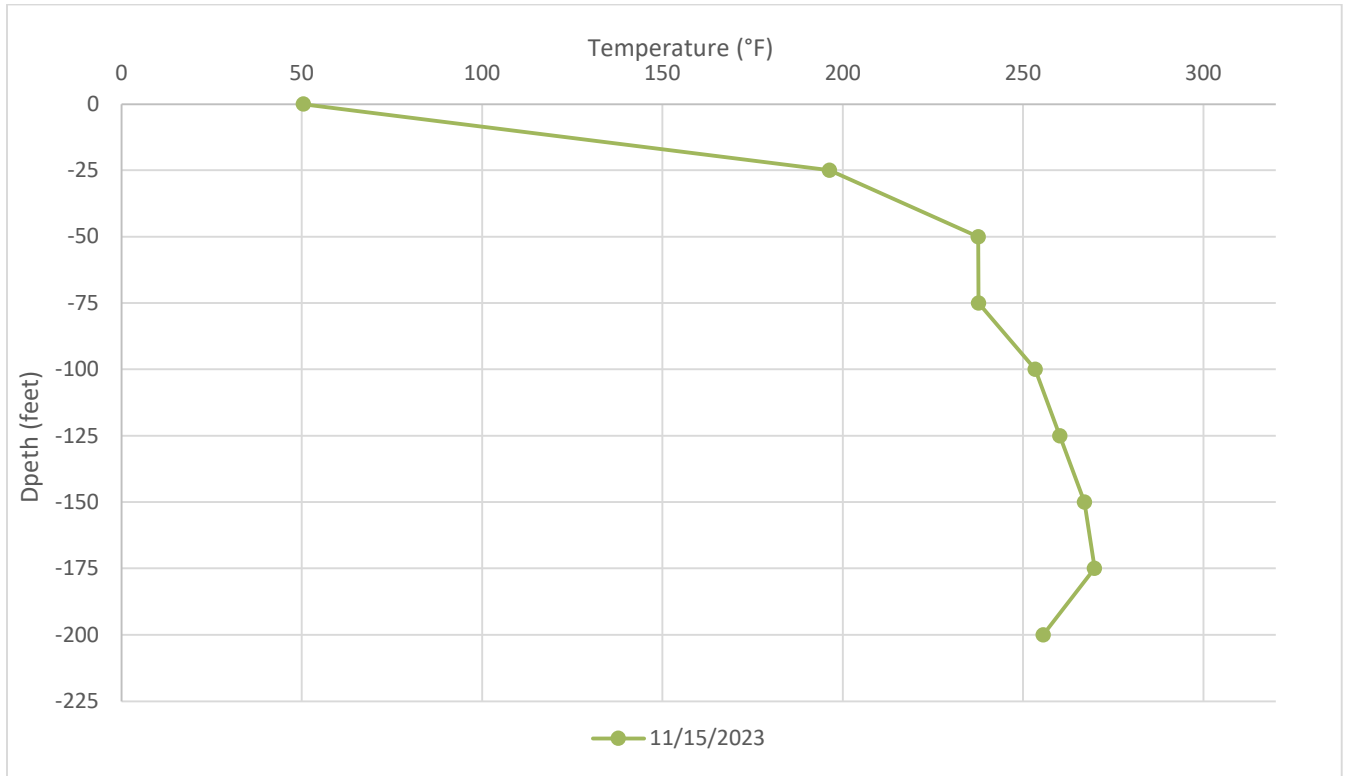


Figure B- 14. Average Temperatures Recorded by TP-3 on November 22, 2023

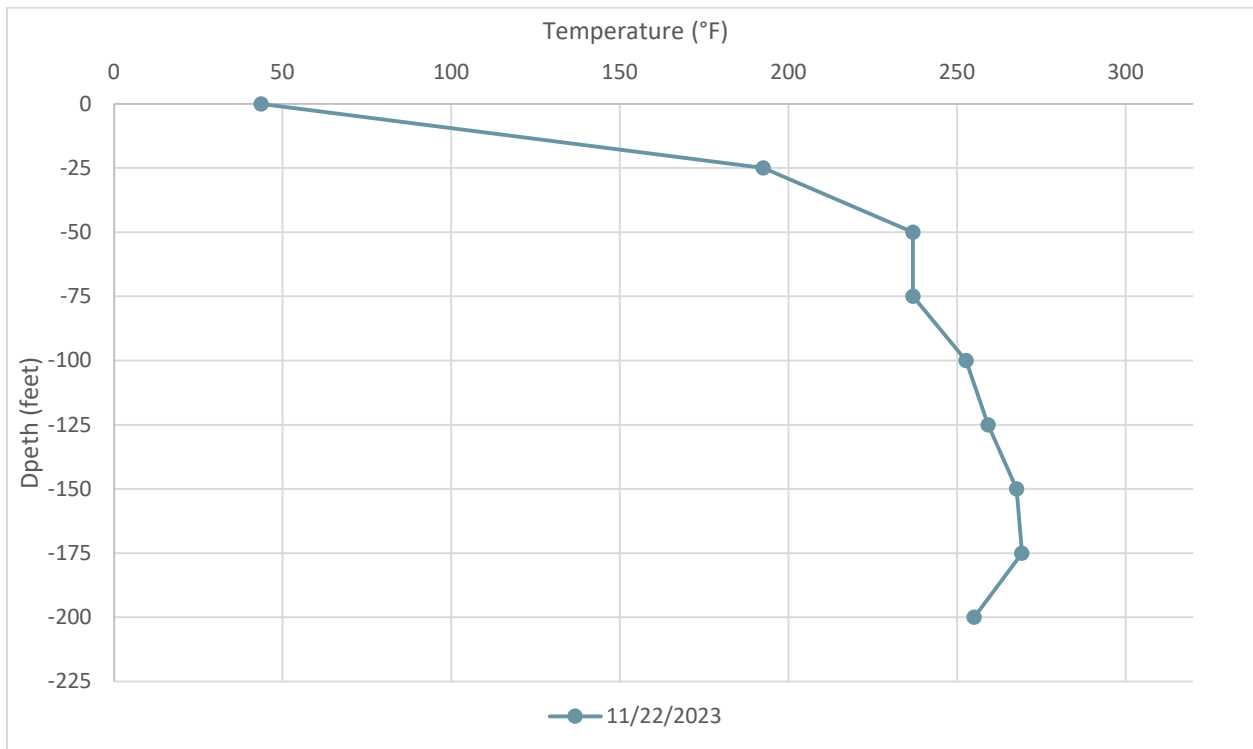


Figure B- 15. Average Temperatures Recorded by TP-3 on November 29, 2023

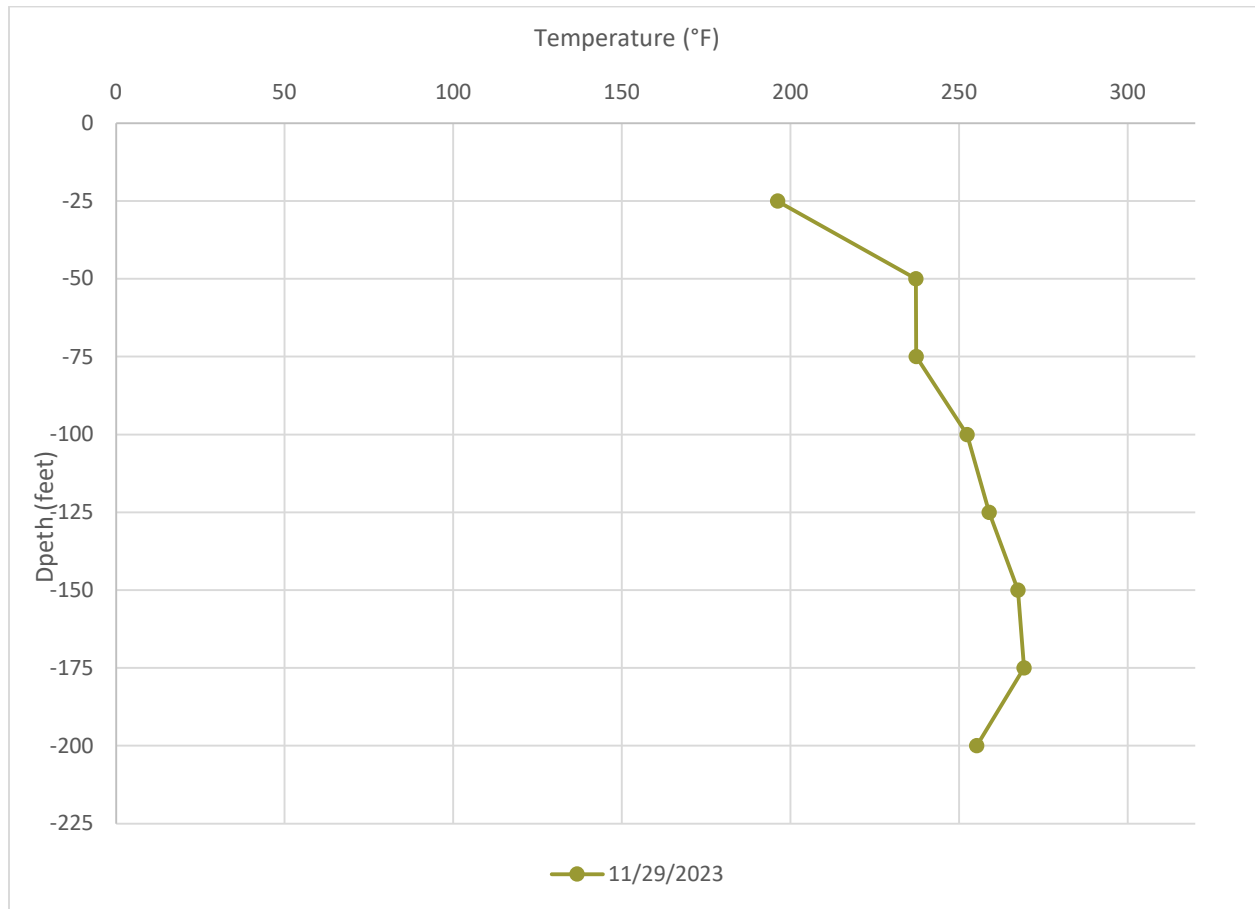


Figure B- 16. Average Temperatures Recorded by TP-4 on November 1, 2023

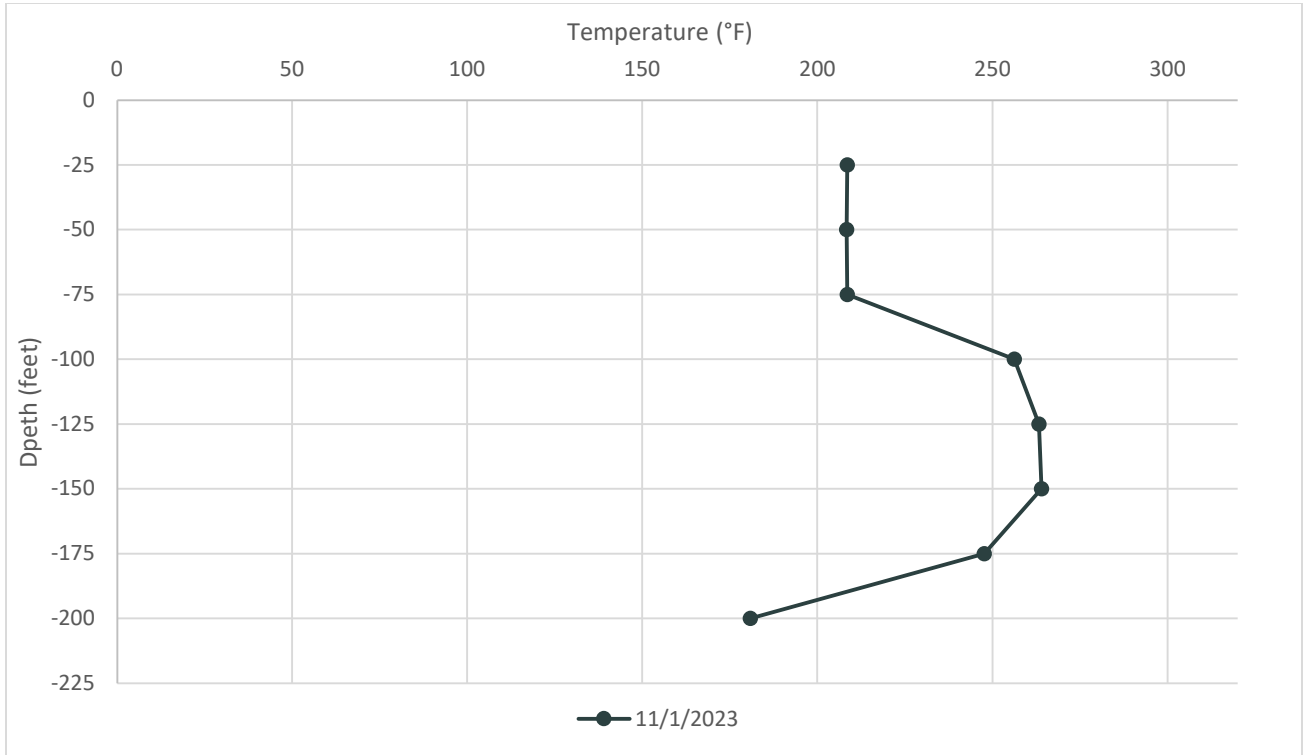


Figure B- 17. Average Temperatures Recorded by TP-4 on November 8, 2023

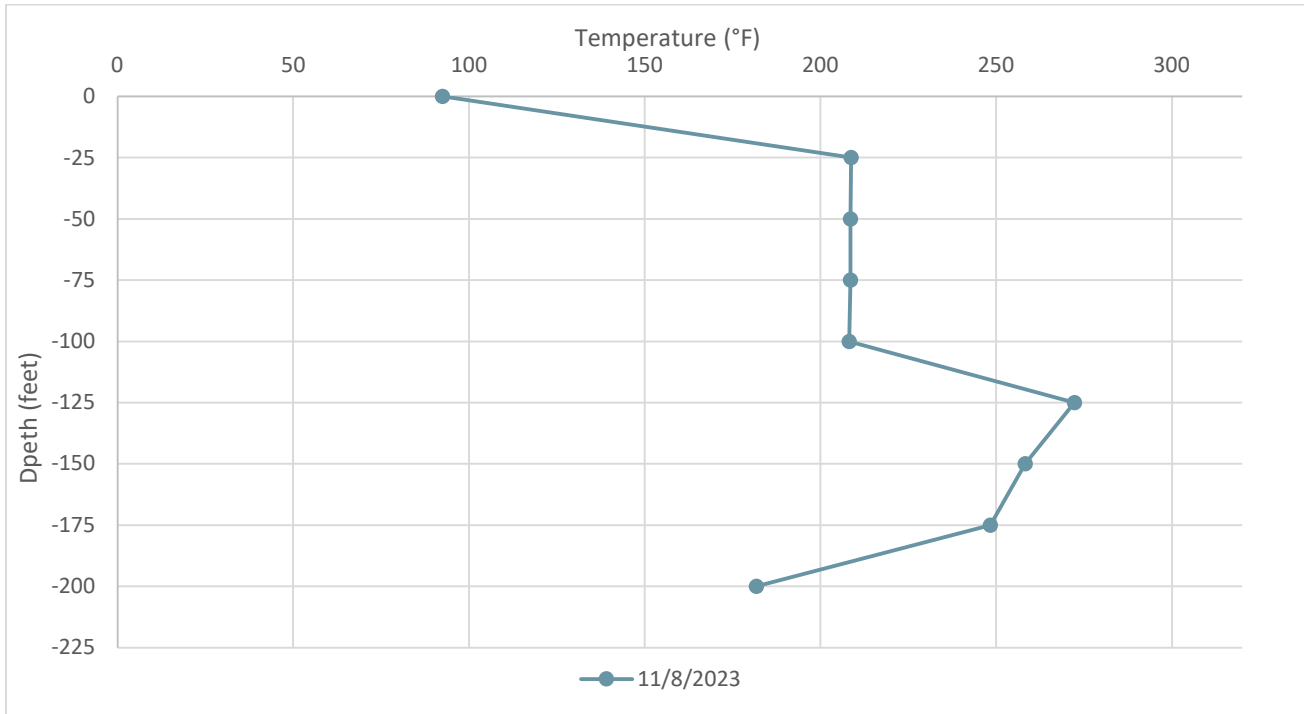


Figure B- 18. Average Temperatures Recorded by TP-4 on November 15, 2023

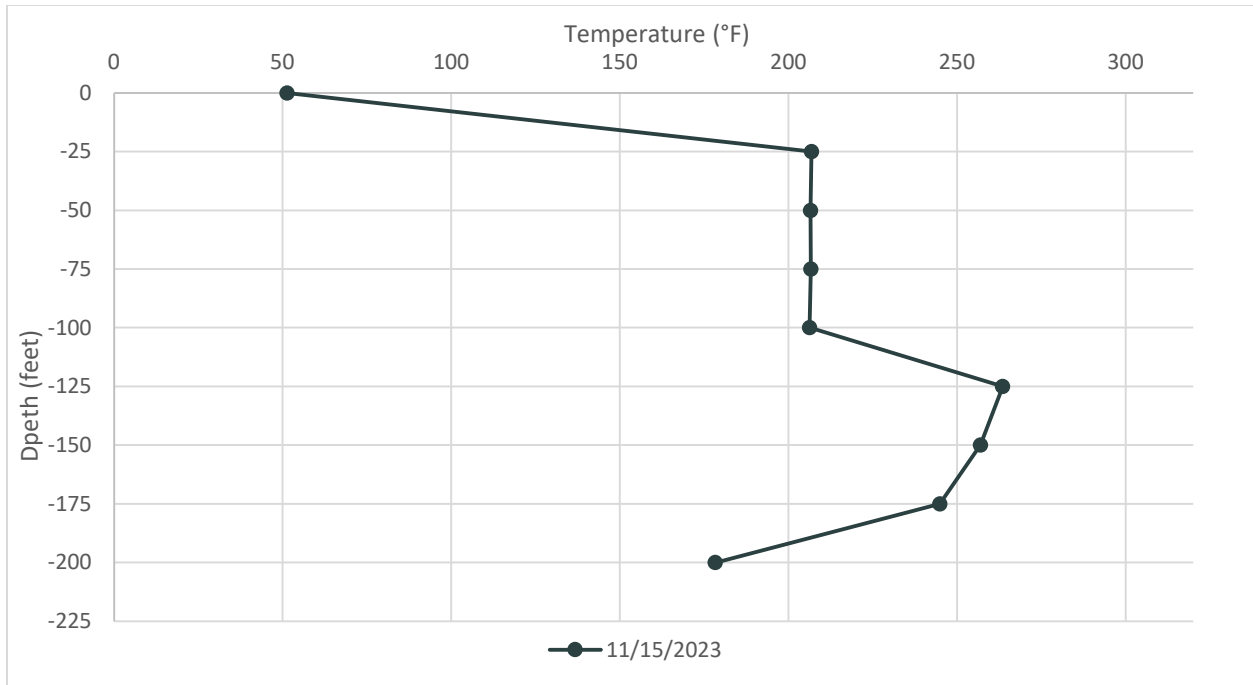


Figure B- 19. Average Temperatures Recorded by TP-4 on November 22, 2023

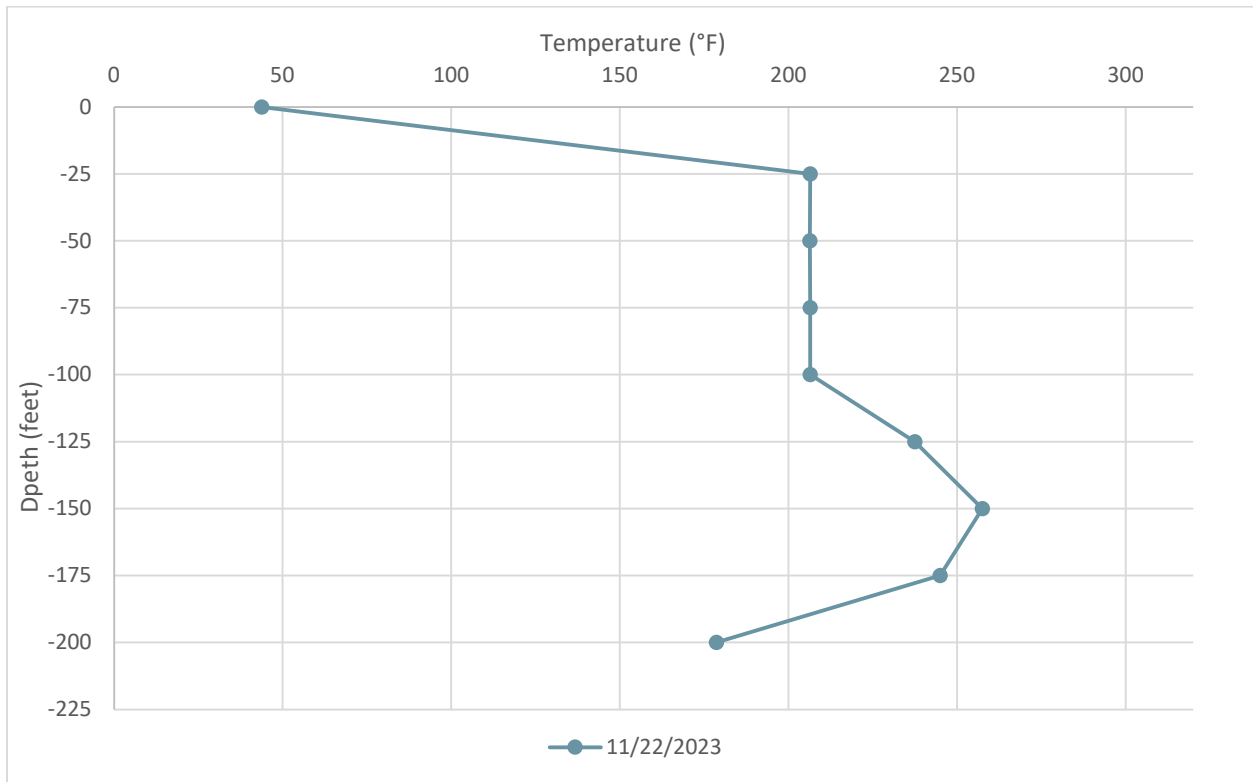


Figure B- 20. Average Temperatures Recorded by TP-4 on November 29, 2023

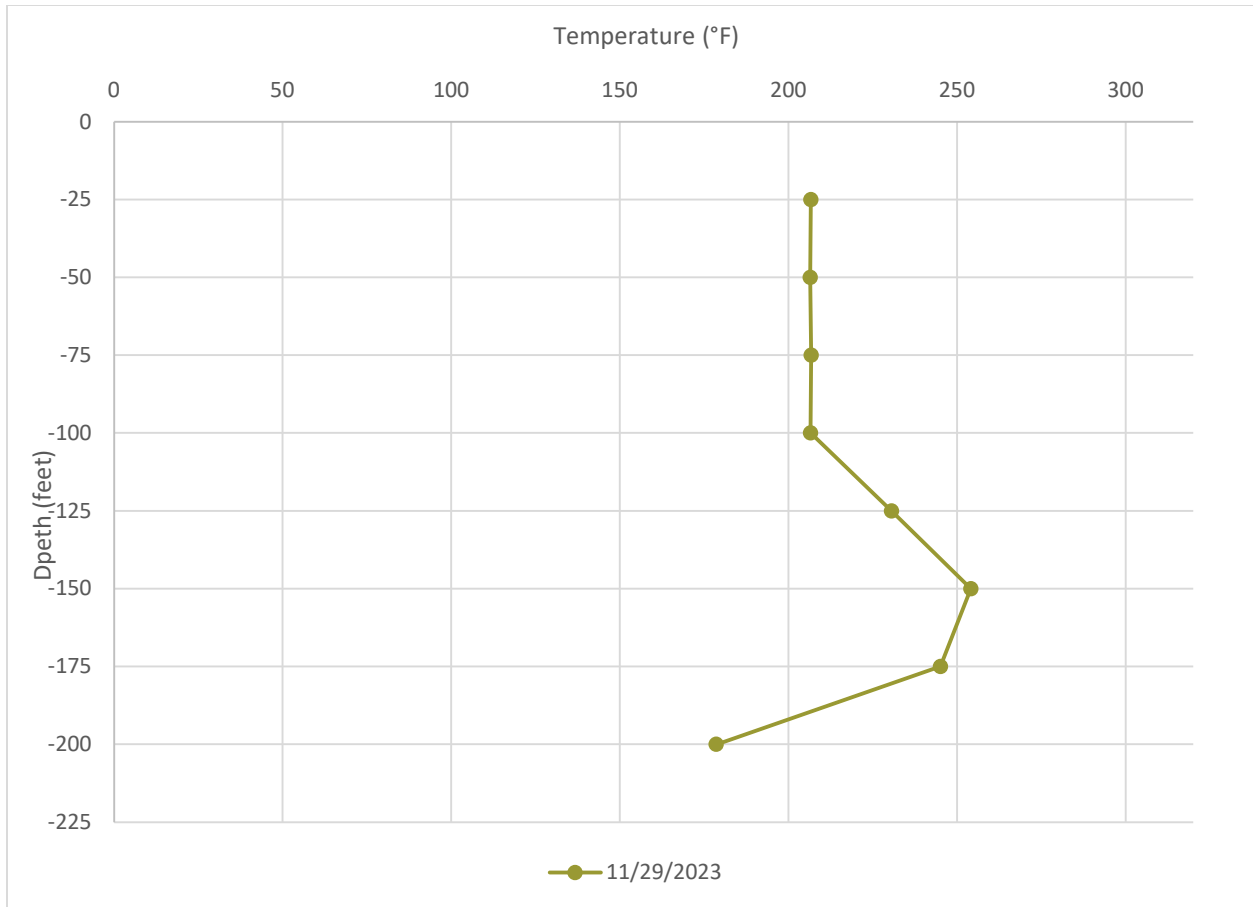


Figure B- 21. Average Temperatures Recorded by TP-5 on November 1, 2023

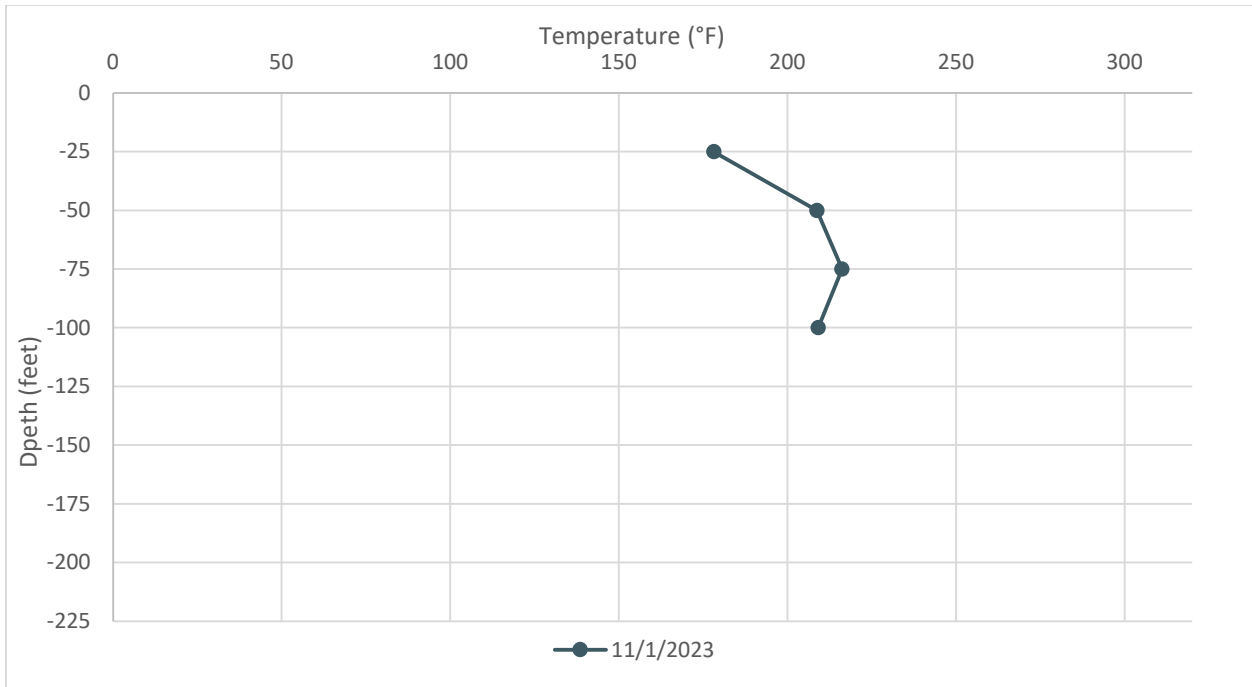


Figure B- 22. Average Temperatures Recorded by TP-5 on November 8, 2023

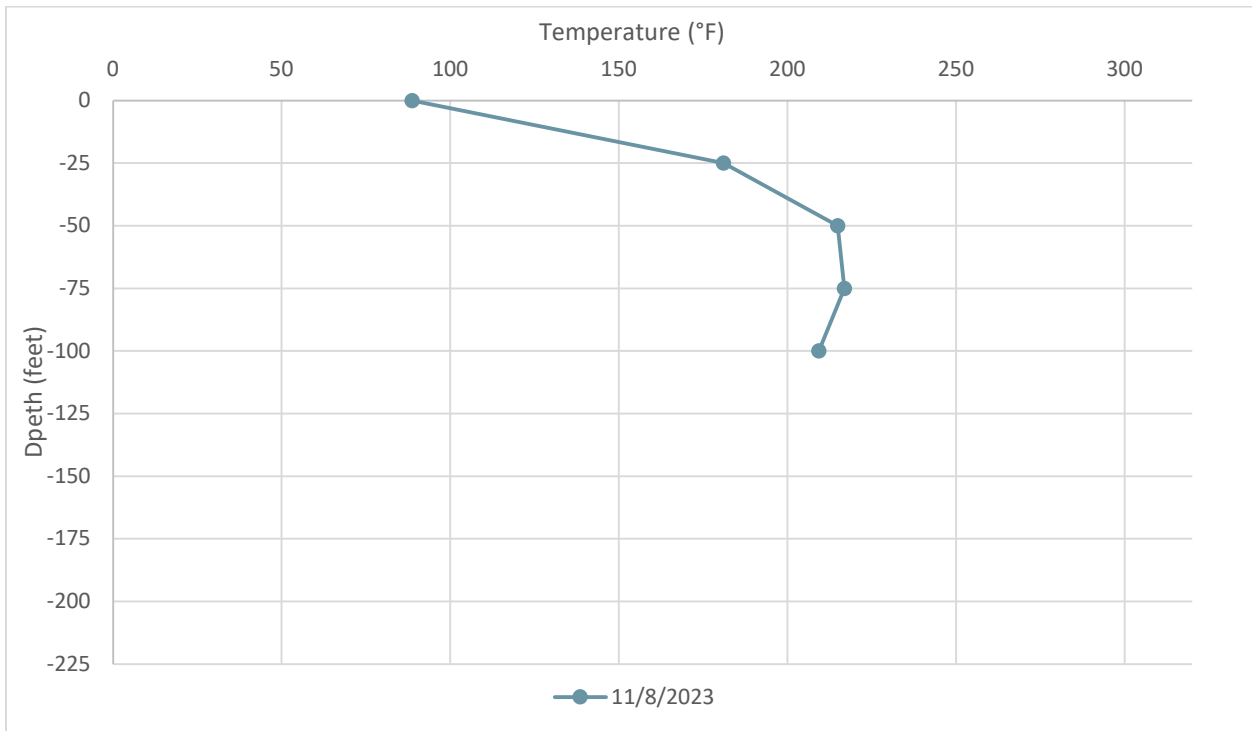


Figure B- 23. Average Temperatures Recorded by TP-5 on November 15, 2023

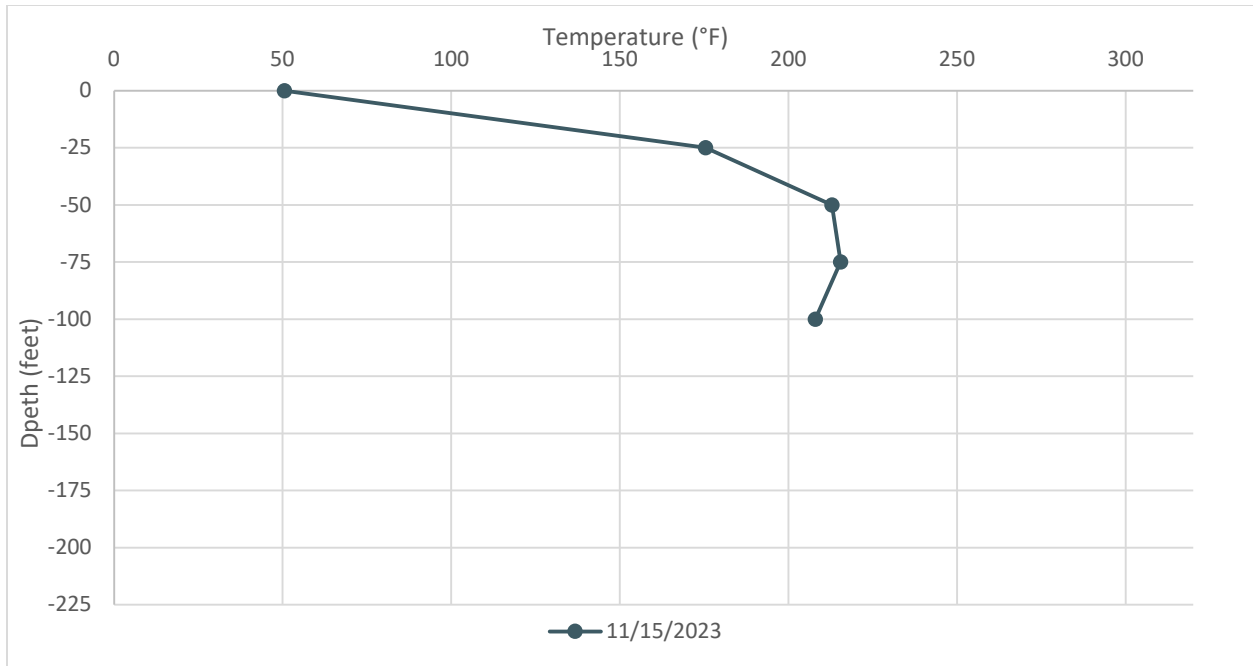


Figure B- 24. Average Temperatures Recorded by TP-5 on November 22, 2023

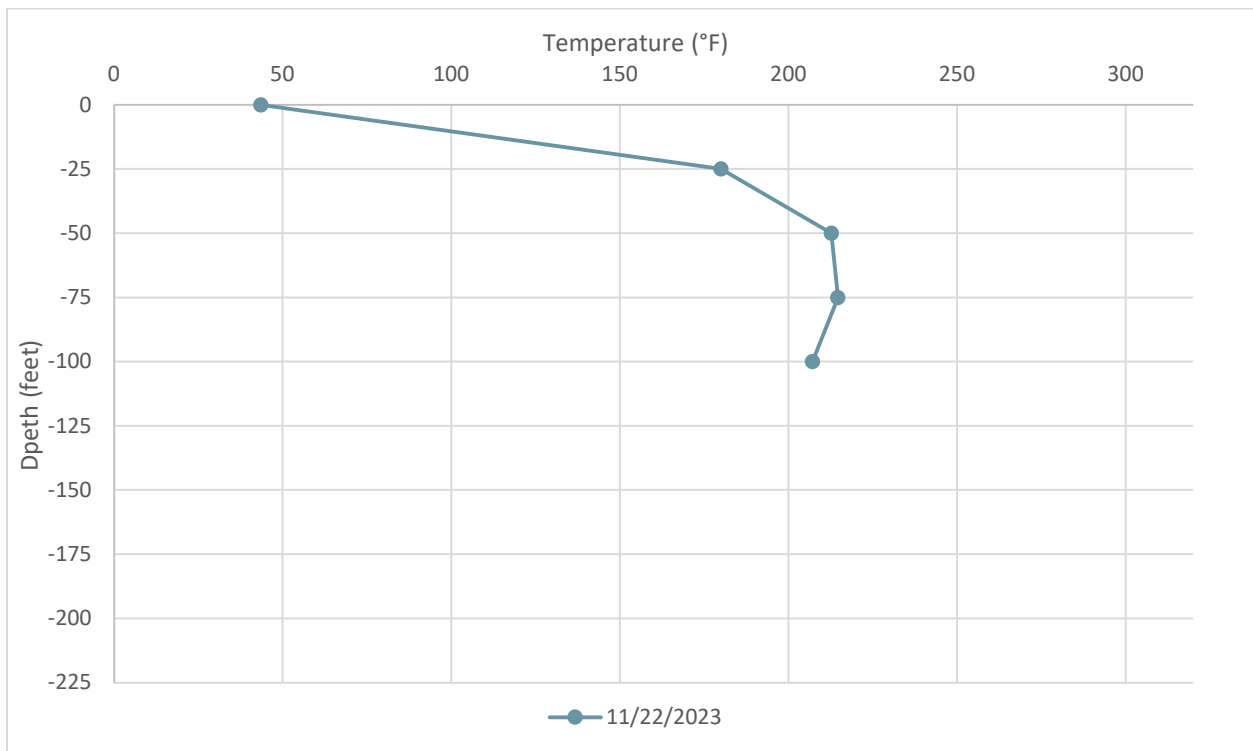


Figure B- 25. Average Temperatures Recorded by TP-5 on November 29, 2023

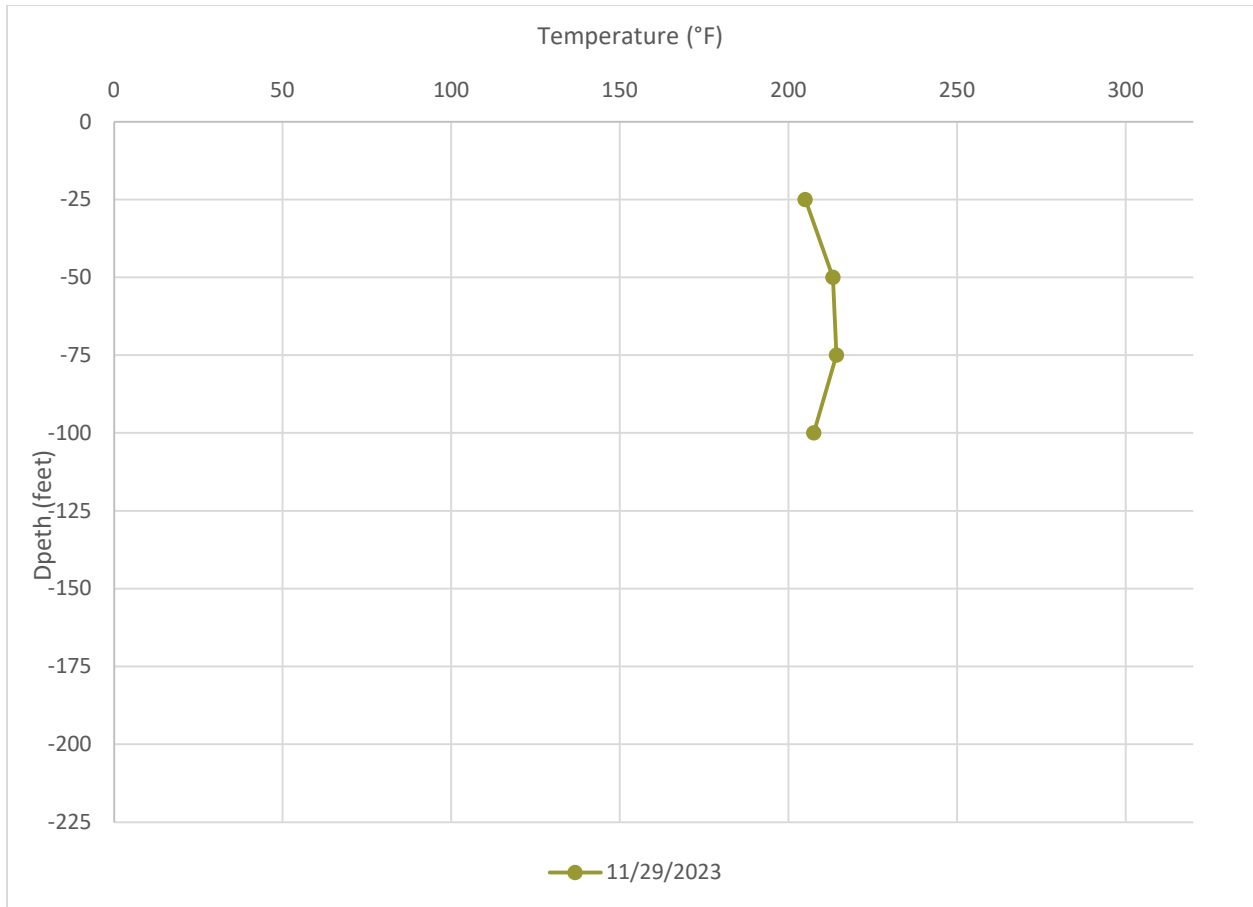


Figure B- 26. Average Temperatures Recorded by TP-6 on November 1, 2023

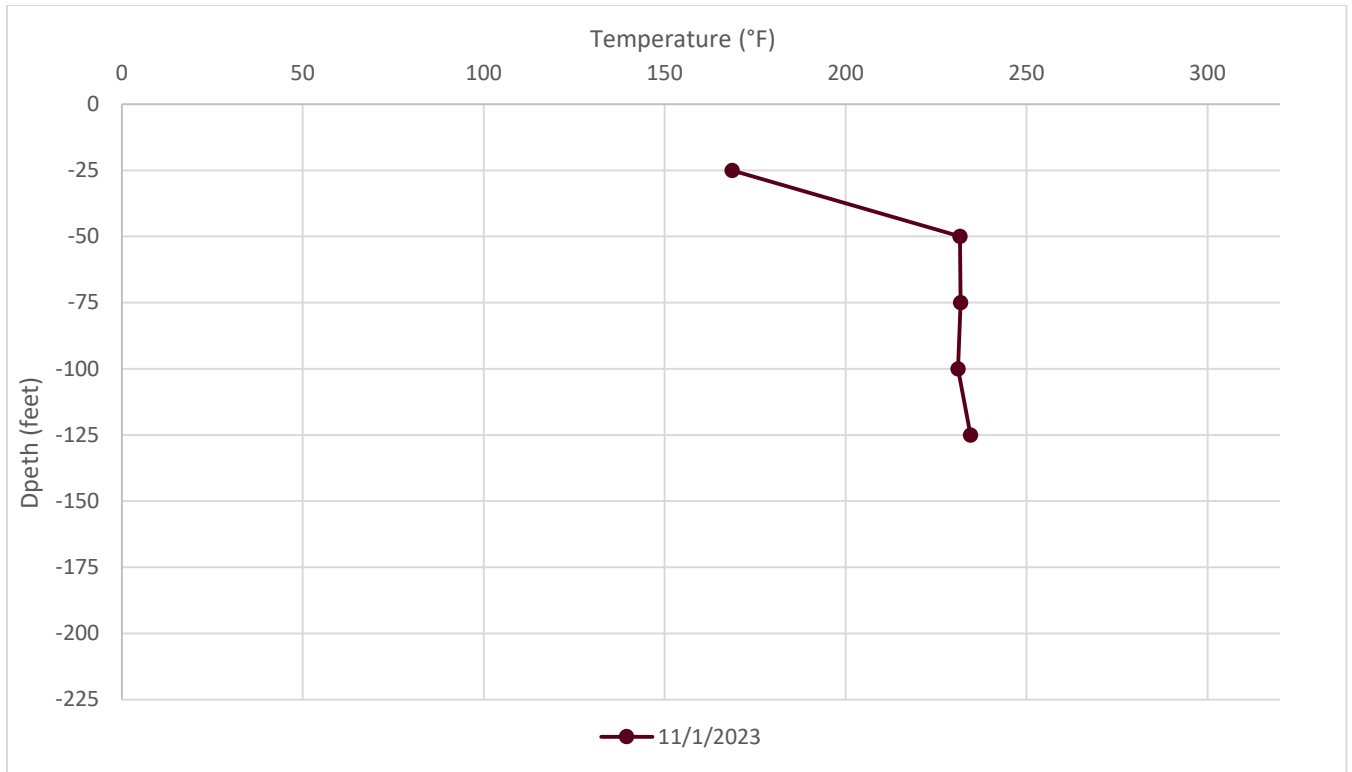


Figure B- 27. Average Temperatures Recorded by TP-6 on November 8, 2023

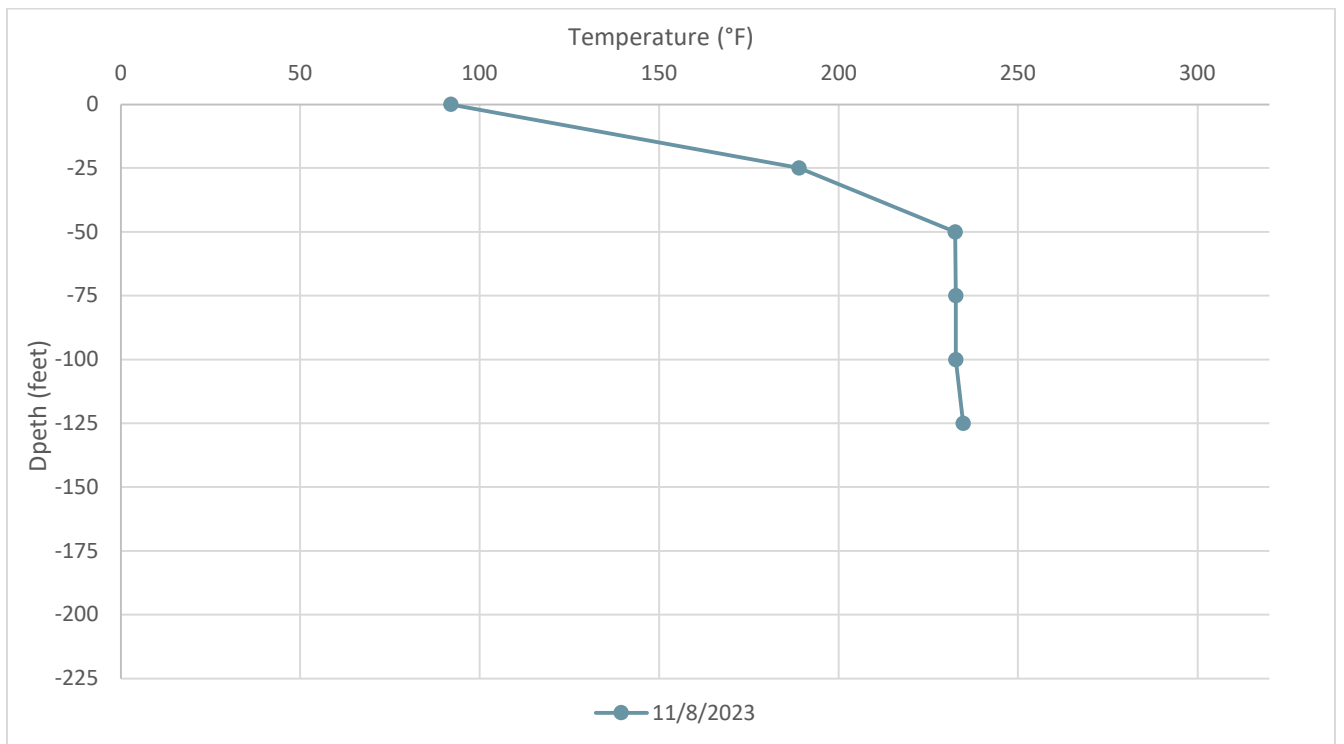


Figure B- 28. Average Temperatures Recorded by TP-6 on November 15, 2023

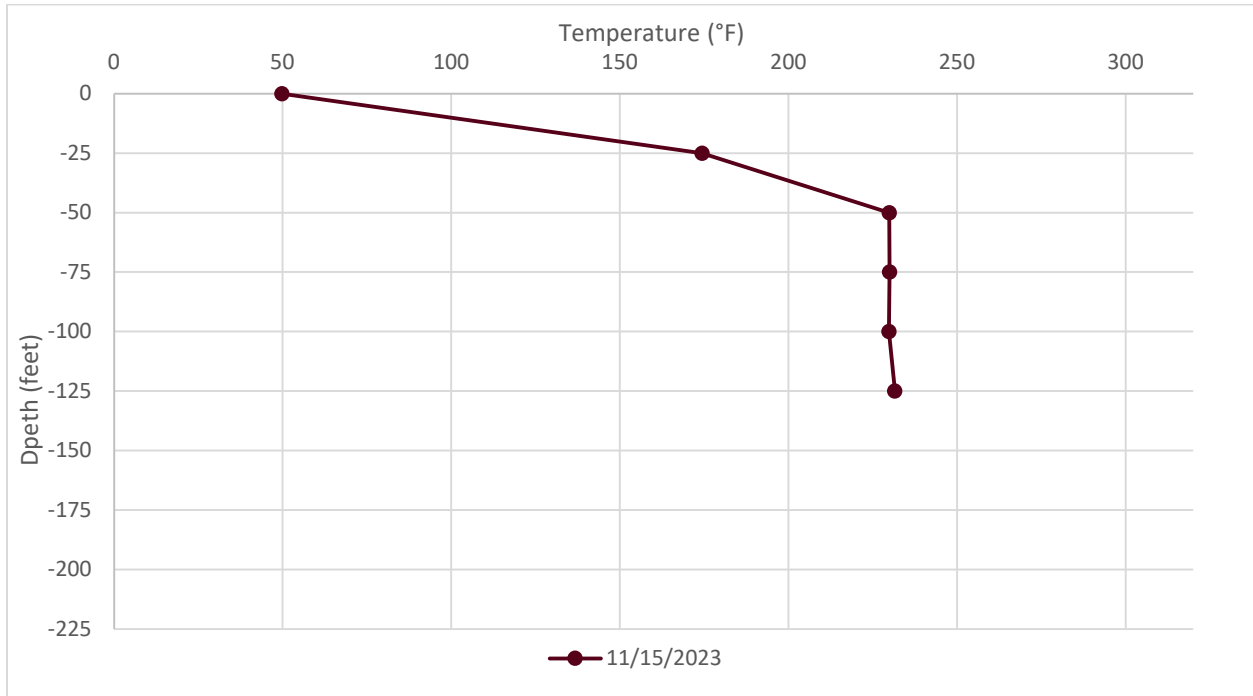


Figure B- 29. Average Temperatures Recorded by TP-6 on November 22, 2023

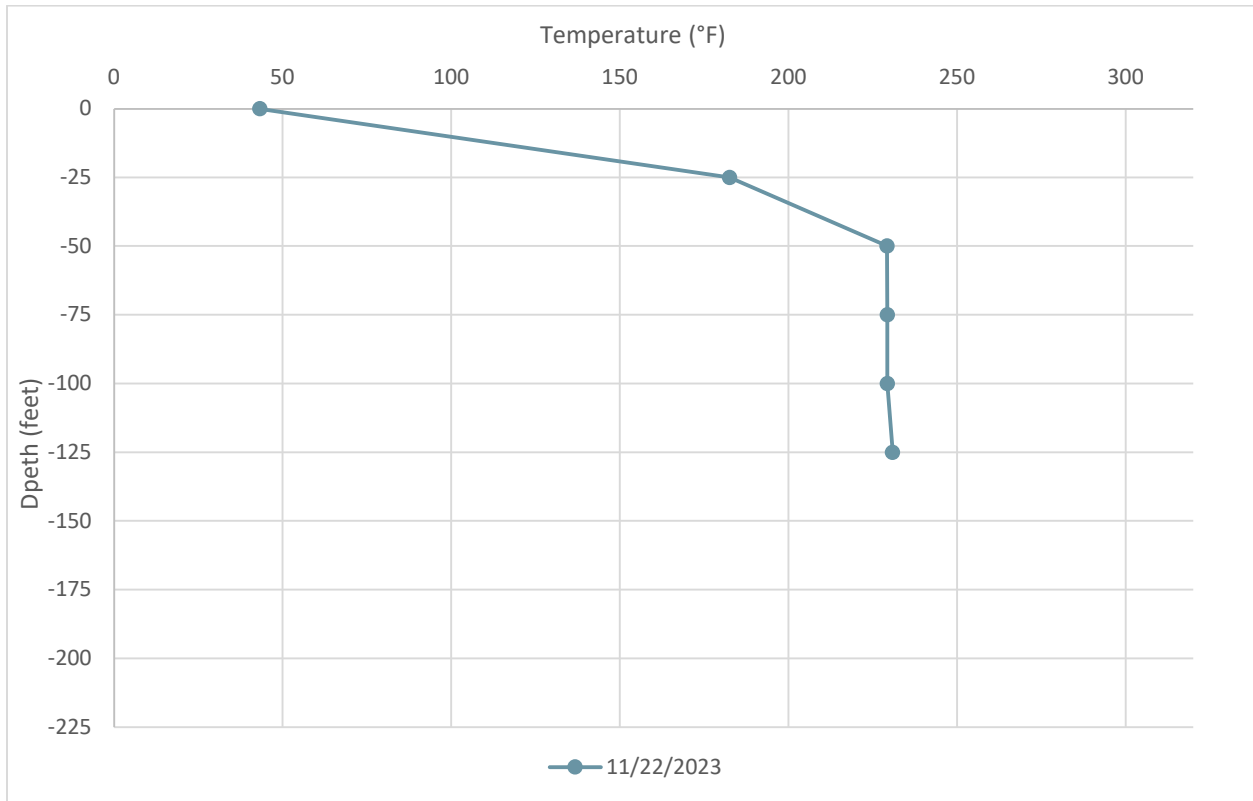


Figure B- 30. Average Temperatures Recorded by TP-6 on November 29, 2023

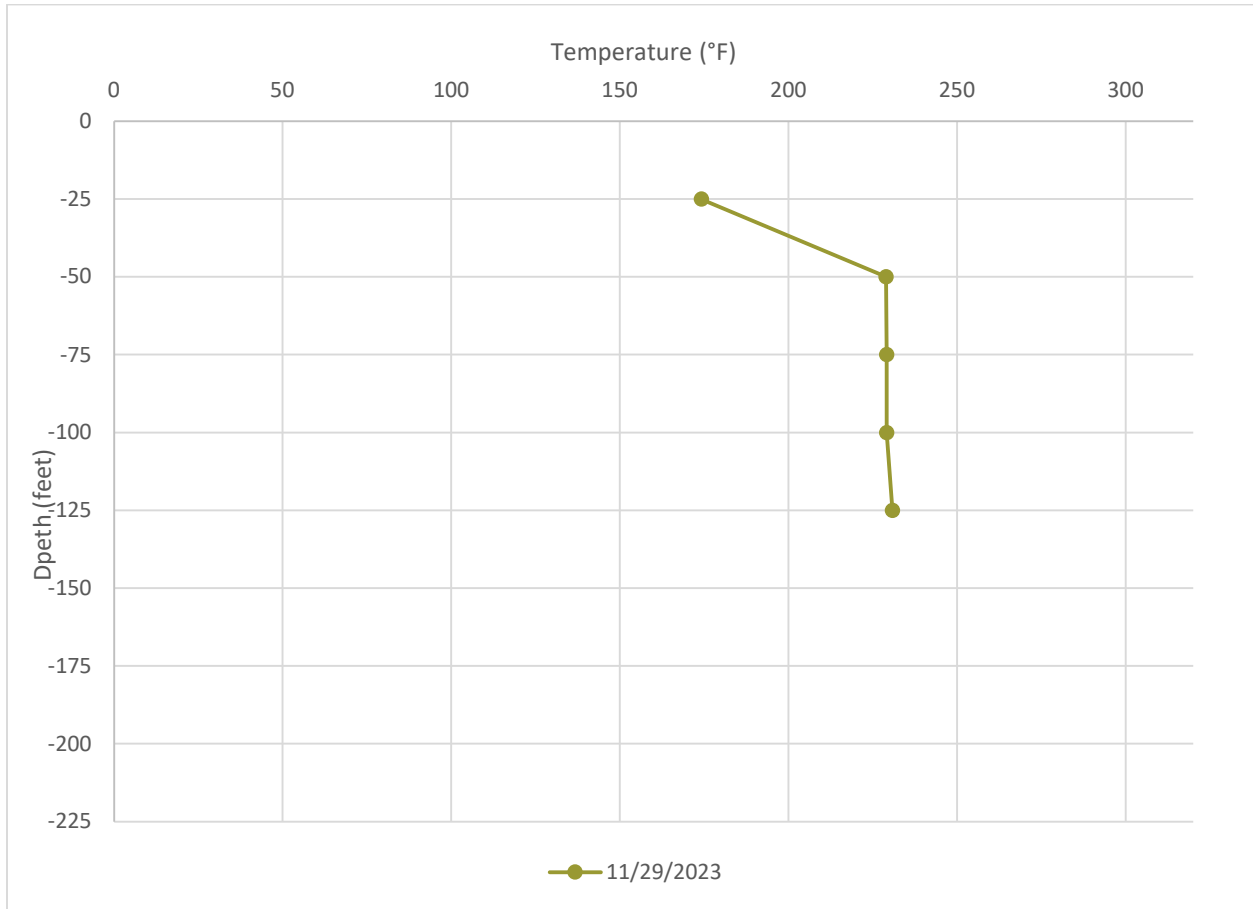


Figure B- 31. Average Temperatures Recorded by TP-7 on November 1, 2023

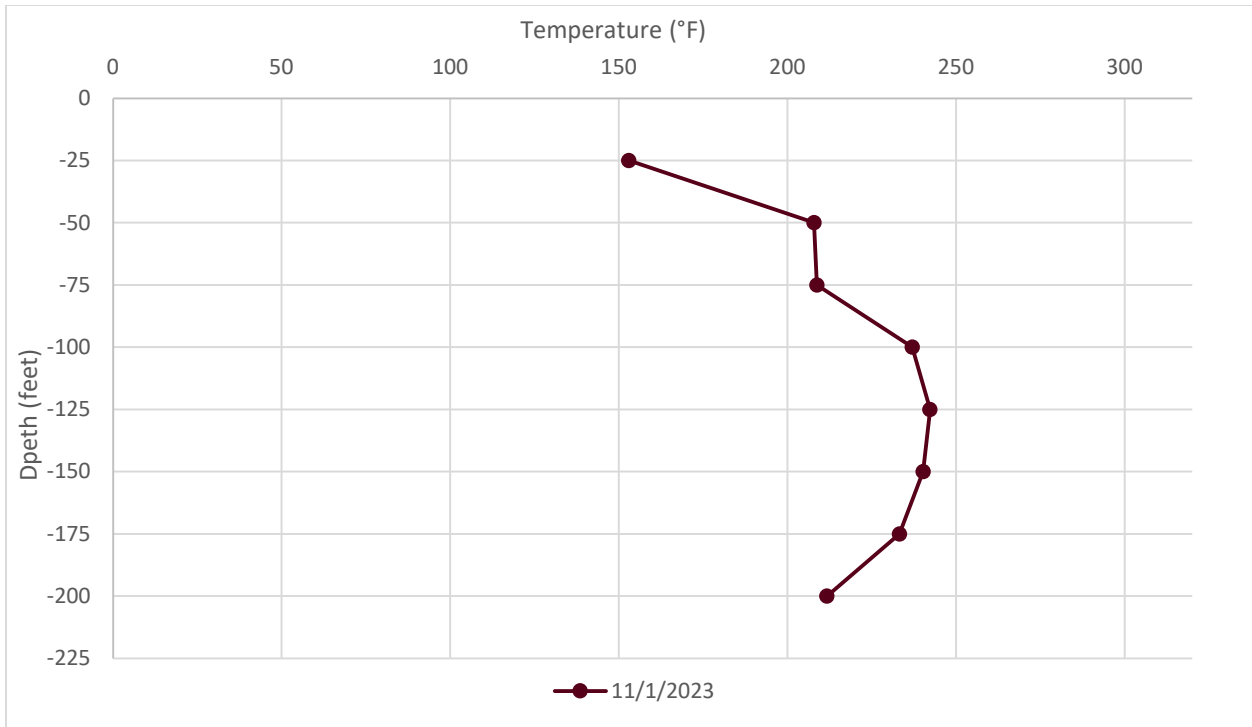


Figure B- 32. Average Temperatures Recorded by TP-7 on November 8, 2023

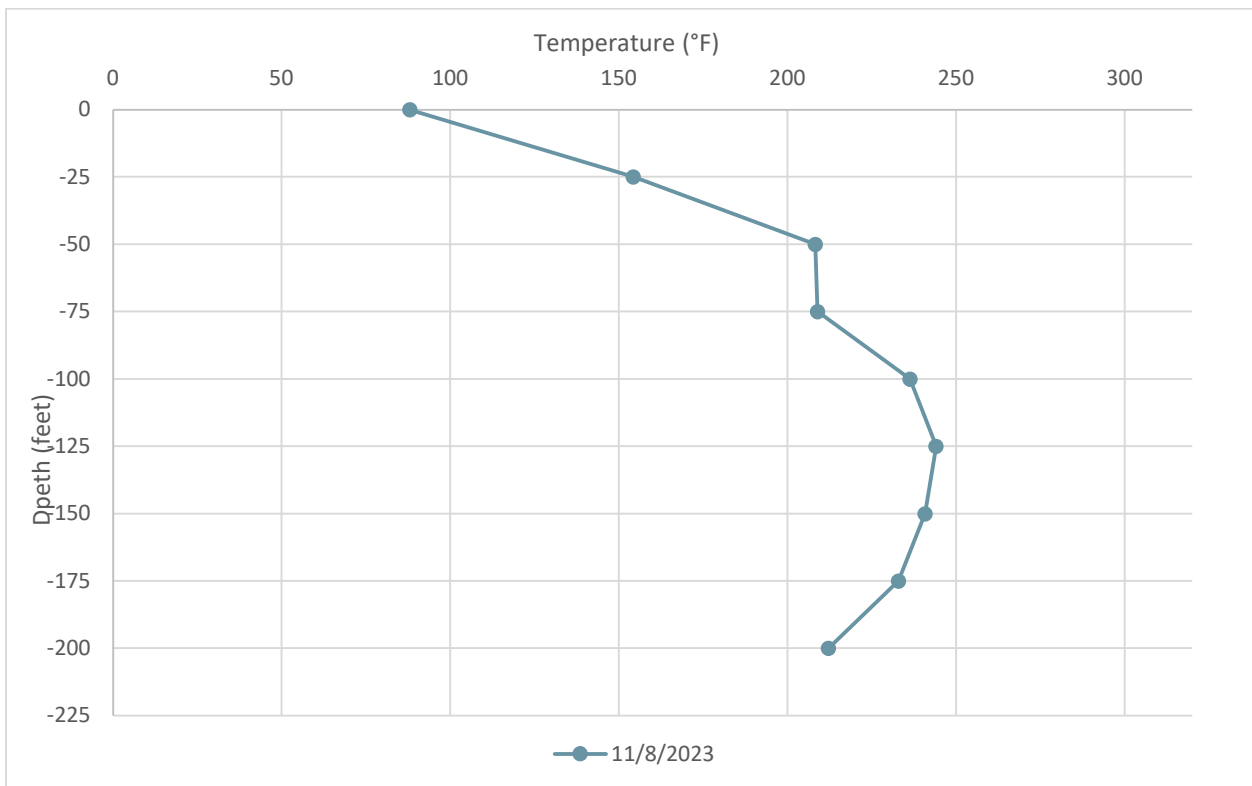


Figure B- 33. Average Temperatures Recorded by TP-7 on November 15, 2023

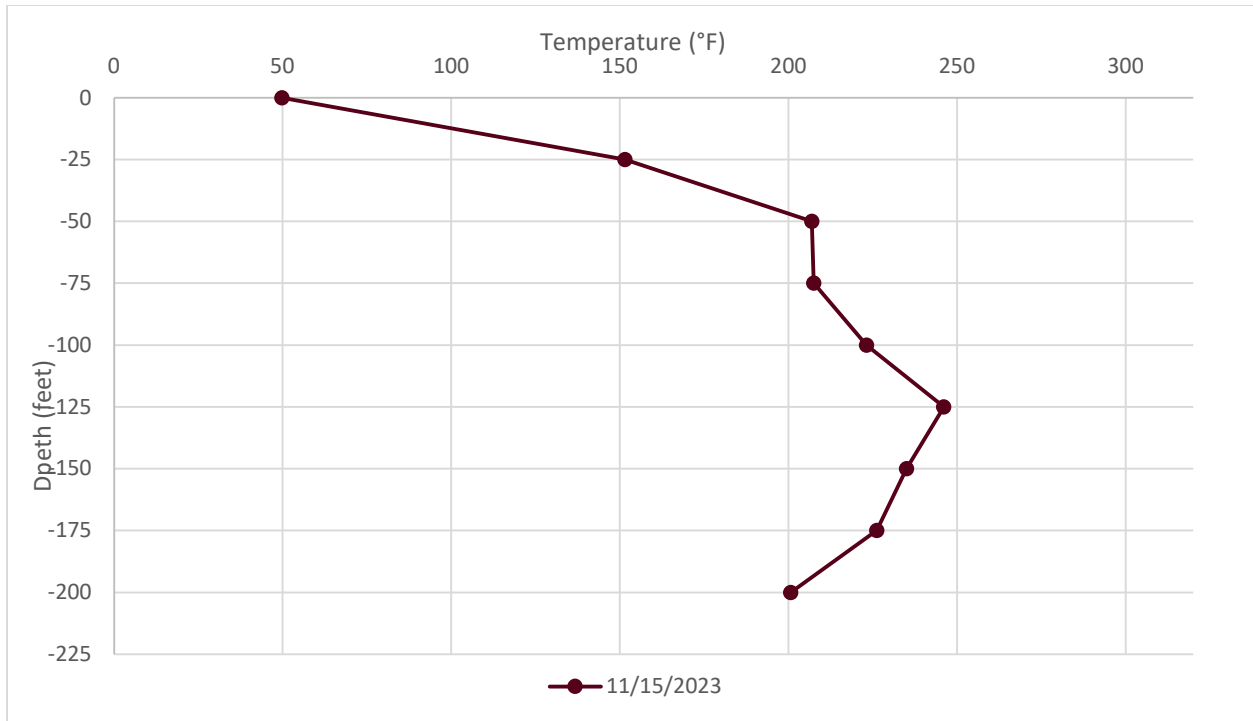


Figure B- 34. Average Temperatures Recorded by TP-7 on November 22, 2023

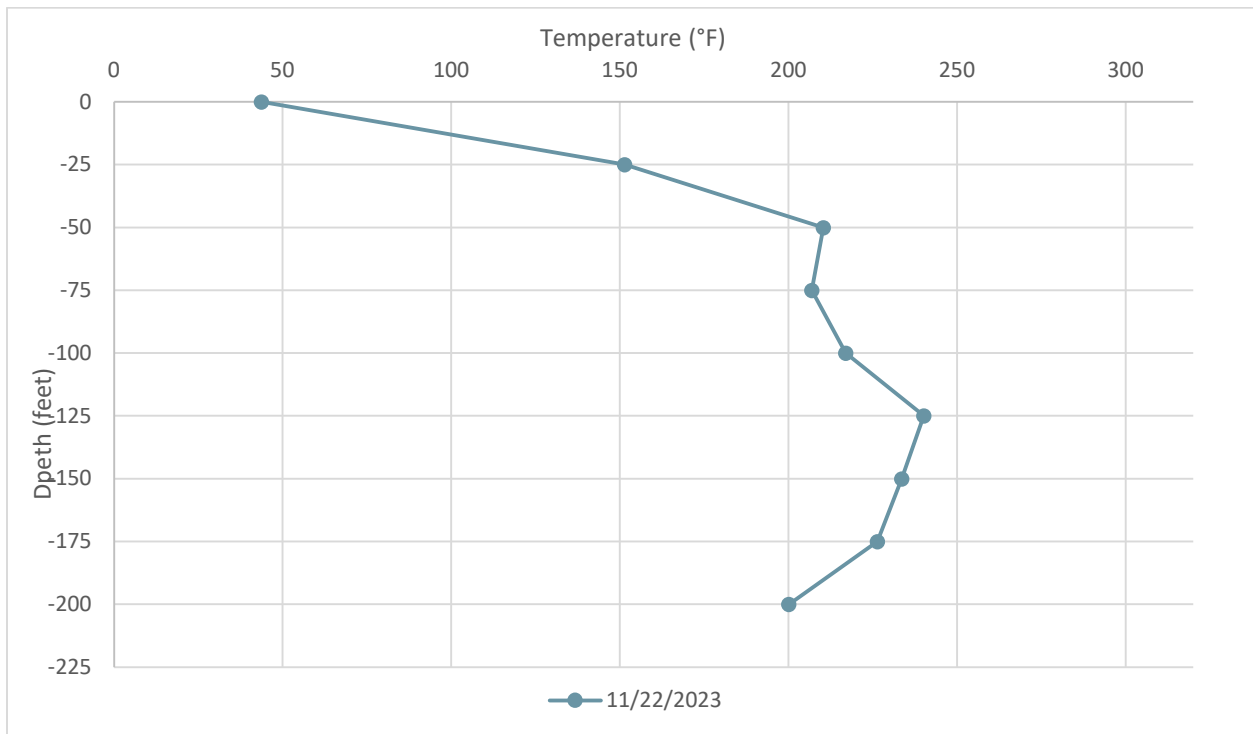


Figure B- 35. Average Temperatures Recorded by TP-7 on November 29, 2023

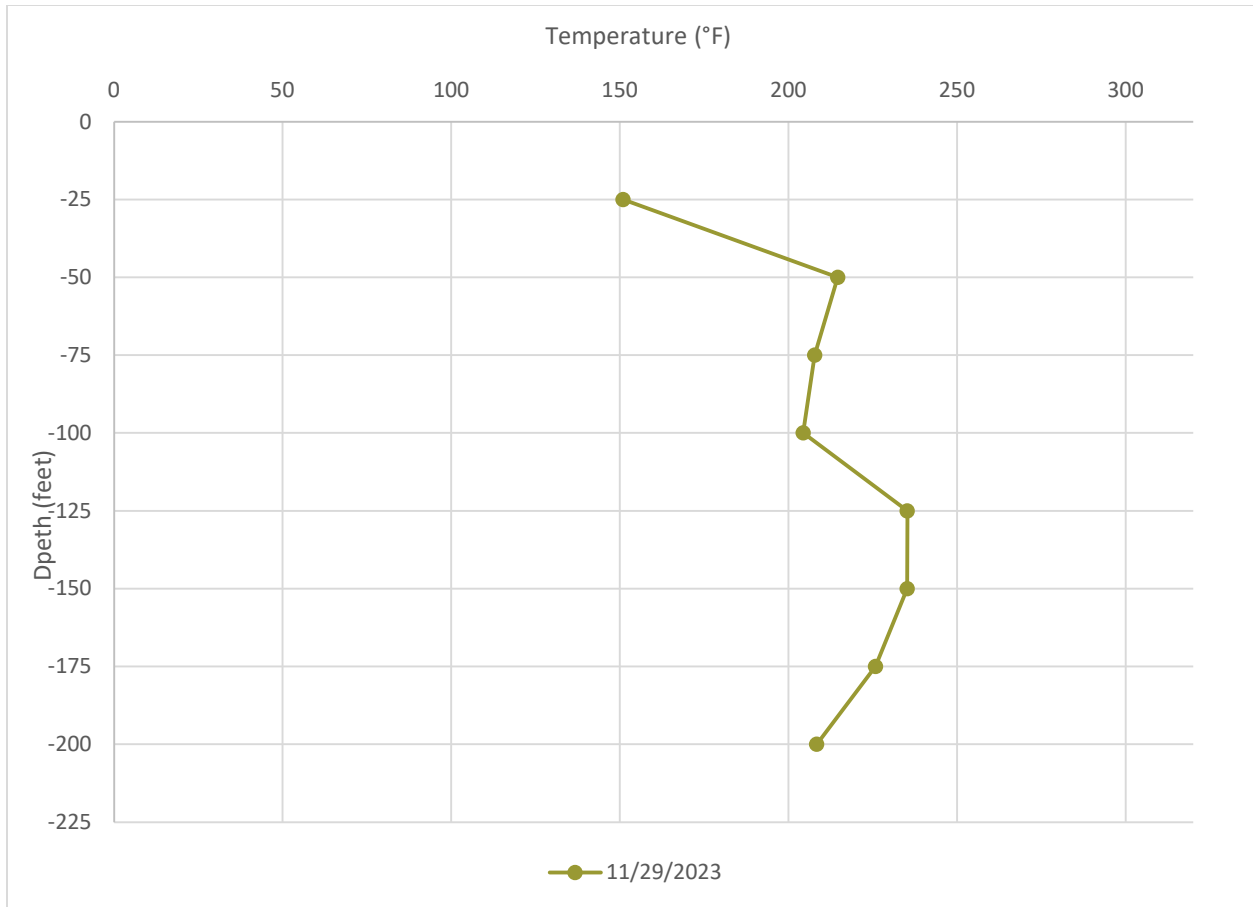


Figure B- 36. Average Temperatures Recorded by TP-8 on November 1, 2023

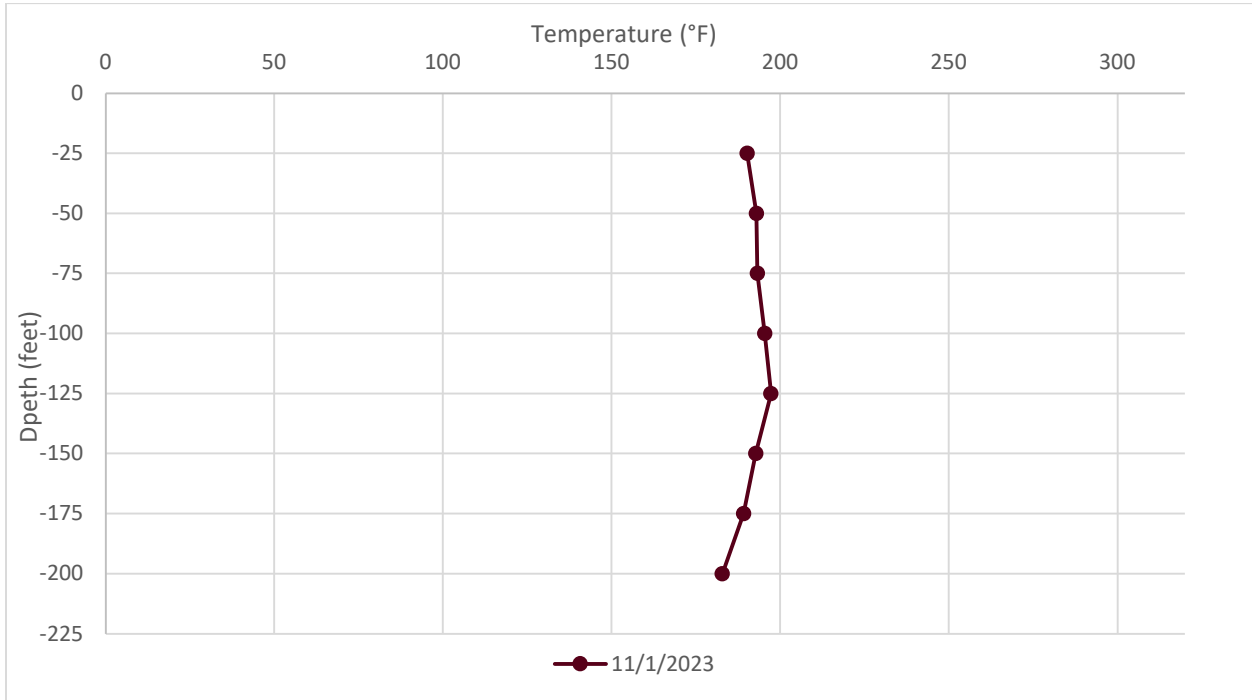


Figure B- 37. Average Temperatures Recorded by TP-8 on November 8, 2023

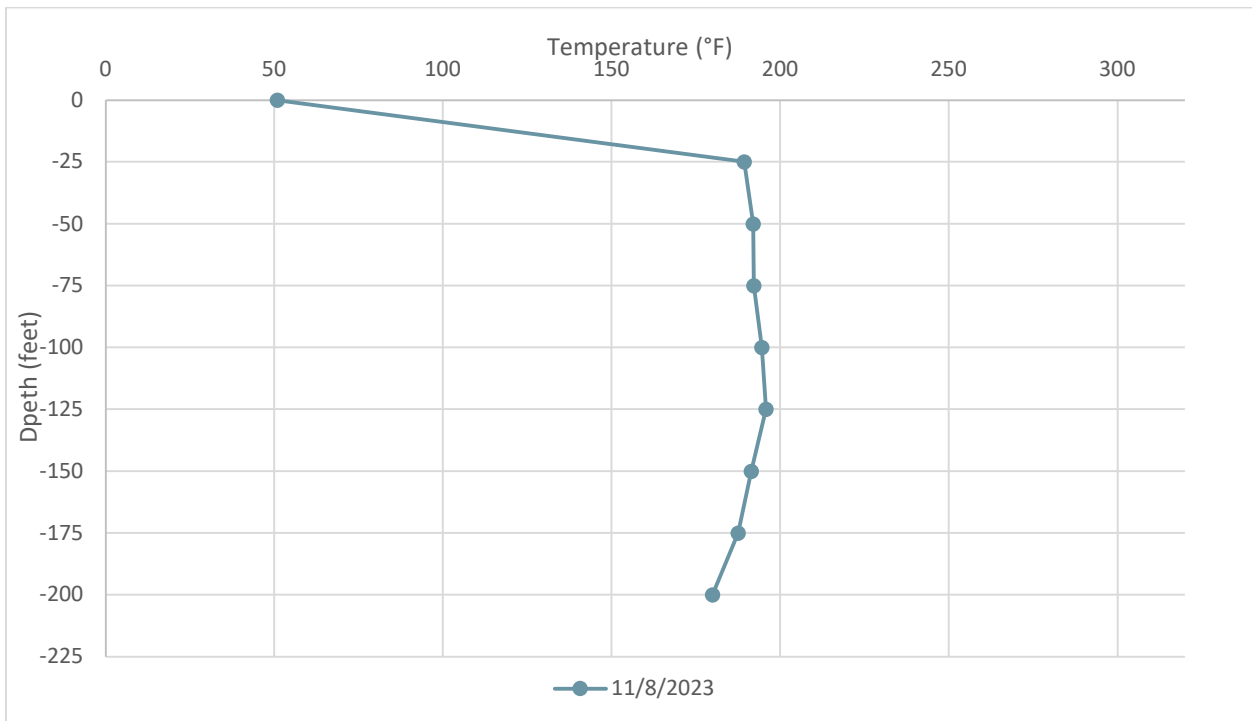


Figure B- 38. Average Temperatures Recorded by TP-8 on November 29, 2023

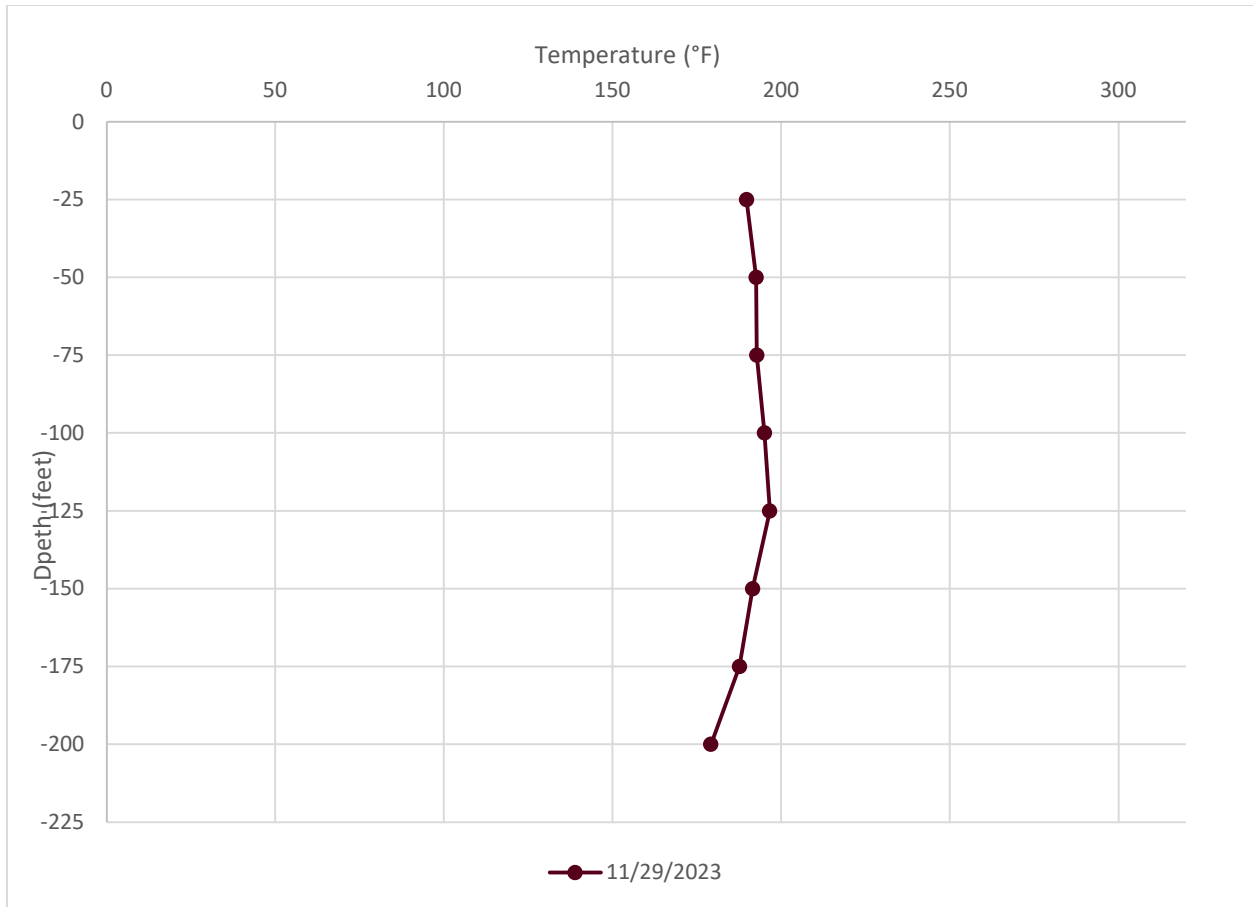


Figure B- 39. Average Temperatures Recorded by TP-9 on November 1, 2023

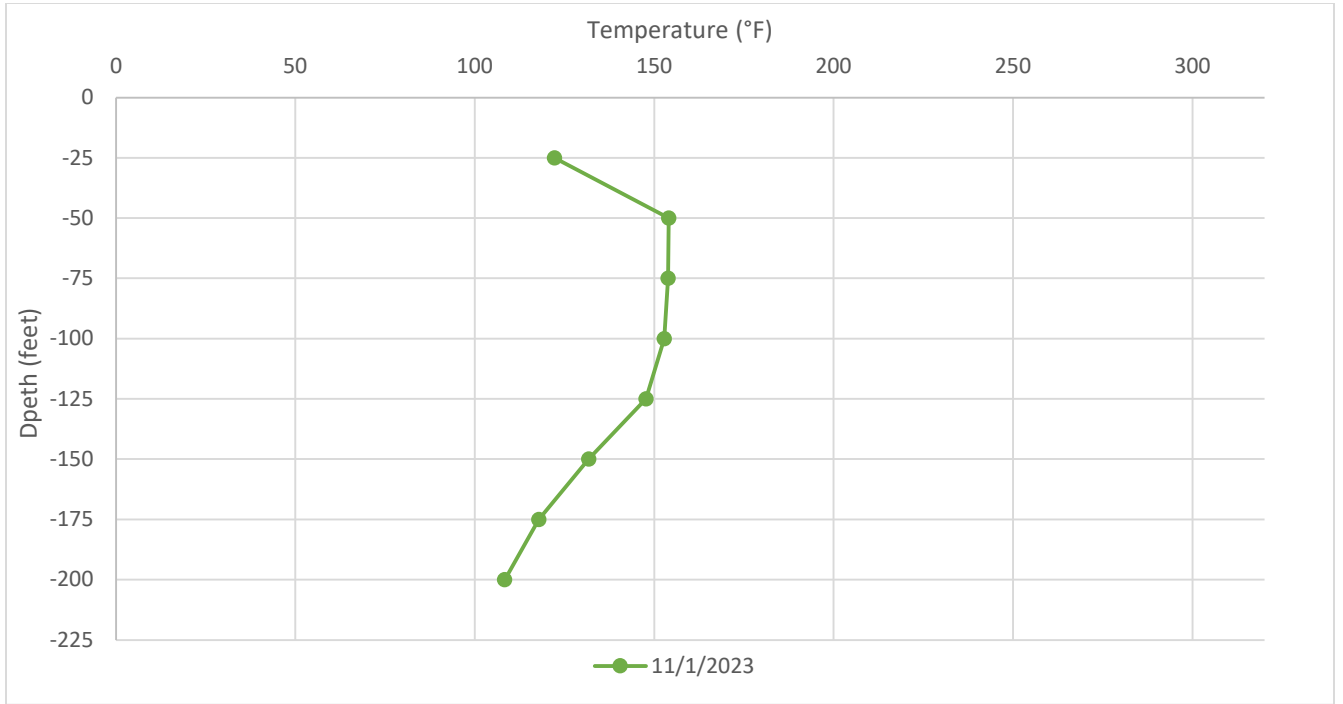


Figure B- 40. Average Temperatures Recorded by TP-9 on November 8, 2023

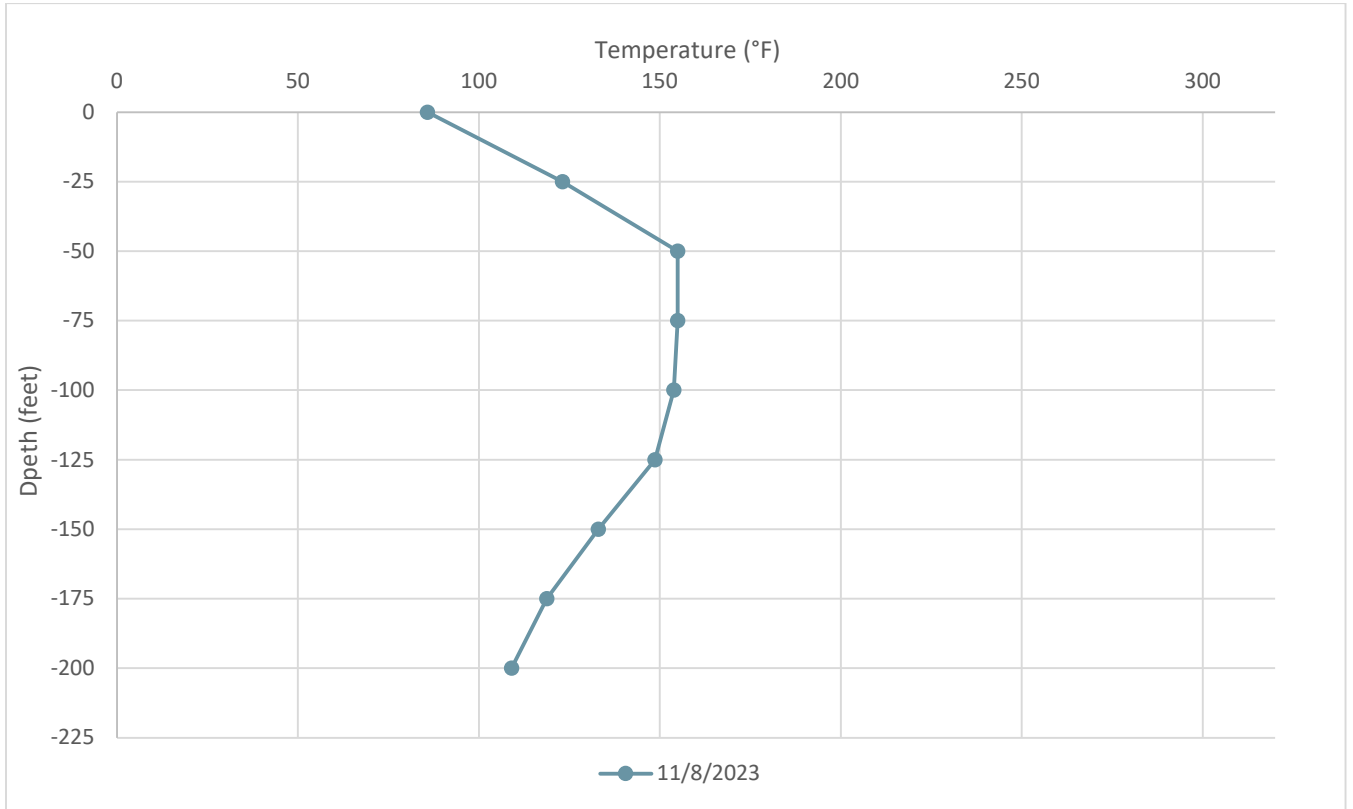


Figure B- 41. Average Temperatures Recorded by TP-9 on November 15, 2023

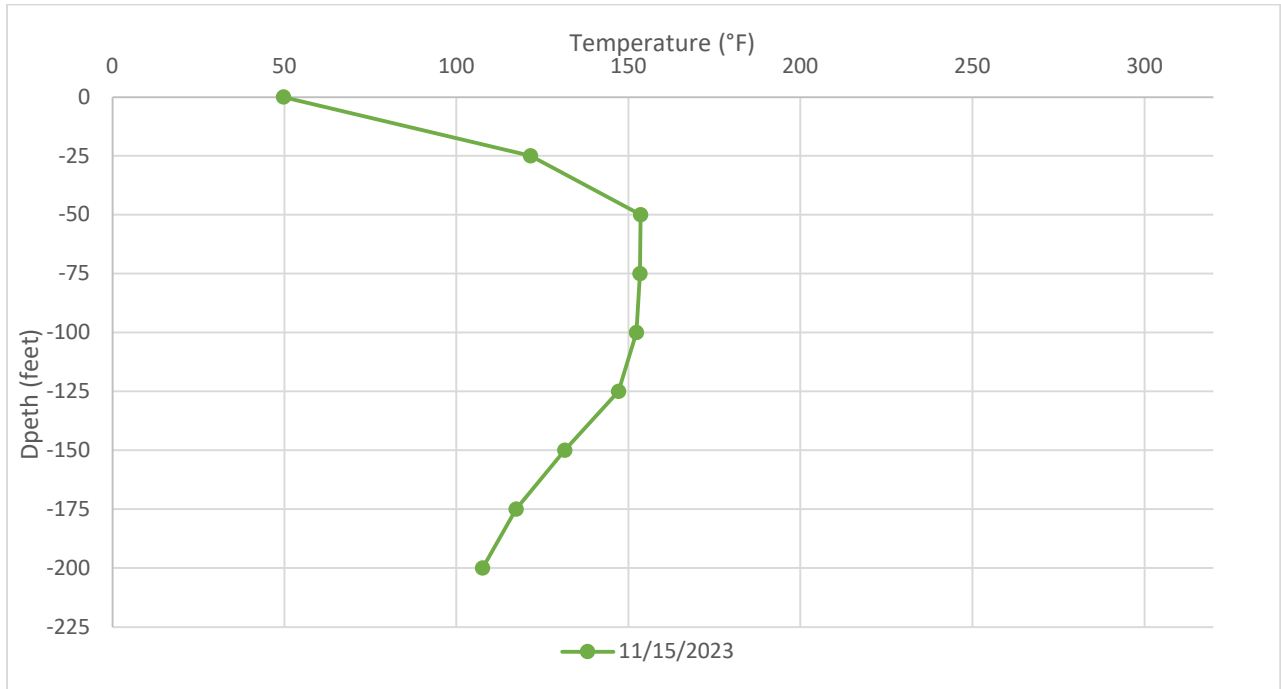


Figure B- 42. Average Temperatures Recorded by TP-9 on November 22, 2023

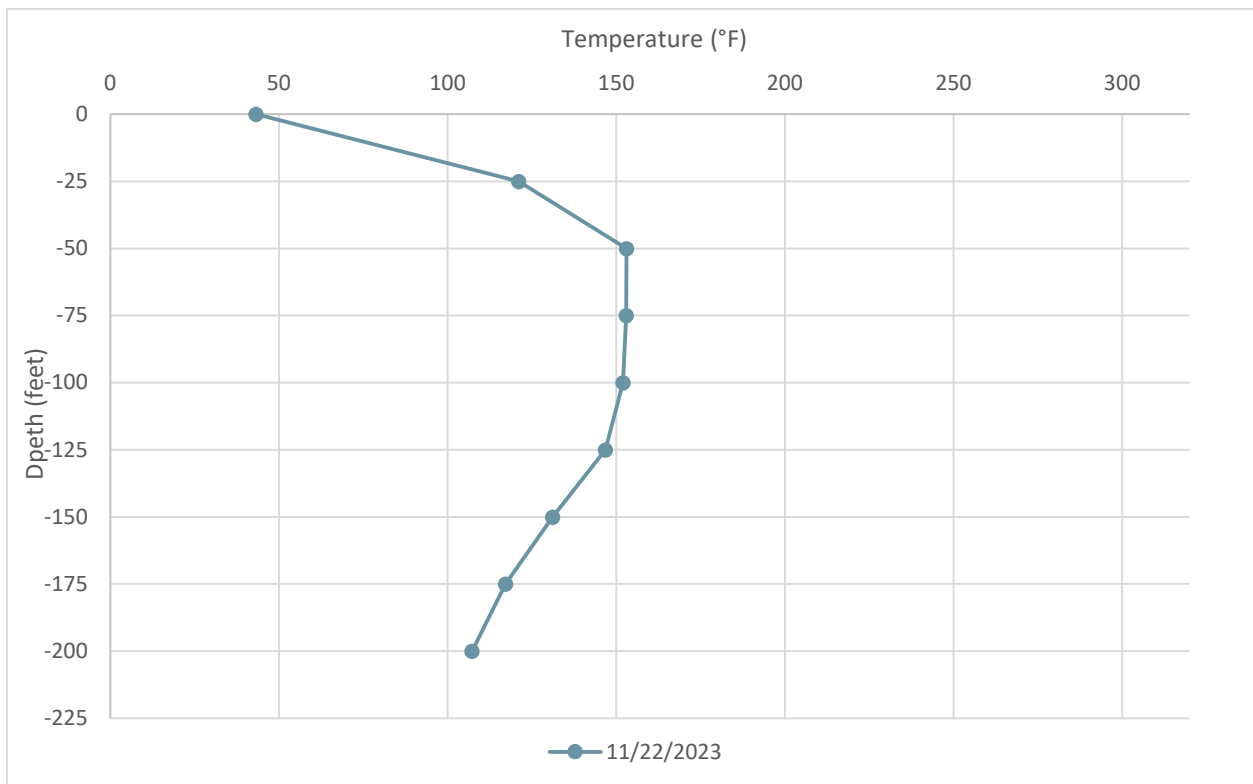
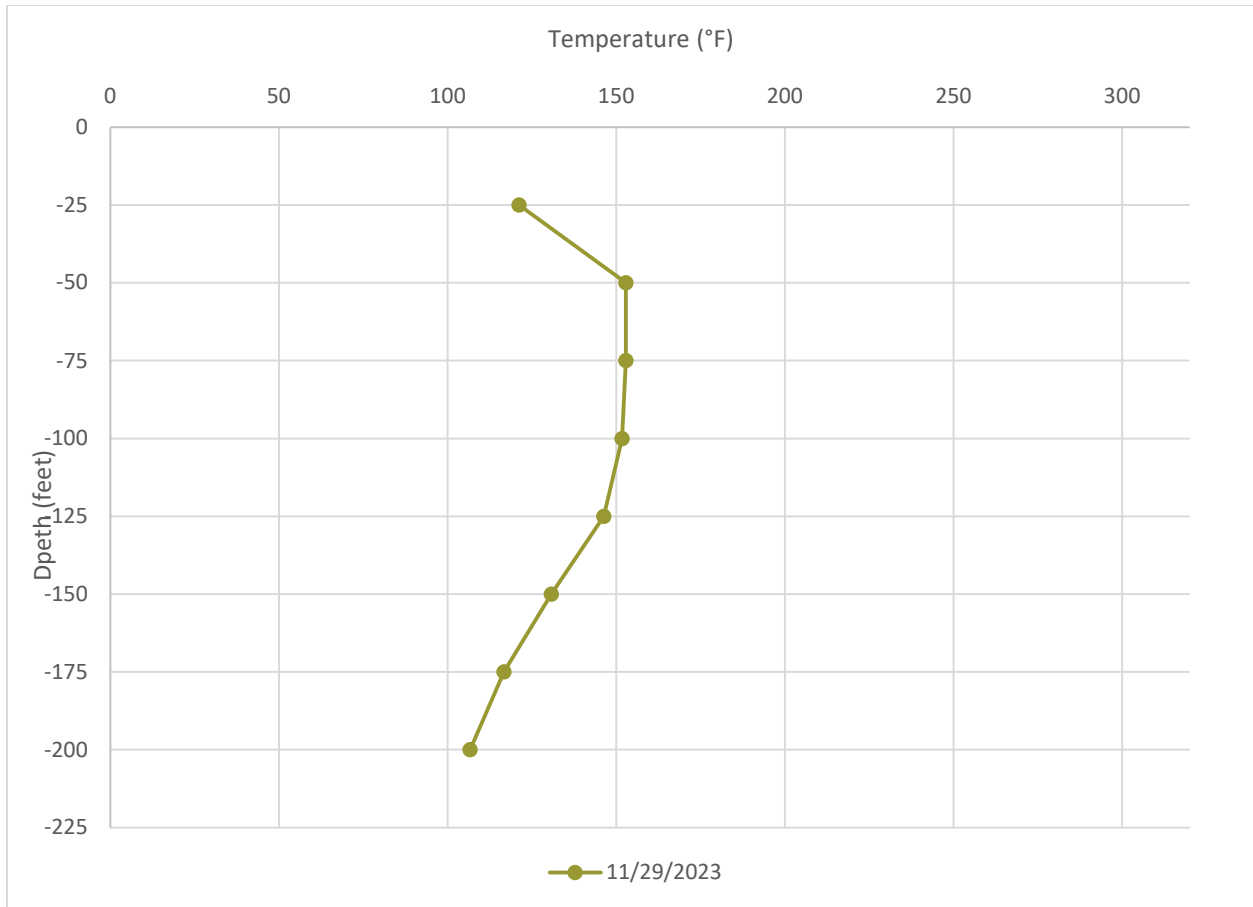



Figure B- 43. Average Temperatures Recorded by TP-9 on November 29, 2023





Appendix C

Daily Wellhead Temperature Averages

Solid Waste Permit 588 Daily Wellhead Temperature Averages

The data provided in this report represent initial readings provided by field instrumentation without Validation, analysis, quality assurance review, or context based on operating conditions. This report is subject to revision following quality assurance review and an analysis of operating conditions. SCS will continue to provide a supplemental report with additional information and further analysis on a monthly basis at a minimum.

SCS ENGINEERS

07222143.00 | December 8, 2023

274 Granite Run Drive
Lancaster, PA 17601
717-550-6330

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 32R

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	86.3	27.9	113.6
Nov 2	112.2	91.3	116.9
Nov 3	115.0	111.1	119.3
Nov 4	115.9	112.8	119.0
Nov 5	115.5	102.6	119.9
Nov 6	115.3	108.1	119.6
Nov 7	113.8	111.7	117.8
Nov 8	113.9	111.2	118.8
Nov 9	113.3	111.2	116.5
Nov 10	109.3	104.0	113.1
Nov 11	109.8	106.4	114.5
Nov 12	110.8	104.9	116.9
Nov 13	110.9	107.4	116.0
Nov 14	111.6	108.0	116.1
Nov 15	111.9	106.1	116.7
Nov 16	112.8	108.2	119.9
Nov 17	114.4	111.7	120.0
Nov 18	110.9	108.5	114.3
Nov 19	110.5	106.5	116.7
Nov 20	110.2	107.6	114.8
Nov 21	112.0	109.5	116.6
Nov 22	110.0	107.0	113.5
Nov 23	90.3	36.9	113.6
Nov 24	45.1	35.0	61.4
Nov 25	47.7	37.7	65.5
Nov 26	44.0	31.2	60.4
Nov 27	84.9	35.4	117.7
Nov 28	109.7	107.8	111.8
Nov 29	110.1	107.9	114.3
Nov 30	111.4	108.0	116.4
Summary	103.0	44.0	115.9

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 34

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	37.6	29.1	50.8
Nov 2	38.7	26.3	59.8
Nov 3	45.0	27.3	71.4
Nov 4	47.2	29.4	72.8
Nov 5	53.3	40.2	76.2
Nov 6	52.9	36.8	75.7
Nov 7	57.6	43.1	78.6
Nov 8	60.0	45.3	85.4
Nov 9	63.1	51.2	77.0
Nov 10	52.1	46.8	59.9
Nov 11	50.1	42.7	67.5
Nov 12	51.4	40.6	73.1
Nov 13	46.8	32.5	67.3
Nov 14	48.4	31.4	70.1
Nov 15	52.0	39.6	72.0
Nov 16	52.6	34.2	79.3
Nov 17	58.2	45.5	76.9
Nov 18	52.0	34.9	63.7
Nov 19	45.9	31.6	69.7
Nov 20	50.9	38.7	70.3
Nov 21	53.1	49.7	56.8
Nov 22	46.3	39.0	52.9
Nov 23	45.4	34.7	67.3
Nov 24	46.2	33.6	74.1
Nov 25	49.0	37.0	74.0
Nov 26	44.5	30.4	64.8
Nov 27	36.6	27.2	44.5
Nov 28	32.1	26.3	48.8
Nov 29	34.5	26.3	54.9
Nov 30	40.2	26.3	70.5
Summary	48.1	32.1	63.1

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 35

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	43.5	32.8	54.0
Nov 2	44.2	27.0	63.7
Nov 3	50.9	35.1	73.1
Nov 4	52.9	36.0	72.5
Nov 5	58.2	47.5	76.4
Nov 6	58.4	43.6	76.0
Nov 7	61.7	50.8	77.9
Nov 8	63.5	51.8	85.3
Nov 9	65.2	56.6	76.4
Nov 10	56.3	51.5	62.4
Nov 11	54.2	48.7	67.3
Nov 12	55.8	47.2	75.1
Nov 13	52.8	40.2	68.2
Nov 14	53.5	39.4	70.4
Nov 15	56.2	46.6	72.7
Nov 16	57.1	41.1	80.7
Nov 17	61.7	51.6	78.1
Nov 18	56.6	42.0	65.5
Nov 19	51.5	38.7	72.5
Nov 20	55.2	46.0	68.6
Nov 21	56.9	54.3	60.9
Nov 22	50.7	44.8	56.7
Nov 23	49.4	40.9	63.8
Nov 24	49.5	39.9	63.9
Nov 25	52.1	43.4	66.9
Nov 26	49.1	37.5	64.0
Nov 27	41.6	34.5	48.7
Nov 28	36.9	27.8	48.1
Nov 29	37.6	26.5	55.2
Nov 30	44.8	32.1	65.0
Summary	52.6	36.9	65.2

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 36A

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	192.7	191.0	195.3
Nov 2	193.6	192.8	195.5
Nov 3	192.2	191.0	192.8
Nov 4	192.4	192.0	192.8
Nov 5	192.4	191.9	192.8
Nov 6	192.2	191.7	192.7
Nov 7	189.9	133.3	192.8
Nov 8	187.1	108.4	194.7
Nov 9	129.8	94.6	197.3
Nov 10	115.6	68.2	190.2
Nov 11	153.4	122.5	191.6
Nov 12	151.0	114.6	187.9
Nov 13	173.1	115.1	200.7
Nov 14	166.8	112.0	199.1
Nov 15	176.5	109.1	199.0
Nov 16	195.4	194.8	196.1
Nov 17	179.1	108.5	198.6
Nov 18	176.5	116.2	195.7
Nov 19	89.4	74.6	105.3
Nov 20	149.3	67.3	198.6
Nov 21	104.3	68.2	196.5
Nov 22	119.1	60.0	196.3
Nov 23	65.0	53.3	77.5
Nov 24	182.3	61.2	197.5
Nov 25	194.6	193.4	195.7
Nov 26	186.2	158.2	193.9
Nov 27	154.0	83.1	196.2
Nov 28	93.1	56.4	196.4
Nov 29	112.5	72.8	196.5
Nov 30	149.9	82.4	196.8
Summary	158.3	65.0	195.4

Solid Waste Permit 588 Daily Wellhead Temperature
Averages for Well 40
 Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	38.1	28.5	53.6
Nov 2	41.1	27.0	66.5
Nov 3	47.2	27.0	78.4
Nov 4	49.6	28.8	78.1
Nov 5	55.0	39.8	82.3
Nov 6	55.2	36.2	82.1
Nov 7	58.8	43.7	82.9
Nov 8	61.4	45.8	91.0
Nov 9	63.6	52.0	80.1
Nov 10	52.2	46.4	60.2
Nov 11	51.3	43.3	75.2
Nov 12	54.4	41.7	82.5
Nov 13	49.3	32.8	73.6
Nov 14	50.5	32.1	73.9
Nov 15	54.2	41.9	75.5
Nov 16	54.5	34.7	86.6
Nov 17	59.2	46.6	79.6
Nov 18	52.3	35.2	63.3
Nov 19	47.8	31.3	76.2
Nov 20	52.2	41.8	65.6
Nov 21	53.2	50.6	55.7
Nov 22	45.7	38.6	52.5
Nov 23	43.6	33.7	61.0
Nov 24	45.0	32.7	67.0
Nov 25	48.7	38.6	67.1
Nov 26	44.6	31.2	59.2
Nov 27	36.7	27.0	44.6
Nov 28	32.0	27.0	48.7
Nov 29	34.4	27.0	54.8
Nov 30	39.3	27.0	65.6
Summary	49.0	32.0	63.6

Solid Waste Permit 588 Daily Wellhead Temperature
Averages for Well 47
 Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	37.4	29.1	50.1
Nov 2	39.7	26.6	61.3
Nov 3	46.2	27.4	74.5
Nov 4	48.2	29.2	72.9
Nov 5	54.1	39.7	78.9
Nov 6	54.5	35.9	79.7
Nov 7	58.4	43.4	80.2
Nov 8	61.6	45.8	87.4
Nov 9	64.7	52.4	81.2
Nov 10	52.6	46.8	60.2
Nov 11	51.4	42.4	73.3
Nov 12	54.1	41.4	79.1
Nov 13	49.0	33.0	72.9
Nov 14	50.3	32.5	73.4
Nov 15	54.1	41.7	73.7
Nov 16	54.8	34.8	87.2
Nov 17	59.4	46.2	81.1
Nov 18	53.1	36.3	64.1
Nov 19	48.5	31.4	76.9
Nov 20	53.1	41.5	68.3
Nov 21	54.2	51.2	56.9
Nov 22	47.1	40.0	54.2
Nov 23	45.7	35.7	63.9
Nov 24	46.4	33.8	67.2
Nov 25	50.3	39.5	71.4
Nov 26	45.3	32.4	61.3
Nov 27	37.5	28.5	45.1
Nov 28	32.0	26.6	45.2
Nov 29	34.7	26.6	52.0
Nov 30	41.6	26.6	68.3
Summary	49.3	32.0	64.7

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 49

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	118.6	97.7	133.6
Nov 2	129.0	114.3	139.2
Nov 3	132.5	122.7	140.1
Nov 4	134.7	126.9	139.9
Nov 5	137.2	134.4	141.0
Nov 6	137.0	131.5	140.0
Nov 7	132.3	119.1	138.8
Nov 8	130.6	123.7	139.1
Nov 9	129.8	123.8	133.1
Nov 10	122.8	111.1	128.8
Nov 11	125.4	119.9	133.8
Nov 12	126.0	119.8	135.9
Nov 13	124.0	117.6	129.1
Nov 14	125.0	116.2	130.3
Nov 15	125.9	122.3	130.5
Nov 16	126.0	116.8	137.4
Nov 17	128.0	119.9	134.7
Nov 18	123.1	116.8	129.5
Nov 19	122.8	114.5	132.5
Nov 20	123.3	118.6	128.5
Nov 21	123.0	116.9	129.1
Nov 22	119.7	108.1	129.3
Nov 23	125.1	120.2	130.6
Nov 24	128.2	123.1	137.2
Nov 25	129.3	123.2	139.0
Nov 26	128.9	122.4	137.6
Nov 27	112.6	102.3	125.7
Nov 28	107.4	88.8	121.1
Nov 29	112.2	97.1	121.2
Nov 30	120.8	109.3	133.0
Summary	125.4	107.4	137.2

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 50

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	112.0	95.4	115.6
Nov 2	114.0	104.3	118.4
Nov 3	118.1	113.8	123.2
Nov 4	118.5	116.1	120.3
Nov 5	117.4	115.6	120.3
Nov 6	117.4	115.0	120.4
Nov 7	120.0	116.6	122.7
Nov 8	121.8	120.1	124.7
Nov 9	119.9	118.5	121.4
Nov 10	117.5	115.8	118.9
Nov 11	117.8	116.9	119.8
Nov 12	118.1	116.6	120.6
Nov 13	118.9	116.2	121.0
Nov 14	120.5	117.4	122.3
Nov 15	120.5	119.0	121.8
Nov 16	120.5	118.6	123.4
Nov 17	119.0	117.9	120.6
Nov 18	117.8	116.8	118.9
Nov 19	117.8	116.1	120.6
Nov 20	117.8	117.0	119.0
Nov 21	117.6	116.5	118.7
Nov 22	117.0	111.4	118.6
Nov 23	117.4	116.5	119.4
Nov 24	117.1	116.4	119.2
Nov 25	117.4	116.3	119.7
Nov 26	116.9	115.6	118.4
Nov 27	115.6	115.2	116.6
Nov 28	115.3	112.0	116.4
Nov 29	116.6	114.7	119.4
Nov 30	119.2	116.9	121.3
Summary	117.9	112.0	121.8

**Solid Waste Permit 588 Daily Wellhead Temperature
Averages for Well 51
Bristol, Virginia**

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	0.0	44.3	44.3
Nov 2	46.6	32.5	58.8
Nov 3	44.4	27.0	69.2
Nov 4	47.0	29.1	70.4
Nov 5	52.5	39.8	75.0
Nov 6	52.8	36.4	74.2
Nov 7	57.2	43.5	77.3
Nov 8	60.2	45.6	84.6
Nov 9	62.9	51.9	77.5
Nov 10	51.7	46.1	60.3
Nov 11	49.8	42.9	68.2
Nov 12	52.0	42.1	74.8
Nov 13	47.4	33.0	67.4
Nov 14	48.7	32.6	68.8
Nov 15	52.9	42.2	72.2
Nov 16	52.9	34.8	81.3
Nov 17	57.9	46.6	76.0
Nov 18	51.2	35.0	57.8
Nov 19	45.9	31.3	71.3
Nov 20	52.3	42.1	65.4
Nov 21	53.3	50.2	55.8
Nov 22	45.6	38.9	52.5
Nov 23	43.2	35.0	59.8
Nov 24	44.5	33.5	61.4
Nov 25	47.8	39.1	64.3
Nov 26	43.3	32.1	56.7
Nov 27	35.8	27.6	43.9
Nov 28	30.9	25.9	42.6
Nov 29	33.2	25.9	49.5
Nov 30	39.3	26.0	63.9
Summary	46.8	0.0	62.9

Solid Waste Permit 588 Daily Wellhead Temperature
Averages for Well 52
 Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	152.9	141.1	179.9
Nov 2	153.5	148.1	170.1
Nov 3	157.8	145.5	181.7
Nov 4	149.7	146.5	152.0
Nov 5	146.3	143.8	148.7
Nov 6	158.1	141.5	180.4
Nov 7	157.5	150.6	180.2
Nov 8	158.5	149.0	180.8
Nov 9	158.8	151.5	181.9
Nov 10	148.2	145.6	151.4
Nov 11	145.3	143.9	146.5
Nov 12	143.8	141.6	146.2
Nov 13	155.9	140.6	177.6
Nov 14	159.8	149.4	181.4
Nov 15	150.2	146.4	153.5
Nov 16	146.4	144.2	149.2
Nov 17	145.3	140.9	148.8
Nov 18	142.8	141.2	144.8
Nov 19	142.2	139.6	145.3
Nov 20	140.7	130.4	142.6
Nov 21	141.4	140.2	143.4
Nov 22	140.1	136.1	142.7
Nov 23	140.4	138.8	142.3
Nov 24	139.8	138.6	141.5
Nov 25	140.0	138.3	142.6
Nov 26	139.8	137.9	142.3
Nov 27	138.1	136.9	139.4
Nov 28	137.7	136.3	139.6
Nov 29	138.2	134.9	140.2
Nov 30	148.4	133.0	172.5
Summary	147.3	137.7	159.8

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 53

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	109.9	99.6	121.4
Nov 2	116.3	103.8	133.8
Nov 3	122.9	108.9	148.8
Nov 4	122.3	109.7	135.3
Nov 5	124.9	117.5	137.0
Nov 6	121.2	111.1	133.0
Nov 7	134.0	107.1	177.0
Nov 8	132.3	123.6	142.5
Nov 9	131.1	125.0	135.5
Nov 10	119.4	108.5	125.4
Nov 11	120.3	113.6	132.5
Nov 12	121.8	111.2	136.5
Nov 13	119.6	109.1	129.5
Nov 14	119.6	107.7	130.5
Nov 15	121.5	114.0	131.2
Nov 16	121.8	109.8	138.4
Nov 17	124.6	118.1	135.1
Nov 18	118.6	109.1	125.6
Nov 19	117.1	104.9	133.3
Nov 20	115.6	107.7	125.1
Nov 21	117.1	109.5	122.9
Nov 22	115.7	109.5	124.5
Nov 23	116.5	108.2	126.8
Nov 24	113.1	107.2	126.5
Nov 25	114.0	104.3	129.6
Nov 26	113.5	102.6	127.7
Nov 27	107.1	104.4	112.6
Nov 28	94.7	62.6	108.4
Nov 29	87.0	51.3	118.0
Nov 30	98.5	62.4	129.3
Summary	117.1	87.0	134.0

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 54

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	38.2	28.6	54.0
Nov 2	40.4	27.4	63.1
Nov 3	46.6	27.4	77.1
Nov 4	48.8	29.4	75.0
Nov 5	54.5	39.8	80.7
Nov 6	54.2	36.3	80.7
Nov 7	58.3	43.8	81.5
Nov 8	61.4	46.0	89.4
Nov 9	63.7	52.2	78.4
Nov 10	52.2	46.5	60.3
Nov 11	50.5	42.5	75.1
Nov 12	53.8	41.4	80.1
Nov 13	48.9	33.2	72.6
Nov 14	49.7	32.4	73.0
Nov 15	53.0	40.5	76.3
Nov 16	55.2	35.1	85.2
Nov 17	59.1	46.1	79.9
Nov 18	52.6	36.4	61.7
Nov 19	47.9	31.3	78.5
Nov 20	51.7	40.3	67.3
Nov 21	53.1	50.1	55.7
Nov 22	46.3	39.4	52.8
Nov 23	45.0	34.7	66.9
Nov 24	45.8	33.4	67.5
Nov 25	49.2	38.8	70.8
Nov 26	43.9	31.6	59.5
Nov 27	36.8	27.9	47.2
Nov 28	32.2	27.4	47.4
Nov 29	34.9	27.4	55.4
Nov 30	41.1	27.4	68.2
Summary	49.0	32.2	63.7

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 55

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	128.2	105.2	138.8
Nov 2	157.5	108.8	198.3
Nov 3	169.9	152.9	198.3
Nov 4	147.2	140.7	158.2
Nov 5	149.4	130.8	157.2
Nov 6	165.6	137.5	199.0
Nov 7	172.1	155.3	199.6
Nov 8	175.2	158.3	199.7
Nov 9	167.0	153.6	200.9
Nov 10	143.1	135.0	154.1
Nov 11	135.5	130.8	140.3
Nov 12	130.4	125.4	137.0
Nov 13	145.9	120.6	192.3
Nov 14	137.0	132.3	141.3
Nov 15	131.8	127.6	134.8
Nov 16	131.4	121.8	138.6
Nov 17	131.5	125.3	138.3
Nov 18	125.4	119.3	133.3
Nov 19	126.5	118.1	137.3
Nov 20	124.2	119.1	129.3
Nov 21	124.1	116.9	130.8
Nov 22	121.3	114.5	130.0
Nov 23	123.2	119.7	130.4
Nov 24	120.2	113.1	127.9
Nov 25	122.6	116.5	130.3
Nov 26	121.1	114.8	129.3
Nov 27	112.1	104.4	116.6
Nov 28	110.4	101.8	120.7
Nov 29	113.5	105.9	123.5
Nov 30	119.6	105.7	133.6
Summary	136.1	110.4	175.2

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 56

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	94.2	83.8	100.7
Nov 2	99.5	86.7	109.1
Nov 3	104.9	98.8	113.9
Nov 4	105.7	97.1	114.0
Nov 5	108.9	104.9	116.6
Nov 6	109.5	101.9	118.4
Nov 7	111.5	107.6	118.4
Nov 8	113.3	107.4	120.4
Nov 9	116.0	113.3	119.8
Nov 10	109.4	100.9	114.6
Nov 11	108.6	104.4	115.6
Nov 12	109.2	103.4	119.7
Nov 13	109.7	104.4	117.8
Nov 14	110.0	105.1	117.0
Nov 15	111.5	108.7	117.3
Nov 16	112.3	105.5	122.1
Nov 17	115.4	110.6	122.9
Nov 18	111.7	106.2	116.6
Nov 19	108.9	101.6	117.2
Nov 20	108.2	103.4	113.6
Nov 21	110.7	106.4	115.0
Nov 22	109.2	105.4	114.6
Nov 23	108.1	106.2	110.2
Nov 24	106.9	104.3	112.6
Nov 25	106.0	101.3	112.9
Nov 26	106.4	99.5	115.4
Nov 27	103.7	101.9	109.4
Nov 28	100.6	97.9	103.2
Nov 29	100.6	93.9	104.4
Nov 30	104.6	96.8	109.6
Summary	107.8	94.2	116.0

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 57

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	114.2	100.8	124.9
Nov 2	117.8	104.1	130.0
Nov 3	122.1	108.9	139.6
Nov 4	120.3	103.0	134.5
Nov 5	122.9	115.0	136.6
Nov 6	128.2	109.1	146.0
Nov 7	136.5	129.1	143.5
Nov 8	137.5	126.4	150.2
Nov 9	155.2	135.7	174.9
Nov 10	160.1	147.6	174.7
Nov 11	150.1	139.4	157.5
Nov 12	147.9	143.0	155.4
Nov 13	153.3	139.2	171.9
Nov 14	156.4	146.7	174.4
Nov 15	154.1	149.6	157.2
Nov 16	152.2	146.1	159.9
Nov 17	152.5	147.4	156.9
Nov 18	148.4	142.4	154.1
Nov 19	147.3	139.1	156.8
Nov 20	144.8	139.7	149.6
Nov 21	144.3	138.5	149.9
Nov 22	141.0	132.7	148.8
Nov 23	140.7	135.3	148.6
Nov 24	137.3	134.1	145.5
Nov 25	138.3	132.7	147.9
Nov 26	137.2	130.1	146.3
Nov 27	131.5	129.4	133.7
Nov 28	127.4	120.4	131.2
Nov 29	126.4	115.9	133.9
Nov 30	128.4	124.3	131.3
Summary	139.1	114.2	160.1

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 58

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	65.5	52.0	77.3
Nov 2	68.5	48.4	88.6
Nov 3	76.7	62.9	98.2
Nov 4	76.8	61.8	92.7
Nov 5	81.6	70.9	98.8
Nov 6	82.5	67.6	100.9
Nov 7	87.1	75.2	99.9
Nov 8	89.4	75.8	102.3
Nov 9	93.6	86.9	98.9
Nov 10	85.0	77.9	90.7
Nov 11	84.4	78.7	95.3
Nov 12	85.7	77.1	98.7
Nov 13	82.4	70.4	94.2
Nov 14	83.4	71.2	93.4
Nov 15	85.5	77.7	97.8
Nov 16	85.1	71.9	101.0
Nov 17	88.0	77.9	101.2
Nov 18	83.1	72.3	90.4
Nov 19	80.4	69.7	95.6
Nov 20	83.0	76.2	91.9
Nov 21	82.8	79.8	86.3
Nov 22	79.1	74.7	86.3
Nov 23	77.8	70.6	84.1
Nov 24	77.7	69.1	87.4
Nov 25	80.7	73.5	90.5
Nov 26	76.7	69.7	86.8
Nov 27	70.0	67.0	74.9
Nov 28	67.6	60.9	71.3
Nov 29	67.4	56.3	74.8
Nov 30	74.4	64.3	89.1
Summary	80.1	65.5	93.6

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 59

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	104.1	47.6	123.0
Nov 2	110.4	60.9	132.8
Nov 3	119.8	117.8	123.1
Nov 4	118.5	116.6	120.6
Nov 5	118.4	117.3	121.8
Nov 6	120.9	116.7	128.1
Nov 7	119.1	117.6	121.8
Nov 8	119.1	116.5	122.0
Nov 9	119.4	118.2	121.6
Nov 10	118.4	117.5	119.2
Nov 11	118.4	117.4	119.7
Nov 12	118.9	117.3	120.5
Nov 13	118.7	116.9	121.1
Nov 14	119.3	117.1	120.9
Nov 15	119.8	119.2	120.6
Nov 16	119.9	118.9	121.2
Nov 17	120.4	119.1	121.4
Nov 18	120.0	119.3	120.5
Nov 19	119.9	119.0	121.1
Nov 20	120.1	119.7	120.7
Nov 21	120.4	119.7	120.9
Nov 22	120.2	118.9	120.9
Nov 23	119.9	119.3	120.4
Nov 24	119.9	118.9	120.7
Nov 25	120.1	119.4	121.3
Nov 26	120.0	119.3	121.0
Nov 27	119.6	118.8	122.9
Nov 28	119.0	118.4	119.3
Nov 29	119.0	117.8	122.7
Nov 30	118.7	115.3	121.3
Summary	118.7	104.1	120.9

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 60

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	115.0	94.0	119.5
Nov 2	116.0	102.6	122.1
Nov 3	134.0	113.9	175.0
Nov 4	125.5	122.9	129.2
Nov 5	122.1	117.5	125.9
Nov 6	128.8	115.6	146.6
Nov 7	132.2	121.6	165.8
Nov 8	139.9	122.8	172.4
Nov 9	151.4	131.1	173.7
Nov 10	142.0	127.3	168.5
Nov 11	128.0	126.3	131.0
Nov 12	125.8	122.9	129.1
Nov 13	143.7	120.7	169.9
Nov 14	137.4	126.9	170.1
Nov 15	126.6	124.0	128.9
Nov 16	124.7	122.1	128.6
Nov 17	129.3	121.8	156.8
Nov 18	123.1	119.2	127.7
Nov 19	120.4	118.0	124.6
Nov 20	119.4	118.4	121.5
Nov 21	118.0	116.6	119.8
Nov 22	116.3	114.1	119.3
Nov 23	116.2	114.6	119.9
Nov 24	115.7	114.3	118.8
Nov 25	115.8	113.8	118.8
Nov 26	114.6	112.1	117.3
Nov 27	112.3	111.2	113.8
Nov 28	111.4	109.8	113.1
Nov 29	112.0	107.1	114.3
Nov 30	113.8	106.5	118.3
Summary	124.4	111.4	151.4

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 62

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	112.8	62.7	130.5
Nov 2	129.7	124.8	130.8
Nov 3	130.2	128.3	131.7
Nov 4	129.5	115.8	131.3
Nov 5	129.6	121.7	131.6
Nov 6	127.5	92.4	131.1
Nov 7	128.5	126.5	129.8
Nov 8	128.5	118.7	131.2
Nov 9	128.7	127.9	130.0
Nov 10	126.6	124.4	128.3
Nov 11	126.9	124.9	128.8
Nov 12	127.5	125.7	130.4
Nov 13	127.0	125.9	128.8
Nov 14	127.3	125.9	129.4
Nov 15	127.8	126.4	129.6
Nov 16	127.8	125.8	130.7
Nov 17	128.1	126.3	129.8
Nov 18	126.4	124.8	128.4
Nov 19	126.3	124.5	129.3
Nov 20	126.6	125.5	128.5
Nov 21	125.9	124.6	127.2
Nov 22	125.6	124.3	127.3
Nov 23	109.9	63.7	127.8
Nov 24	67.7	60.2	80.7
Nov 25	68.7	59.4	85.7
Nov 26	59.7	53.1	69.8
Nov 27	97.3	45.2	127.0
Nov 28	125.1	123.3	126.2
Nov 29	125.1	123.8	126.1
Nov 30	125.8	124.5	128.2
Summary	119.1	59.7	130.2

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 63

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	101.5	31.9	132.2
Nov 2	132.1	127.9	134.5
Nov 3	132.6	116.8	136.4
Nov 4	132.0	120.5	136.2
Nov 5	133.1	117.1	136.8
Nov 6	132.7	105.6	136.7
Nov 7	134.9	133.0	137.0
Nov 8	134.0	130.7	138.0
Nov 9	131.7	130.4	132.7
Nov 10	128.6	125.3	130.8
Nov 11	129.2	127.4	132.9
Nov 12	130.2	128.0	134.5
Nov 13	129.3	126.7	132.3
Nov 14	129.3	117.0	132.2
Nov 15	129.7	127.6	132.5
Nov 16	129.8	125.8	134.7
Nov 17	129.5	125.3	132.8
Nov 18	127.1	124.1	129.6
Nov 19	127.4	123.5	132.3
Nov 20	127.5	125.8	129.9
Nov 21	127.1	124.3	130.2
Nov 22	126.7	124.3	129.8
Nov 23	105.1	36.4	131.3
Nov 24	46.0	34.9	64.9
Nov 25	49.3	39.2	68.9
Nov 26	43.6	31.4	58.4
Nov 27	92.7	37.3	126.4
Nov 28	125.5	123.3	127.3
Nov 29	126.6	124.3	128.7
Nov 30	127.8	125.0	132.3
Summary	118.4	43.6	134.9

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 64

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	117.1	74.6	136.6
Nov 2	133.7	117.7	136.5
Nov 3	134.6	122.3	137.6
Nov 4	134.5	120.7	137.8
Nov 5	135.3	125.4	137.5
Nov 6	134.5	126.0	138.0
Nov 7	135.3	133.9	136.6
Nov 8	134.6	129.1	137.1
Nov 9	133.4	132.0	135.1
Nov 10	130.5	127.8	132.8
Nov 11	130.8	129.4	132.2
Nov 12	131.7	129.7	134.4
Nov 13	130.9	128.8	133.8
Nov 14	132.2	130.2	134.4
Nov 15	131.8	124.7	134.4
Nov 16	132.1	128.8	135.7
Nov 17	132.4	130.4	136.5
Nov 18	130.5	128.9	132.5
Nov 19	127.9	59.6	133.7
Nov 20	131.1	129.0	133.8
Nov 21	130.5	128.6	132.2
Nov 22	130.4	128.2	133.6
Nov 23	112.8	65.6	132.6
Nov 24	69.6	61.5	81.4
Nov 25	78.3	67.1	90.8
Nov 26	73.7	62.2	85.3
Nov 27	107.6	66.6	132.2
Nov 28	130.2	127.9	132.7
Nov 29	130.8	127.0	133.0
Nov 30	132.6	131.0	135.7
Summary	124.4	69.6	135.3

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 65

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	0.0	145.4	145.4
Nov 2	141.7	139.9	145.2
Nov 3	141.1	139.7	143.5
Nov 4	140.5	138.5	142.7
Nov 5	141.2	139.7	143.2
Nov 6	141.2	138.9	143.1
Nov 7	141.6	140.6	142.6
Nov 8	141.8	139.7	143.7
Nov 9	115.7	56.7	149.6
Nov 10	106.2	47.4	149.3
Nov 11	141.8	141.2	142.6
Nov 12	142.0	140.3	143.9
Nov 13	141.9	140.3	143.5
Nov 14	117.3	32.4	149.4
Nov 15	142.7	140.3	143.7
Nov 16	142.9	141.1	145.3
Nov 17	143.1	142.0	144.4
Nov 18	142.1	140.9	143.2
Nov 19	142.2	140.8	144.3
Nov 20	142.1	138.0	142.8
Nov 21	141.8	135.0	143.7
Nov 22	114.0	49.6	149.3
Nov 23	62.0	35.4	115.8
Nov 24	45.2	34.0	64.1
Nov 25	47.9	38.5	65.9
Nov 26	43.7	31.5	59.7
Nov 27	112.0	36.3	154.4
Nov 28	118.1	26.5	150.3
Nov 29	86.4	26.5	153.7
Nov 30	108.9	26.5	155.0
Summary	116.3	0.0	143.1

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 66

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	123.0	110.9	130.1
Nov 2	126.3	106.7	134.0
Nov 3	132.0	126.2	139.6
Nov 4	131.6	122.6	138.5
Nov 5	134.2	129.5	139.1
Nov 6	135.6	128.5	142.4
Nov 7	137.1	132.7	139.5
Nov 8	138.9	131.5	145.8
Nov 9	141.1	137.1	143.2
Nov 10	136.3	126.7	140.8
Nov 11	136.9	134.1	140.2
Nov 12	138.3	135.1	142.7
Nov 13	136.7	131.7	141.4
Nov 14	138.0	131.9	141.5
Nov 15	138.4	134.2	141.8
Nov 16	139.1	132.3	144.5
Nov 17	140.0	132.1	143.7
Nov 18	136.9	133.2	141.5
Nov 19	137.8	132.0	143.1
Nov 20	136.8	132.8	140.8
Nov 21	137.8	132.7	141.3
Nov 22	136.8	130.4	141.1
Nov 23	137.0	132.9	140.5
Nov 24	135.6	132.2	140.3
Nov 25	136.9	133.6	140.8
Nov 26	136.5	132.4	140.8
Nov 27	132.8	130.1	135.4
Nov 28	132.0	127.8	135.2
Nov 29	131.8	127.1	137.5
Nov 30	135.6	123.1	142.6
Summary	135.6	123.0	141.1

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 67

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	96.6	82.9	109.0
Nov 2	109.5	93.6	124.4
Nov 3	117.8	100.4	135.7
Nov 4	120.0	103.7	133.8
Nov 5	126.6	117.4	137.6
Nov 6	126.9	113.5	137.3
Nov 7	130.7	121.2	136.1
Nov 8	132.5	121.5	142.9
Nov 9	135.7	125.0	142.3
Nov 10	119.1	100.7	130.6
Nov 11	123.0	112.5	135.8
Nov 12	123.6	108.3	136.9
Nov 13	124.1	108.7	135.2
Nov 14	126.3	111.4	136.4
Nov 15	129.7	120.8	137.3
Nov 16	128.0	114.3	144.9
Nov 17	131.9	124.0	139.8
Nov 18	124.0	111.9	134.9
Nov 19	125.4	107.1	143.6
Nov 20	120.3	109.8	129.8
Nov 21	123.2	112.3	133.4
Nov 22	122.3	112.0	136.1
Nov 23	124.9	117.6	137.8
Nov 24	120.7	113.0	132.8
Nov 25	120.5	109.4	138.0
Nov 26	121.3	106.2	136.6
Nov 27	111.4	105.2	120.4
Nov 28	108.8	94.3	116.5
Nov 29	112.9	98.0	124.0
Nov 30	122.7	108.5	137.5
Summary	122.0	96.6	135.7

Solid Waste Permit 588 Daily Wellhead Temperature

Averages for Well 68

Bristol, Virginia

Date	Average (°F)	Minimum (°F)	Maximum (°F)
Nov 1	121.8	113.7	124.4
Nov 2	124.9	116.1	133.8
Nov 3	125.0	123.1	127.4
Nov 4	124.1	122.0	126.3
Nov 5	124.5	122.7	126.7
Nov 6	125.0	122.5	127.6
Nov 7	125.5	124.1	130.4
Nov 8	126.9	123.3	133.8
Nov 9	126.8	123.1	127.8
Nov 10	124.9	122.8	126.5
Nov 11	125.0	123.9	126.5
Nov 12	124.9	123.4	127.0
Nov 13	124.7	122.9	126.0
Nov 14	128.3	123.3	136.8
Nov 15	133.8	128.5	137.9
Nov 16	128.0	126.3	129.9
Nov 17	129.5	126.3	136.8
Nov 18	127.1	125.2	129.9
Nov 19	125.8	124.0	127.6
Nov 20	125.5	124.1	127.0
Nov 21	126.0	125.0	126.9
Nov 22	125.5	124.1	127.1
Nov 23	125.5	124.7	126.5
Nov 24	124.9	123.9	126.5
Nov 25	125.1	123.3	127.0
Nov 26	125.2	123.7	126.8
Nov 27	130.9	123.3	138.6
Nov 28	129.6	126.8	134.7
Nov 29	128.4	122.5	137.7
Nov 30	131.5	122.4	138.5
Summary	126.5	121.8	133.8

Appendix D

Solid Waste Permit 588 Daily Borehole Temperature Averages

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Solid Waste Permit 588 Daily Borehole Temperature Averages for Borehole 1

Date	Depth from Surface					
	25 ft	50 ft	75 ft	100 ft	125 ft	150 ft
1-Nov	165.3	223.5	223.9	249.6	264.1	271.2
2-Nov	165.5	223.3	223.7	249.8	264.1	271.3
3-Nov	165.6	223.8	224.2	250.1	264.2	271.5
4-Nov	165.7	224.5	224.9	250.3	264.2	271.5
5-Nov	165.9	224.2	224.6	250.1	264.5	271.6
6-Nov	165.6	223.9	224.3	249.9	264.1	271.4
7-Nov	165.9	224.8	225.2	250.5	264.3	271.5
8-Nov	165.9	225.3	225.7	250.8	264.3	271.6
9-Nov	166.1	225.8	226.2	250.9	264.3	271.6
10-Nov	165.6	225.8	226.2	250.1	263.8	271.1
11-Nov	165.7	225.1	225.5	250.2	264.1	271.2
12-Nov	165.8	225.3	225.7	250.5	264.2	271.4
13-Nov	165.6	225.5	225.9	250.4	263.9	271.3
14-Nov	165.6	225.3	225.7	250.4	264.3	271.3
15-Nov	165.7	225.1	225.5	250.3	263.9	271.3
16-Nov	165.8	225.3	225.7	250.6	264.1	271.4
17-Nov	165.9	225.9	226.4	250.8	263.7	271.4
18-Nov	165.8	225.0	225.4	250.2	263.6	271.2
19-Nov	165.7	224.6	225.1	250.2	263.8	271.3
20-Nov	165.5	225.3	225.7	250.4	263.4	271.0
21-Nov	165.7	225.0	225.5	250.2	263.6	270.9
22-Nov	165.4	225.4	225.8	250.3	263.0	270.7
23-Nov	165.5	225.4	225.9	250.5	263.2	270.9
24-Nov	165.6	225.2	225.6	250.4	263.1	270.8
25-Nov	165.6	225.4	225.9	250.6	263.2	271.0
26-Nov	165.5	225.0	225.4	250.2	263.2	270.7
27-Nov	165.2	224.9	225.3	250.0	262.6	270.3
28-Nov	165.1	225.0	225.4	250.1	262.6	270.3
29-Nov	165.2	225.2	225.7	250.0	262.7	270.4
30-Nov	165.5	225.0	225.4	250.0	263.2	270.8
Average	165.6	225.0	225.4	250.3	263.7	271.1

Solid Waste Permit 588 Daily Borehole Temperature Averages for Borehole 2

Date	Depth from Surface					
	25 ft	50 ft	75 ft	100 ft	125 ft	150 ft
1-Nov	156.2	238.3	238.8	265.8	253.6	264.3
2-Nov	156.2	238.5	239.0	265.9	253.7	264.3
3-Nov	156.3	238.5	238.9	266.0	253.8	264.4
4-Nov	156.4	238.3	238.7	266.0	253.9	264.4
5-Nov	156.6	238.3	238.7	266.0	254.0	264.5
6-Nov	156.7	238.1	238.5	265.9	253.9	264.4
7-Nov	156.9	238.1	238.5	266.0	254.0	264.5
8-Nov	157.2	238.1	238.5	266.1	254.2	264.6
9-Nov	157.7	238.1	238.5	266.0	254.2	264.4
10-Nov	157.5	237.9	238.3	265.6	254.2	264.0
11-Nov	157.4	237.9	238.4	265.7	254.1	264.2
12-Nov	157.5	238.0	238.5	265.8	254.6	264.3
13-Nov	157.5	237.9	238.4	265.6	254.5	264.1
14-Nov	157.7	237.9	238.3	265.5	254.4	264.0
15-Nov	158.0	237.8	238.2	265.4	254.5	264.0
16-Nov	158.9	237.7	238.2	265.5	254.7	264.1
17-Nov	160.8	237.5	238.0	265.5	254.4	264.0
18-Nov	163.3	237.2	237.7	265.4	254.2	263.8
19-Nov	163.9	237.2	237.6	265.3	254.2	263.8
20-Nov	164.1	237.2	237.7	265.2	253.9	263.6
21-Nov	165.9	237.1	237.6	265.3	253.9	263.7
22-Nov	168.6	236.8	237.2	265.0	253.6	263.4
23-Nov	166.0	236.9	237.4	265.3	253.7	263.6
24-Nov	165.1	236.9	237.4	265.3	253.5	263.6
25-Nov	163.5	236.9	237.3	265.1	252.9	263.5
26-Nov	163.0	236.6	237.0	265.0	252.6	263.3
27-Nov	163.7	236.3	236.7	264.5	252.1	263.1
28-Nov	162.2	236.3	236.8	264.3	252.1	263.1
29-Nov	162.1	236.4	236.9	264.3	252.0	263.2
30-Nov	161.9	236.6	237.0	264.3	252.1	263.4
Average	160.3	237.5	238.0	265.4	253.7	263.9

Solid Waste Permit 588 Daily Borehole Temperature Averages for Borehole 3

Date	Depth from Surface							
	25 ft	50 ft	75 ft	100 ft	125 ft	150 ft	175 ft	200 ft
1-Nov	194.9	238.0	238.0	253.8	260.2	268.5	269.7	255.5
2-Nov	195.1	238.1	238.1	253.9	260.3	268.7	269.9	255.7
3-Nov	195.1	238.3	238.4	254.1	260.4	268.9	270.0	255.9
4-Nov	194.6	238.4	238.4	254.1	260.4	268.8	270.1	255.9
5-Nov	194.8	238.4	238.4	254.1	260.4	268.9	270.1	255.9
6-Nov	194.8	238.4	238.4	254.1	260.4	268.9	270.1	256.0
7-Nov	195.1	238.3	238.3	254.0	260.4	268.8	270.1	255.9
8-Nov	195.3	238.3	238.3	254.0	260.5	268.9	270.2	256.0
9-Nov	194.8	238.2	238.2	253.9	260.5	269.0	270.1	255.9
10-Nov	195.0	237.7	237.7	253.3	259.9	268.5	269.7	255.4
11-Nov	195.8	237.7	237.7	253.6	260.0	268.6	269.8	255.6
12-Nov	196.0	237.9	237.9	253.8	260.3	268.9	270.0	255.9
13-Nov	196.0	237.8	237.9	253.6	260.2	268.8	270.0	255.8
14-Nov	195.9	237.6	237.7	253.5	260.0	268.6	269.9	255.7
15-Nov	196.3	237.6	237.7	253.4	260.2	267.1	269.8	255.6
16-Nov	197.1	237.8	237.9	253.3	260.2	267.6	270.0	255.9
17-Nov	196.8	237.8	237.8	253.3	260.2	268.4	270.0	255.8
18-Nov	196.4	237.4	237.4	253.2	259.9	268.2	269.8	255.6
19-Nov	196.1	237.2	237.3	253.3	260.0	268.3	269.8	255.7
20-Nov	195.1	237.0	237.1	253.3	259.7	268.2	269.5	255.4
21-Nov	193.4	237.1	237.2	253.1	259.6	268.1	269.5	255.2
22-Nov	192.6	236.9	237.0	252.7	259.3	267.7	269.2	255.0
23-Nov	192.9	237.3	237.4	253.1	259.7	268.2	269.6	255.5
24-Nov	193.1	237.2	237.3	252.9	259.3	267.9	269.3	255.2
25-Nov	193.7	237.5	237.6	253.0	259.6	268.2	269.5	255.4
26-Nov	193.3	237.4	237.5	252.7	259.2	267.8	269.3	255.1
27-Nov	193.8	237.1	237.2	252.2	258.8	267.3	269.0	254.8
28-Nov	195.2	237.1	237.1	252.2	258.8	267.4	269.1	255.0
29-Nov	196.2	237.2	237.3	252.4	259.0	267.5	269.3	255.2
30-Nov	197.0	237.6	237.6	252.6	259.1	267.6	269.5	255.4
Average	195.1	237.7	237.7	253.3	259.9	268.3	269.7	255.6

Solid Waste Permit 588 Daily Borehole Temperature Averages for Borehole 4

Date	Depth from Surface							
	25 ft	50 ft	75 ft	100 ft	125 ft	150 ft	175 ft	200 ft
1-Nov	207.1	207.0	207.1	249.9	261.1	261.5	245.7	178.7
2-Nov	207.5	207.5	207.5	249.7	261.2	261.7	245.8	178.9
3-Nov	207.6	207.5	207.6	252.8	261.3	262.0	246.0	179.2
4-Nov	207.0	206.9	206.8	224.2	247.2	257.8	245.4	177.6
5-Nov	206.2	205.8	204.4	204.0	260.7	251.3	244.6	175.5
6-Nov	206.2	205.9	204.3	204.4	273.5	252.5	244.7	176.8
7-Nov	206.4	206.0	205.5	205.4	271.2	252.6	245.0	177.3
8-Nov	206.6	206.3	206.0	205.5	269.9	253.6	245.2	178.3
9-Nov	206.7	206.4	206.3	205.7	269.5	254.2	245.2	177.8
10-Nov	206.9	206.5	206.5	205.6	269.2	255.1	245.1	177.4
11-Nov	207.0	206.6	206.7	206.3	268.5	255.5	245.2	177.7
12-Nov	207.0	206.7	206.8	206.3	267.5	255.3	245.3	178.1
13-Nov	206.8	206.6	206.6	206.0	265.2	256.2	245.0	177.7
14-Nov	206.9	206.7	206.7	206.3	264.9	256.4	245.0	178.0
15-Nov	206.9	206.6	206.6	206.3	263.5	256.9	244.9	178.3
16-Nov	206.9	206.8	206.9	206.5	263.0	257.6	245.4	178.9
17-Nov	206.6	206.4	206.4	206.4	261.9	257.8	245.3	178.8
18-Nov	206.6	206.3	206.3	206.4	256.5	258.7	245.2	178.8
19-Nov	206.5	206.3	206.5	206.6	251.4	259.0	245.3	178.8
20-Nov	206.9	206.7	206.9	206.8	246.3	259.5	245.2	178.6
21-Nov	206.7	206.5	206.5	206.6	241.5	258.4	245.2	178.6
22-Nov	206.5	206.3	206.4	206.5	237.4	257.5	245.0	178.6
23-Nov	206.8	206.6	206.8	206.9	236.6	256.7	245.4	179.0
24-Nov	206.9	206.8	207.1	207.1	235.5	256.3	245.4	179.1
25-Nov	207.0	206.8	207.1	207.0	233.6	255.7	245.4	179.1
26-Nov	206.5	206.2	206.5	206.4	233.0	254.9	245.0	178.8
27-Nov	206.5	206.4	206.4	206.3	231.8	254.5	244.9	178.8
28-Nov	206.6	206.4	206.6	206.4	231.2	254.3	245.0	178.3
29-Nov	206.6	206.5	206.7	206.6	230.6	254.1	245.1	178.6
30-Nov	206.7	206.6	206.9	206.8	231.7	254.3	245.3	179.0
Average	206.8	206.6	206.5	211.3	253.2	256.4	245.2	178.3

Solid Waste Permit 588 Daily Borehole Temperature Averages for Borehole 5

Date	Depth from Surface							
	25 ft	50 ft	75 ft	100 ft	125 ft	150 ft	175 ft	200 ft
1-Nov	175.7	207.4	214.4	207.6	483.4	483.4	483.4	483.4
2-Nov	176.5	207.8	211.7	208.0	483.4	483.4	483.4	483.4
3-Nov	176.0	209.5	212.7	208.1	483.4	483.4	483.4	483.4
4-Nov	175.6	213.5	215.6	208.0	483.4	483.4	483.4	483.4
5-Nov	176.0	213.6	215.7	207.7	483.4	483.4	483.4	483.4
6-Nov	176.6	208.0	215.4	207.6	483.4	483.4	483.4	483.4
7-Nov	176.5	207.4	215.3	207.6	483.4	483.4	483.4	483.4
8-Nov	176.8	210.6	215.3	207.7	483.4	483.4	483.4	483.4
9-Nov	175.8	210.8	215.2	207.6	483.4	483.4	483.4	483.4
10-Nov	175.0	211.6	215.1	207.5	483.4	483.4	483.4	483.4
11-Nov	174.9	208.8	215.4	207.9	483.4	483.4	483.4	483.4
12-Nov	175.4	207.8	215.1	208.1	483.4	483.4	483.4	483.4
13-Nov	175.0	207.7	214.9	207.9	483.4	483.4	483.4	483.4
14-Nov	174.3	207.7	215.2	208.0	483.4	483.4	483.4	483.4
15-Nov	175.5	212.8	215.4	208.0	483.4	483.4	483.4	483.4
16-Nov	175.1	211.6	215.3	208.0	483.4	483.4	483.4	483.4
17-Nov	175.4	211.0	215.0	207.6	483.4	483.4	483.4	483.4
18-Nov	175.7	212.9	214.5	207.3	483.4	483.4	483.4	483.4
19-Nov	177.3	212.6	214.9	207.5	483.4	483.4	483.4	483.4
20-Nov	176.3	213.0	215.1	208.7	483.4	483.4	483.4	483.4
21-Nov	178.7	212.7	214.9	207.2	483.4	483.4	483.4	483.4
22-Nov	179.9	212.7	214.6	207.1	483.4	483.4	483.4	483.4
23-Nov	183.6	213.0	215.1	207.5	483.4	483.4	483.4	483.4
24-Nov	191.0	213.1	214.5	207.5	483.4	483.4	483.4	483.4
25-Nov	197.3	213.4	214.9	207.8	483.4	483.4	483.4	483.4
26-Nov	204.6	212.7	214.5	207.2	483.4	483.4	483.4	483.4
27-Nov	204.3	209.6	212.9	207.0	483.4	483.4	483.4	483.4
28-Nov	201.4	212.5	213.6	207.2	483.4	483.4	483.4	483.4
29-Nov	204.9	213.1	214.2	207.5	483.4	483.4	483.4	483.4
30-Nov	201.1	212.7	213.8	207.5	350.1	361.7	365.0	340.0
Average	182.1	211.1	214.7	207.7	478.9	479.3	479.4	478.6

Solid Waste Permit 588 Daily Borehole Temperature Averages for Borehole 6

Date	Depth from Surface				
	25 ft	50 ft	75 ft	100 ft	125 ft
1-Nov	167.3	230.3	230.4	229.4	233.4
2-Nov	167.2	230.3	230.5	230.0	232.9
3-Nov	167.2	230.5	230.6	230.3	232.6
4-Nov	167.3	230.5	230.7	230.3	232.6
5-Nov	167.3	230.6	230.7	230.4	232.8
6-Nov	167.4	230.6	230.7	230.2	232.8
7-Nov	176.9	230.6	230.8	230.4	232.8
8-Nov	186.1	230.7	230.8	230.5	232.8
9-Nov	174.7	230.6	230.8	230.5	232.7
10-Nov	168.9	230.2	230.3	230.1	232.1
11-Nov	168.9	230.2	230.3	230.0	232.3
12-Nov	168.7	230.1	230.2	230.0	232.0
13-Nov	168.5	229.9	230.0	229.9	231.7
14-Nov	168.4	229.9	229.9	229.8	231.6
15-Nov	173.3	229.9	230.0	229.9	231.6
16-Nov	202.0	229.9	230.1	230.0	231.7
17-Nov	201.0	230.0	230.1	230.1	231.7
18-Nov	195.1	229.8	229.9	230.1	231.2
19-Nov	192.9	229.7	229.8	230.0	231.4
20-Nov	187.2	229.5	229.6	229.5	231.4
21-Nov	184.6	229.6	229.6	229.8	231.0
22-Nov	182.6	229.3	229.3	229.4	230.8
23-Nov	180.5	229.3	229.5	229.5	231.0
24-Nov	179.4	229.3	229.4	229.4	230.9
25-Nov	178.9	229.3	229.4	229.6	230.9
26-Nov	178.2	229.2	229.2	229.3	230.7
27-Nov	177.5	228.9	229.0	229.0	230.4
28-Nov	177.2	228.9	229.0	228.9	230.6
29-Nov	174.2	229.0	229.1	229.1	230.8
30-Nov	172.7	229.2	229.2	229.2	231.1
Average	177.4	229.9	230.0	229.8	231.7

Solid Waste Permit 588 Daily Borehole Temperature Averages for Borehole 7

Date	Depth from Surface							
	25 ft	50 ft	75 ft	100 ft	125 ft	150 ft	175 ft	200 ft
1-Nov	152.0	206.8	207.7	235.7	240.8	238.6	231.3	209.8
2-Nov	152.5	207.3	208.0	235.7	240.1	239.8	230.7	210.5
3-Nov	152.1	207.3	208.1	234.5	240.0	240.0	231.9	210.5
4-Nov	152.4	207.1	207.8	234.4	241.8	238.6	231.4	209.8
5-Nov	152.3	207.0	207.7	236.0	242.1	238.4	230.8	209.4
6-Nov	152.2	206.9	207.6	236.0	241.4	238.3	230.9	209.5
7-Nov	152.1	206.9	207.6	236.2	241.6	238.4	231.0	209.7
8-Nov	152.9	207.1	207.6	235.1	241.9	238.6	230.4	209.6
9-Nov	153.2	206.6	207.4	227.0	238.1	235.3	226.2	206.0
10-Nov	152.0	233.6	207.0	221.1	231.3	230.0	221.2	201.5
11-Nov	151.9	207.4	207.4	224.0	249.0	234.4	226.1	204.7
12-Nov	152.1	208.4	207.5	224.0	246.6	234.9	226.3	203.5
13-Nov	151.8	207.0	207.5	222.8	247.3	235.0	226.1	202.3
14-Nov	151.9	207.1	207.6	223.2	246.8	235.2	226.2	201.7
15-Nov	151.5	207.0	207.5	223.1	246.1	235.0	226.2	200.7
16-Nov	151.5	207.0	207.5	223.3	245.8	235.0	226.5	200.3
17-Nov	151.7	206.7	207.0	223.2	245.7	234.9	226.2	200.0
18-Nov	151.4	206.6	207.0	222.1	245.4	234.7	226.1	199.6
19-Nov	151.3	206.7	207.0	222.1	244.8	234.5	226.0	199.5
20-Nov	151.3	207.5	207.1	221.3	244.2	234.3	226.0	199.2
21-Nov	151.3	206.5	206.9	221.4	243.8	234.7	226.8	200.3
22-Nov	151.4	210.5	206.9	217.4	239.9	233.6	226.4	200.2
23-Nov	151.2	208.6	206.6	206.9	243.5	234.1	226.0	198.6
24-Nov	151.5	212.3	206.8	204.6	239.6	234.9	226.3	201.8
25-Nov	151.4	213.1	207.5	204.6	237.7	235.5	227.5	208.0
26-Nov	151.1	216.0	206.4	204.1	236.2	235.5	225.1	208.5
27-Nov	150.8	217.1	206.0	203.7	235.0	234.9	224.5	207.7
28-Nov	150.6	217.2	206.2	203.7	235.2	235.0	224.6	207.0
29-Nov	151.0	215.0	207.6	204.3	235.2	235.2	225.7	208.2
30-Nov	150.9	219.6	207.5	203.2	233.1	233.8	223.1	206.1
Average	151.7	210.1	207.3	221.2	241.3	235.7	227.1	204.8


Solid Waste Permit 588 Daily Borehole Temperature Averages for Borehole 8

Date	Depth from Surface							
	25 ft	50 ft	75 ft	100 ft	125 ft	150 ft	175 ft	200 ft
1-Nov	189.0	191.9	192.1	194.5	195.8	191.4	187.8	181.3
2-Nov	189.3	192.2	192.3	194.8	196.1	191.5	187.9	181.3
3-Nov	189.5	192.4	192.5	194.9	196.3	191.7	188.0	181.3
4-Nov	189.5	192.4	192.5	194.8	196.2	191.8	187.9	180.8
5-Nov	189.4	192.4	192.5	194.8	196.3	191.9	188.1	180.7
6-Nov	189.2	192.3	192.5	194.8	196.2	192.0	188.1	180.6
7-Nov	188.4	192.5	192.6	194.9	196.3	192.1	188.1	180.7
8-Nov	*	*	*	*	*	*	*	*
9-Nov	*	*	*	*	*	*	*	*
10-Nov	*	*	*	*	*	*	*	*
11-Nov	*	*	*	*	*	*	*	*
12-Nov	*	*	*	*	*	*	*	*
13-Nov	*	*	*	*	*	*	*	*
14-Nov	*	*	*	*	*	*	*	*
15-Nov	*	*	*	*	*	*	*	*
16-Nov	*	*	*	*	*	*	*	*
17-Nov	*	*	*	*	*	*	*	*
18-Nov	*	*	*	*	*	*	*	*
19-Nov	*	*	*	*	*	*	*	*
20-Nov	*	*	*	*	*	*	*	*
21-Nov	*	*	*	*	*	*	*	*
22-Nov	*	*	*	*	*	*	*	*
23-Nov	*	*	*	*	*	*	*	*
24-Nov	*	*	*	*	*	*	*	*
25-Nov	*	*	*	*	*	*	*	*
26-Nov	*	*	*	*	*	*	*	*
27-Nov	*	*	*	*	*	*	*	*
28-Nov	189.8	192.5	192.8	195.0	196.5	191.6	187.7	179.2
29-Nov	189.7	192.6	192.8	195.1	196.6	191.6	187.6	179.1
30-Nov	190.0	192.8	193.1	195.3	196.9	191.9	187.9	179.4
Average	189.4	192.4	192.6	194.9	196.3	191.7	187.9	180.4

* Indicates Temperature Sensor Not Working at Time of Reading

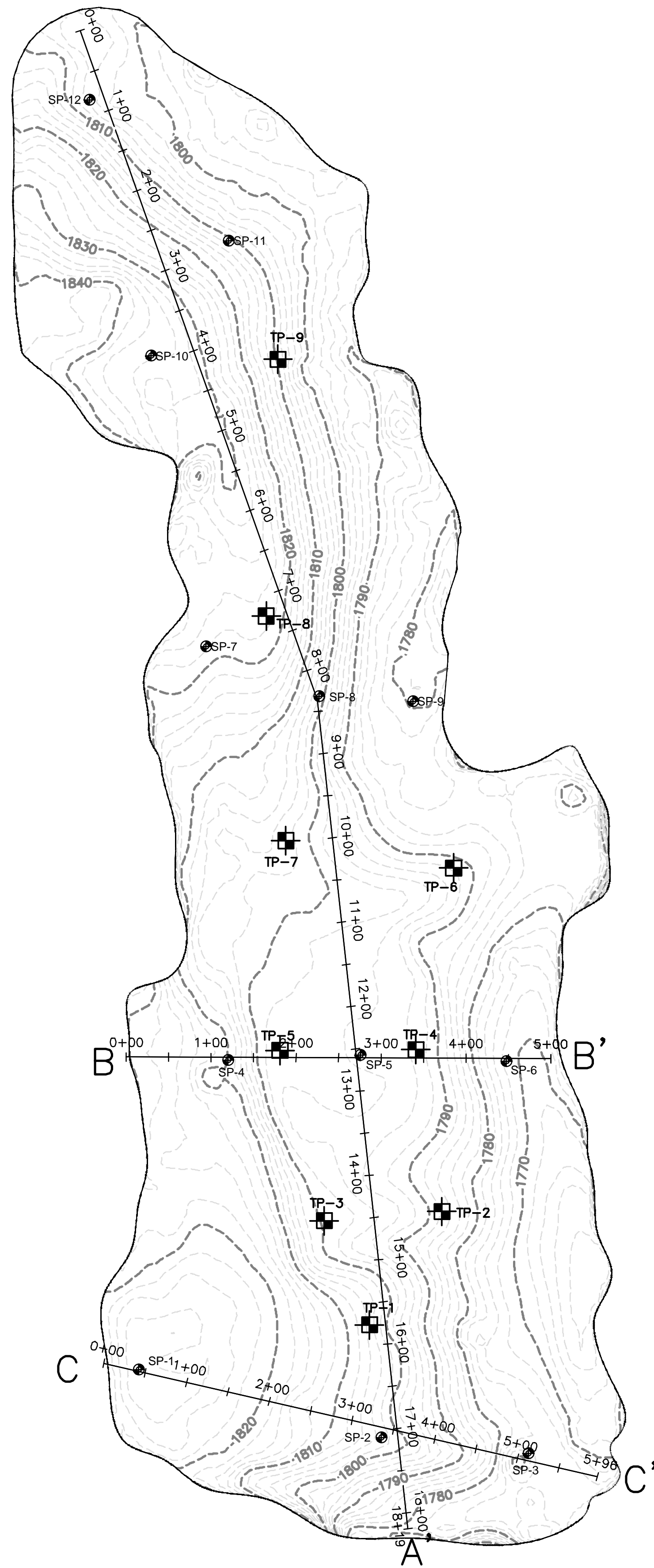
Solid Waste Permit 588 Daily Borehole Temperature Averages for Borehole 9

Date	Depth from Surface							
	25 ft	50 ft	75 ft	100 ft	125 ft	150 ft	175 ft	200 ft
1-Nov	120.7	152.9	152.7	152.0	146.8	131.0	117.0	107.5
2-Nov	121.1	153.0	153.0	152.1	146.8	131.0	117.0	107.5
3-Nov	121.3	153.3	153.1	152.3	147.0	131.2	117.2	107.6
4-Nov	121.3	153.3	153.2	152.3	147.2	131.3	117.3	107.7
5-Nov	121.4	153.4	153.3	152.5	147.3	131.6	117.4	107.8
6-Nov	121.4	153.4	153.2	152.5	147.4	131.5	117.4	107.8
7-Nov	121.5	153.6	153.5	152.7	147.5	131.8	117.7	108.0
8-Nov	121.6	153.7	153.6	152.8	147.5	131.9	117.8	108.1
9-Nov	121.8	153.9	153.7	152.9	147.7	132.1	118.0	108.4
10-Nov	121.3	153.5	153.3	152.4	147.2	131.6	117.5	107.9
11-Nov	121.5	153.4	153.3	152.3	147.1	131.5	117.4	107.6
12-Nov	121.6	153.5	153.4	152.4	147.2	131.5	117.4	107.6
13-Nov	121.5	153.4	153.3	152.2	146.9	131.3	117.2	107.4
14-Nov	121.5	153.4	153.3	152.3	147.0	131.4	117.3	107.5
15-Nov	121.5	153.6	153.4	152.4	147.1	131.5	117.4	107.6
16-Nov	121.6	153.6	153.5	152.4	147.1	131.5	117.4	107.5
17-Nov	121.6	153.7	153.6	152.6	147.3	131.8	117.7	107.8
18-Nov	121.5	153.4	153.3	152.4	147.2	131.5	117.5	107.6
19-Nov	121.4	153.2	153.2	152.2	146.8	131.2	117.1	107.2
20-Nov	121.6	153.4	153.3	152.3	147.0	131.5	117.4	107.5
21-Nov	121.5	153.4	153.4	152.4	147.2	131.5	117.6	107.6
22-Nov	121.1	153.1	153.0	152.1	146.8	131.2	117.2	107.3
23-Nov	121.3	153.1	153.1	152.0	146.6	131.1	117.1	107.1
24-Nov	121.6	153.3	153.2	152.1	146.8	131.2	117.2	107.2
25-Nov	121.7	153.3	153.3	152.1	146.6	131.3	117.3	107.2
26-Nov	121.5	153.3	153.2	152.0	146.5	131.2	117.2	107.1
27-Nov	121.0	152.8	152.8	151.8	146.3	130.9	116.9	106.9
28-Nov	121.0	152.8	152.7	151.6	146.2	130.8	116.8	106.7
29-Nov	121.2	152.9	152.8	151.7	146.3	130.8	116.8	106.6
30-Nov	121.6	153.2	153.1	152.0	146.5	131.1	117.0	106.9
Average	121.4	153.3	153.2	152.3	147.0	131.3	117.3	107.5



Appendix E

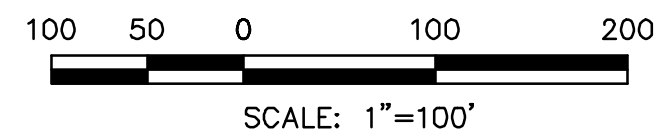
Monthly Topography Analysis



- LEGEND**
- MAJOR CONTOURS (EVERY 10')
 - MINOR CONTOURS (EVERY 2')
 - APPROXIMATE SIDEWALL LOCATION
 - SP-9 SETTLEMENT PLATE
 - TP-3 TEMPERATURE MONITORING PROBE

NOTES:

1. GRADES SHOWN AS CONTOUR LINES ONLY WITHIN THE PERMIT 588 BOUNDARY REPRESENT THE TOPOGRAPHY CAPTURED ON NOVEMBER 8, 2022 BY NV5 GEOSPATIAL.
2. ANY DETERMINATION OF TOPOGRAPHY OR CONTOURS, OR ANY DEPICTION OF PHYSICAL IMPROVEMENTS, PROPERTY LINES, OR BOUNDARIES IS FOR GENERAL INFORMATION ONLY AND SHALL NOT BE USED FOR DESIGN, MODIFICATION, OR CONSTRUCTION OF IMPROVEMENTS TO REAL PROPERTY OR FLOOD PLAIN DETERMINATION.
3. THE HORIZONTAL DATUM IS STATE PLANE VIRGINIA SOUTH ZONE NAD-83 (2011).
4. THE VERTICAL DATUM IS BASED UPON NGS MEAN SEA LEVEL.



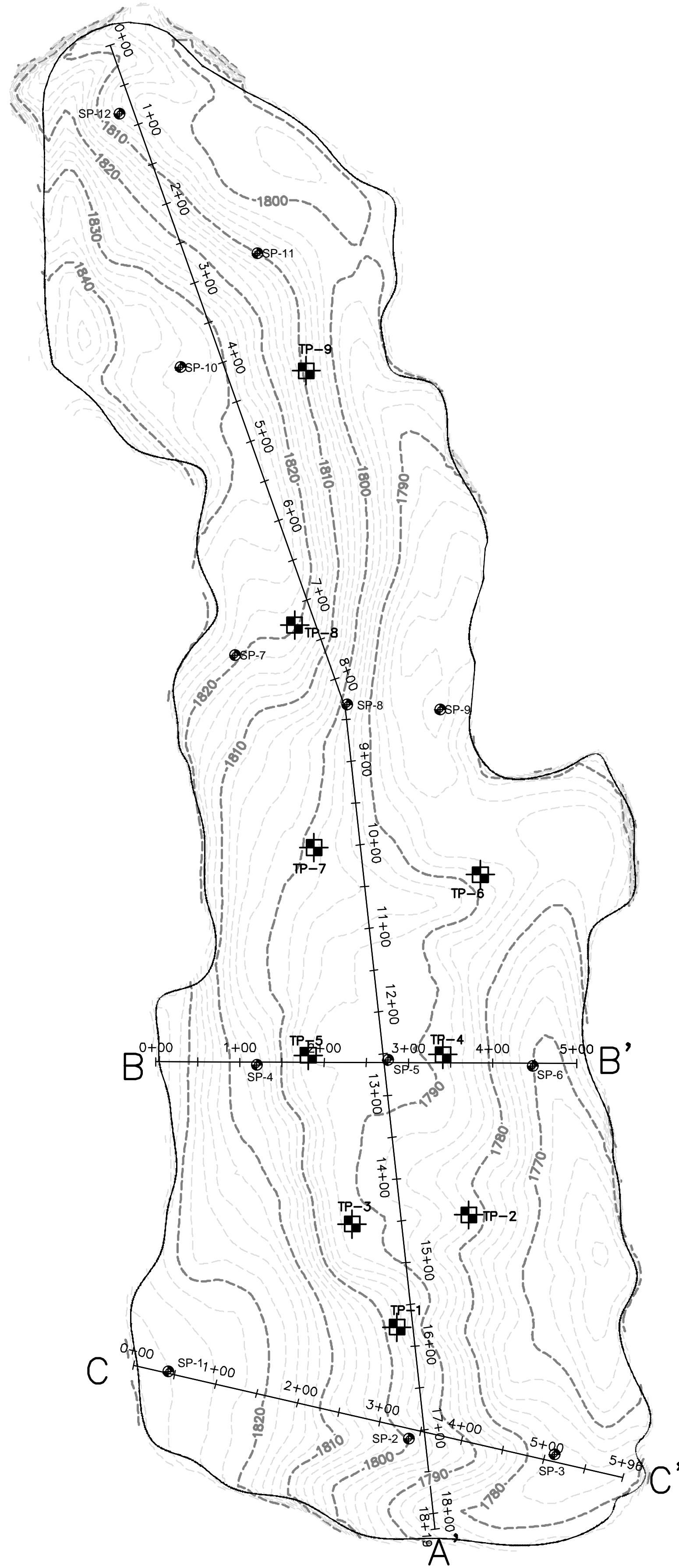
NO.	REVISION	DATE

SHEET TITLE NOVEMBER 2022 LANDFILL TOPOGRAPHY
 PROJECT TITLE MONTHLY TOPOGRAPHY ANALYSIS SOLID WASTE PERMIT #588

CLIENT CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY
 2655 VALLEY DRIVE
 BRISTOL, VIRGINIA 24201

SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT
 CONSULTING ENGINEERS, INC.
 10111 W. BRISTOL AVENUE, SUITE 100
 BRISTOL, VA 24201
 PH: (804) 378-7440 FAX: (804) 378-7433
 PROJ. NO. 02218206.05
 DATE: 12/6/2023
 DRAWN BY: HGW
 CHECK BY: C.J.W.
 APPR. BY: C.J.W.

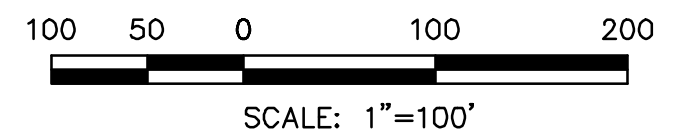
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 DATE: 12/6/2023
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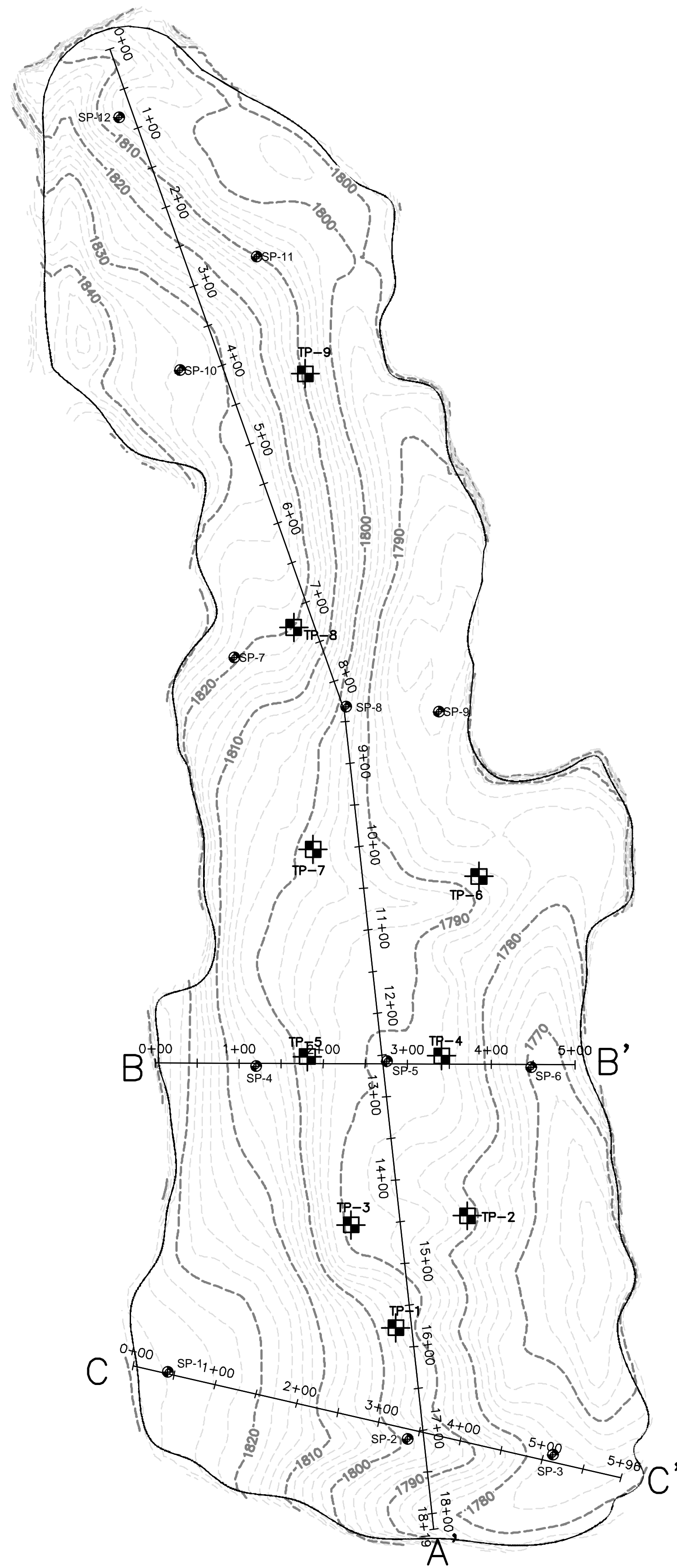
- LEGEND**
- MAJOR CONTOURS (EVERY 10')
 - MINOR CONTOURS (EVERY 2')
 - APPROXIMATE SIDEWALL LOCATION
 - SP-9 SETTLEMENT PLATE
 - TP-3 TEMPERATURE MONITORING PROBE

NOTES:

1. GRADES SHOWN AS CONTOUR LINES ONLY WITHIN THE PERMIT 588 BOUNDARY REPRESENT THE TOPOGRAPHY CAPTURED ON AUGUST 2, 2023 BY SCS ENGINEERS.
2. ANY DETERMINATION OF TOPOGRAPHY OR CONTOURS, OR ANY DEPICTION OF PHYSICAL IMPROVEMENTS, PROPERTY LINES, OR BOUNDARIES IS FOR GENERAL INFORMATION ONLY AND SHALL NOT BE USED FOR DESIGN, MODIFICATION, OR CONSTRUCTION OF IMPROVEMENTS TO REAL PROPERTY OR FLOOD PLAIN DETERMINATION.
3. THE HORIZONTAL DATUM IS STATE PLANE VIRGINIA SOUTH ZONE NAD-83 (2011).
4. THE VERTICAL DATUM IS BASED UPON NAVD-88.



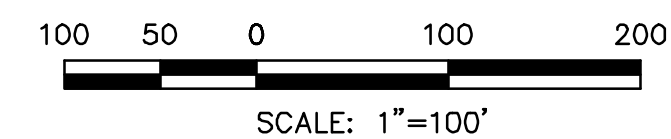
DATE	
REVISION	
NO.	
SHEET TITLE	AUGUST 2023 LANDFILL TOPOGRAPHY
PROJECT TITLE	MONTHLY TOPOGRAPHY ANALYSIS SOLID WASTE PERMIT #588
CLIENT	CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2655 VALLEY DRIVE BRISTOL, VIRGINIA 24201
SCS ENGINEERS	STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC. 10111 W. BRISTOL AVENUE, SUITE 100 BRISTOL, VA 24113 PH: (804) 378-7440 FAX: (804) 378-7433
	DATE: 12/6/2023 SCALE:
CADD FILE:	SURF COMP
DRAWING NO.	2 of 8



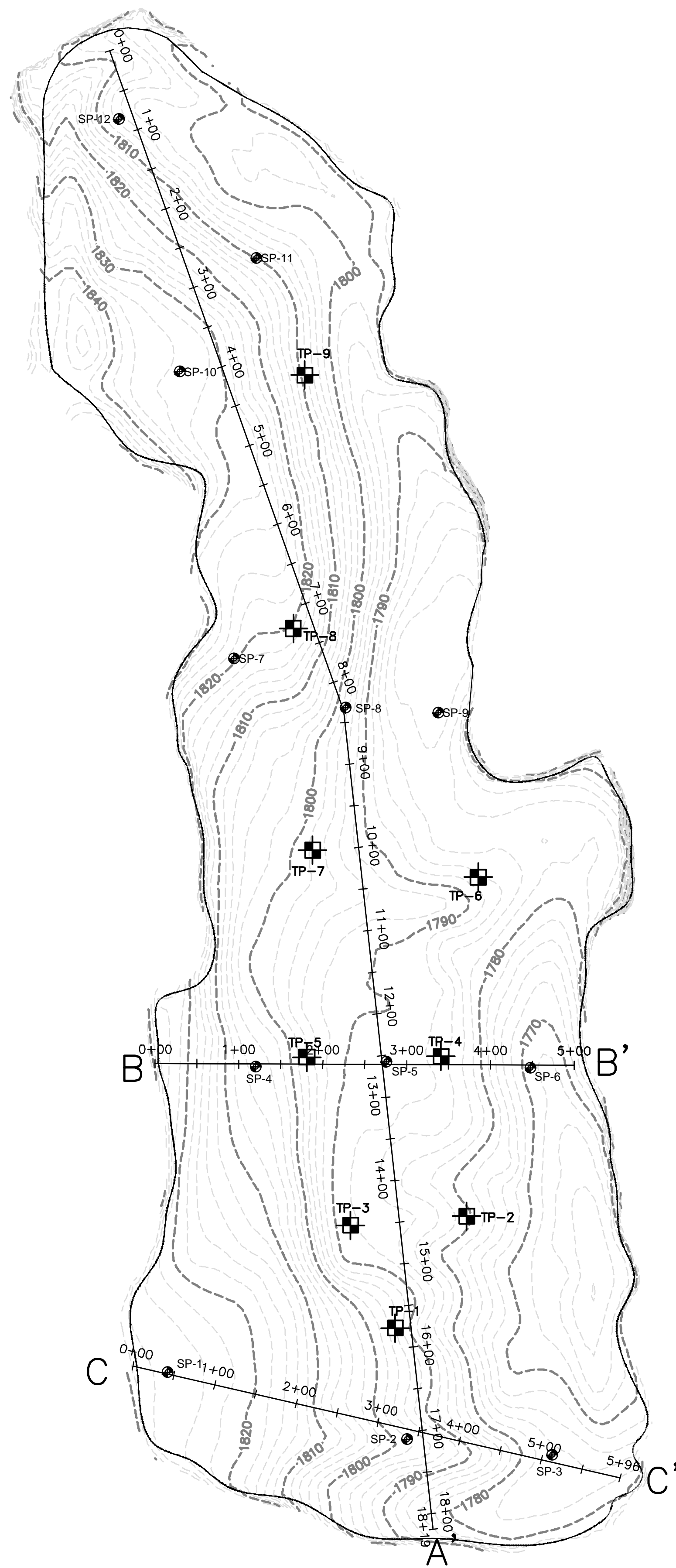
- LEGEND**
- MAJOR CONTOURS (EVERY 10')
 - MINOR CONTOURS (EVERY 2')
 - - - - APPROXIMATE SIDEWALL LOCATION
 - SP-9 SETTLEMENT PLATE
 - ⊠ TP-3 TEMPERATURE MONITORING PROBE

NOTES:

1. GRADES SHOWN AS CONTOUR LINES ONLY WITHIN THE PERMIT 588 BOUNDARY REPRESENT THE TOPOGRAPHY CAPTURED ON OCTOBER 12 2023 BY SCS ENGINEERS.
2. ANY DETERMINATION OF TOPOGRAPHY OR CONTOURS, OR ANY DEPICTION OF PHYSICAL IMPROVEMENTS, PROPERTY LINES, OR BOUNDARIES IS FOR GENERAL INFORMATION ONLY AND SHALL NOT BE USED FOR DESIGN, MODIFICATION, OR CONSTRUCTION OF IMPROVEMENTS TO REAL PROPERTY OR FLOOD PLAIN DETERMINATION.
3. THE HORIZONTAL DATUM IS STATE PLANE VIRGINIA SOUTH ZONE NAD-83 (2011).
4. THE VERTICAL DATUM IS BASED UPON NAVD-88.



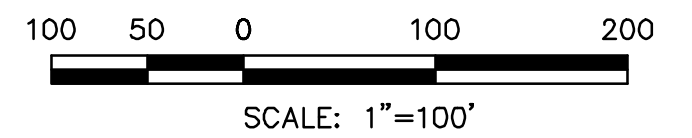
CLIENT CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2655 VALLEY DRIVE BRISTOL, VIRGINIA 24201	SHEET TITLE OCTOBER 2023 LANDFILL TOPOGRAPHY	NO.	REVISION	DATE
	PROJECT TITLE MONTHLY TOPOGRAPHY ANALYSIS SOLID WASTE PERMIT #588	Δ		
SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC. 10110 W. BRISTOL AVENUE, SUITE 200 BRISTOL, VA 24201 PH: (804) 378-7440 FAX: (804) 378-7433	DRAWN BY: HCN CHECKED BY: C/JW DATE: 12/6/2023	DATE: 12/6/2023	DRAWING NO. 3	OF 8
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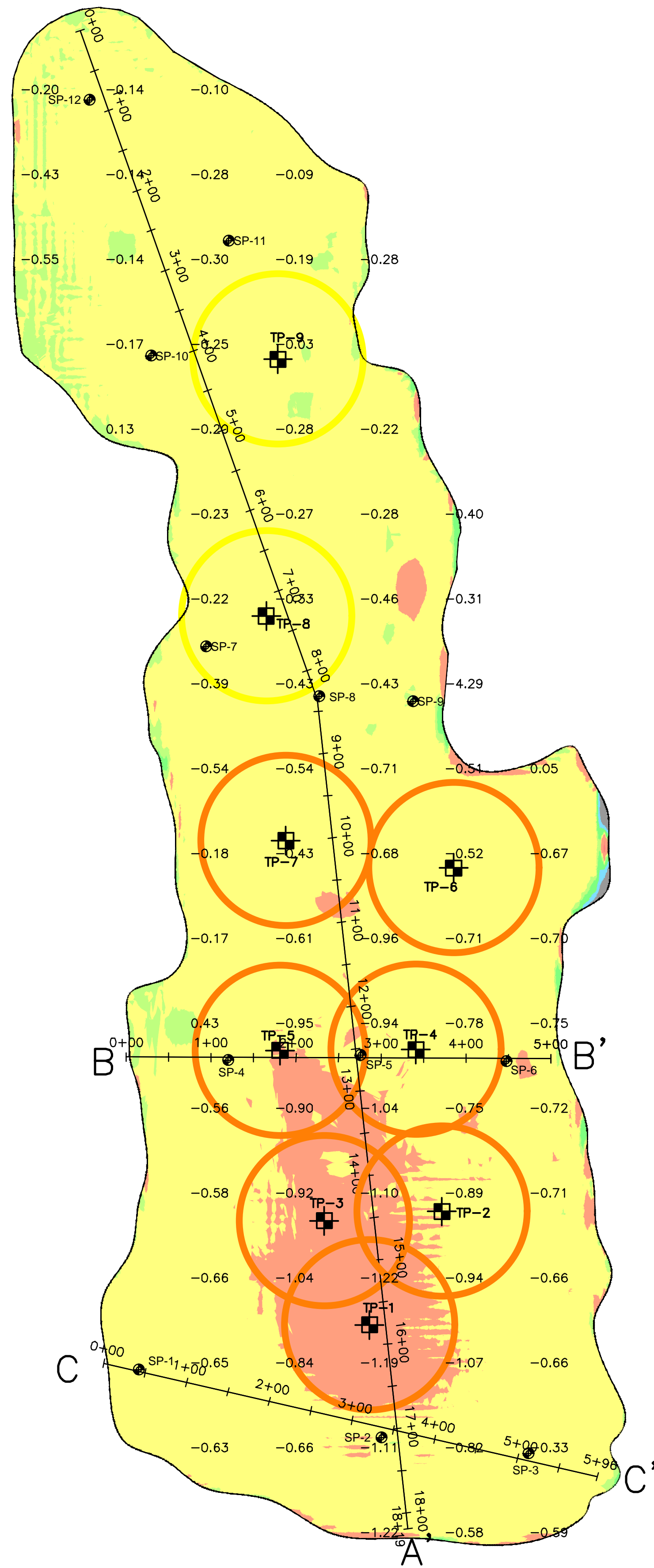
- LEGEND**
- MAJOR CONTOURS (EVERY 10')
 - MINOR CONTOURS (EVERY 2')
 - APPROXIMATE SIDEWALL LOCATION
 - SP-9 SETTLEMENT PLATE
 - ⊠ TP-3 TEMPERATURE MONITORING PROBE

NOTES:

1. GRADES SHOWN AS CONTOUR LINES ONLY WITHIN THE PERMIT 588 BOUNDARY REPRESENT THE TOPOGRAPHY CAPTURED ON NOVEMBER 16, 2023 BY SCS ENGINEERS.
2. ANY DETERMINATION OF TOPOGRAPHY OR CONTOURS, OR ANY DEPICTION OF PHYSICAL IMPROVEMENTS, PROPERTY LINES, OR BOUNDARIES IS FOR GENERAL INFORMATION ONLY AND SHALL NOT BE USED FOR DESIGN, MODIFICATION, OR CONSTRUCTION OF IMPROVEMENTS TO REAL PROPERTY OR FLOOD PLAIN DETERMINATION.
3. THE HORIZONTAL DATUM IS STATE PLANE VIRGINIA SOUTH ZONE NAD-83 (2011).
4. THE VERTICAL DATUM IS BASED UPON NAVD-88.



CLIENT CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2655 VALLEY DRIVE BRISTOL, VIRGINIA 24201	SHEET TITLE NOVEMBER 2023 LANDFILL TOPOGRAPHY	NO.	REVISION	DATE
	PROJECT TITLE MONTHLY TOPOGRAPHY ANALYSIS SOLID WASTE PERMIT #588	1		
SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC. 1523 MIDLOTHIAN TPK - MIDLOTHIAN, VA 23113 PH: (804) 378-7440 FAX: (804) 378-7433 PROJ. NO. 20208.05 DWG. BY: HGW CHK. BY: C.JW	CADD FILE: SURF COMP	DRAWING NO. 4 of 8		
	DATE: 12/6/2023	SCALE:		



LEGEND

- MAJOR CONTOURS (EVERY 10')
- MINOR CONTOURS (EVERY 2')
- APPROXIMATE WASTE BOUNDARY
- SP-9 SETTLEMENT PLATE
- 0.39 SPOT ELEVATION ON 100' GRID

- TP-8 TEMPERATURE MONITORING PROBE WITH AVERAGE TEMPERATURES AT DEPTH LESS THAN 200 F
- TP-1 TEMPERATURE MONITORING PROBE WITH AVERAGE TEMPERATURES AT DEPTH BETWEEN 200 F AND 250 F
- TP-2 TEMPERATURE MONITORING PROBE WITH AVERAGE TEMPERATURES AT DEPTH BETWEEN 250 F AND 300 F

Volume

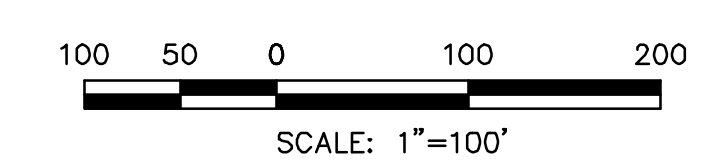
Base Surface	TOPO - OCTOBER 12, 2023	
Comparison Surface	TOPO - NOVEMBER 16, 2023	
Cut Volume	15,733	Cu. Yd.
Fill Volume	743	Cu. Yd.
Net Cut	14,990	Cu. Yd.

Elevations Table

Number	Minimum Elevation	Maximum Elevation	Color
1	-8.000	-5.000	Red
2	-5.000	-1.000	Orange
3	-1.000	0.000	Yellow
4	0.000	1.000	Light Green
5	1.000	5.000	Green
6	5.000	10.000	Blue

NOTES:

1. THE ELEVATION CHANGES ARE CALCULATED BETWEEN THE AERIAL TOPOGRAPHY DATA CAPTURED ON OCTOBER 12, 2023 AND NOVEMBER 16, 2023 BY SCS ENGINEERS. POSITIVE VALUES (+) INDICATE AREAS OF FILL AND NEGATIVE VALUES (-) INDICATE AREAS OF CUT (SETTLEMENT). VALUES ARE ROUNDED TO THE NEAREST FOOT
2. ANY DETERMINATION OF TOPOGRAPHY OR CONTOURS, OR ANY DEPICTION OF PHYSICAL IMPROVEMENTS, PROPERTY LINES, OR BOUNDARIES IS FOR GENERAL INFORMATION ONLY AND SHALL NOT BE USED FOR DESIGN, MODIFICATION, OR CONSTRUCTION OF IMPROVEMENTS TO REAL PROPERTY OR FOR FLOOD PLAIN DETERMINATION.
3. THE HORIZONTAL DATUM IS STATE PLANE VIRGINIA SOUTH ZONE NAD-83 (2011)
4. THE VERTICAL DATUM IS BASED UPON NAVD-88.



NO.	REVISION	DATE

SHEET TITLE NOVEMBER VOLUME CHANGE
OCTOBER 2023 TO NOVEMBER 2023

PROJECT TITLE
MONTHLY TOPOGRAPHY ANALYSIS
SOLID WASTE PERMIT #588

CLIENT
CITY OF BRISTOL INTEGRATED SOLID
WASTE MANAGEMENT FACILITY
2655 VALLEY DRIVE
BRISTOL, VIRGINIA 24201

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS, INC.
15231 MIDLOTHIAN TPK - MIDLOTHIAN, VA 23113
PH: (804) 378-7440 FAX: (804) 378-7433

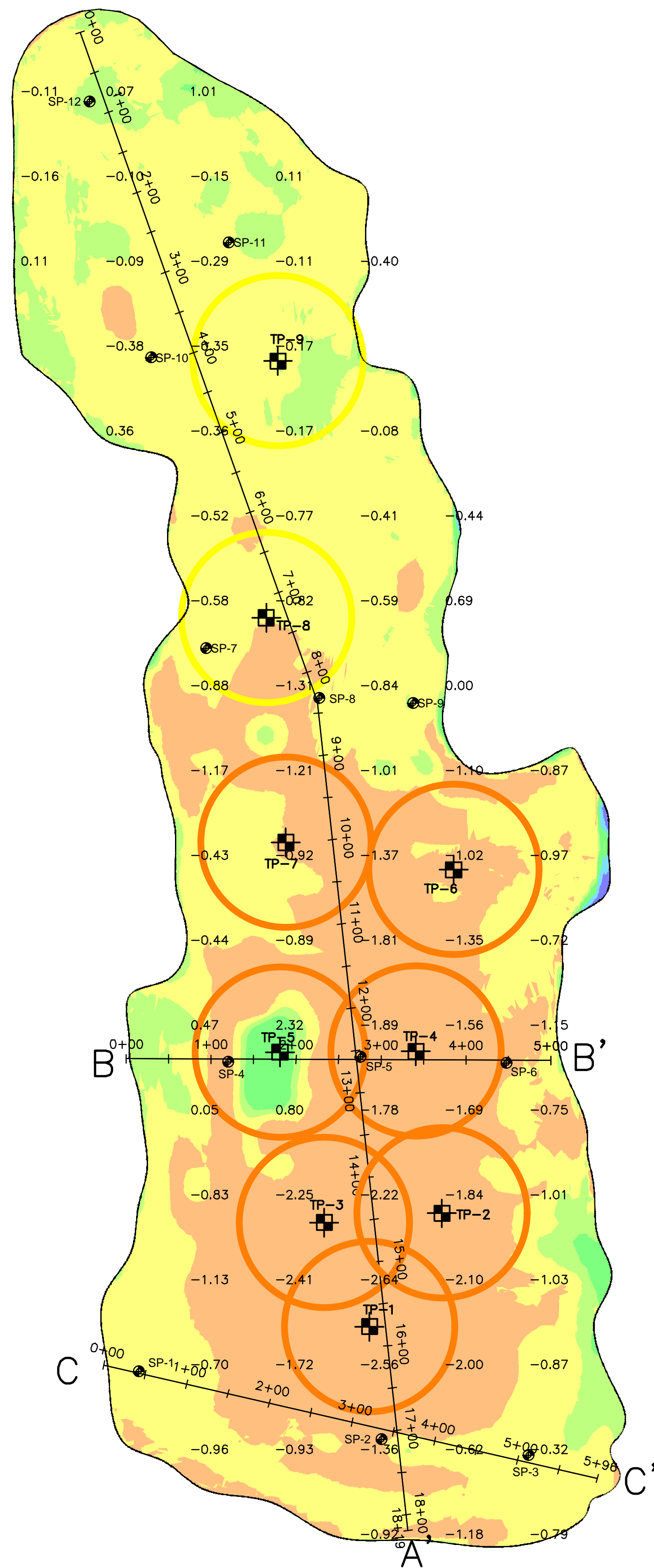
PROJ. NO. 2208.05
DATE: 12/6/2023
DRAWN BY: HGW
CHECKED BY: C:JW
DATE: 12/6/2023
APP. BY: C:JW

CADD FILE:
SURF COMP

DATE:
12/6/2023

SCALE:

DRAWING NO.
5 of 8



LEGEND

- MAJOR CONTOURS (EVERY 10')
- MINOR CONTOURS (EVERY 2')
- APPROXIMATE WASTE BOUNDARY
- SP-9 SETTLEMENT PLATE
- 0.39 SPOT ELEVATION ON 100' GRID
- TP-8 TEMPERATURE MONITORING PROBE WITH AVERAGE TEMPERATURES AT DEPTH LESS THAN 200 °F
- TP-1 TEMPERATURE MONITORING PROBE WITH AVERAGE TEMPERATURES AT DEPTH BETWEEN 200 °F AND 250 °F
- TP-2 TEMPERATURE MONITORING PROBE WITH AVERAGE TEMPERATURES AT DEPTH BETWEEN 250 °F AND 300 °F

Volume

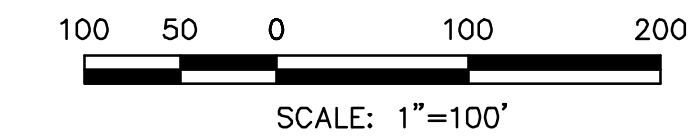
Base Surface	TOPO - AUGUST 2, 2023
Comparison Surface	TOPO - NOVEMBER 16, 2023
Cut Volume	25,106 Cu. Yd.
Fill Volume	1,698 Cu. Yd.
Net Cut	23,408 Cu. Yd.

Elevations Table

Number	Minimum Elevation	Maximum Elevation	Color
1	-10.000	-5.000	Red
2	-5.000	-1.000	Orange
3	-1.000	0.000	Yellow
4	0.000	1.000	Light Green
5	1.000	5.000	Green
6	5.000	10.000	Blue

NOTES:

- THE ELEVATION CHANGES ARE CALCULATED BETWEEN THE AERIAL TOPOGRAPHY DATA CAPTURED ON AUGUST 2, 2023 AND NOVEMBER 16, 2023 BY SCS ENGINEERS. POSITIVE VALUES (+) INDICATE AREAS OF FILL AND NEGATIVE VALUES (-) INDICATE AREAS OF CUT (SETTLEMENT). VALUES ARE ROUNDED TO THE NEAREST FOOT.
- ANY DETERMINATION OF TOPOGRAPHY OR CONTOURS, OR ANY DEPICTION OF PHYSICAL IMPROVEMENTS, PROPERTY LINES, OR BOUNDARIES IS FOR GENERAL INFORMATION ONLY AND SHALL NOT BE USED FOR DESIGN, MODIFICATION, OR CONSTRUCTION OF IMPROVEMENTS TO REAL PROPERTY OR FOR FLOOD PLAIN DETERMINATION.
- THE HORIZONTAL DATUM IS STATE PLANE VIRGINIA SOUTH ZONE NAD-83 (2011).
- THE VERTICAL DATUM IS BASED UPON NAVD-88.



NO.	REVISION	DATE

SHEET TITLE NOVEMBER VOLUME CHANGE
AUGUST 2023 TO NOVEMBER 2023

PROJECT TITLE
MONTHLY TOPOGRAPHY ANALYSIS
SOLID WASTE PERMIT #588

CLIENT
CITY OF BRISTOL INTEGRATED SOLID
WASTE MANAGEMENT FACILITY
2655 VALLEY DRIVE
BRISTOL, VIRGINIA 24201

SCS ENGINEERS
STEARNS, CONRAD AND SCHMIDT
CONSULTING ENGINEERS, INC.
15231 MIDLOTHIAN TPK - MIDLOTHIAN, VA 23113
PH: (804) 378-7440 FAX: (804) 378-7433

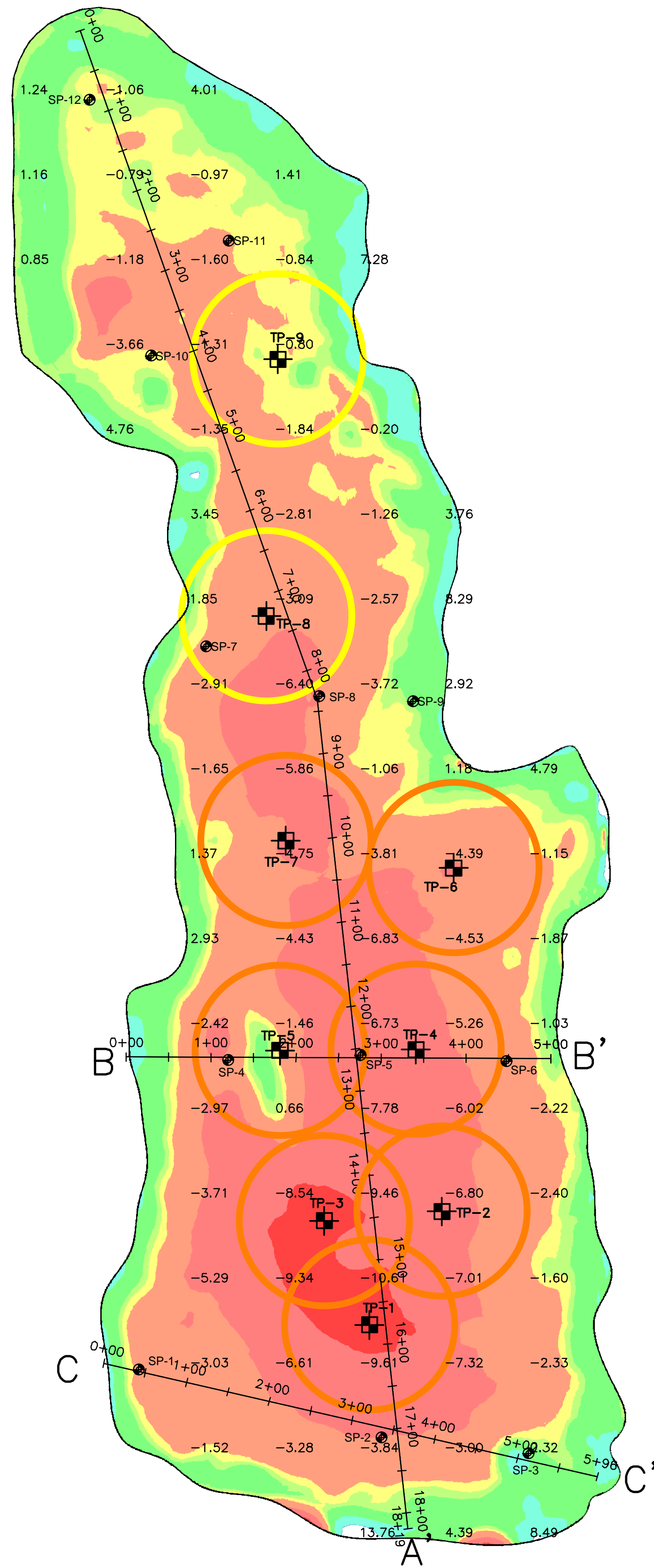
PROJ. NO. 2208.05
CHK. BY: C:JW
APP. BY: C:JW

CADD FILE:
SURF COMP

DATE:
12/6/2023

SCALE:

DRAWING NO.
6 of 8



- LEGEND**
- MAJOR CONTOURS (EVERY 10')
 - MINOR CONTOURS (EVERY 2')
 - APPROXIMATE WASTE BOUNDARY
 - SP-9 SETTLEMENT PLATE
 - 0.39 SPOT ELEVATION ON 100' GRID
 - TP-8 TEMPERATURE MONITORING PROBE WITH AVERAGE TEMPERATURES AT DEPTH LESS THAN 200 'F
 - TP-1 TEMPERATURE MONITORING PROBE WITH AVERAGE TEMPERATURES AT DEPTH BETWEEN 200 'F AND 250 'F
 - TP-2 TEMPERATURE MONITORING PROBE WITH AVERAGE TEMPERATURES AT DEPTH BETWEEN 250 'F AND 300 'F

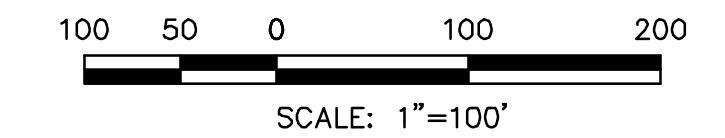
Volume

Base Surface	TOPO - NOVEMBER 8, 2022
Comparison Surface	TOPO - NOVEMBER 16, 2023
Cut Volume	81,570 Cu. Yd.
Fill Volume	19,940 Cu. Yd.
Net Cut	61,630 Cu. Yd.

Elevations Table

Number	Minimum Elevation	Maximum Elevation	Color
1	-12.000	-10.000	Red
2	-10.000	-5.000	Light Red
3	-5.000	-1.000	Orange
4	-1.000	0.000	Yellow
5	0.000	1.000	Light Green
6	1.000	5.000	Green
7	5.000	10.000	Blue

- NOTES:**
- THE ELEVATION CHANGES ARE CALCULATED BETWEEN THE AERIAL TOPOGRAPHY DATA CAPTURED ON NOVEMBER 8, 2023 AND NOVEMBER 16, 2023 BY SCS ENGINEERS. POSITIVE VALUES (+) INDICATE AREAS OF FILL AND NEGATIVE VALUES (-) INDICATE AREAS OF CUT (SETTLEMENT). VALUES ARE ROUNDED TO THE NEAREST FOOT
 - ANY DETERMINATION OF TOPOGRAPHY OR CONTOURS, OR ANY DEPICTION OF PHYSICAL IMPROVEMENTS, PROPERTY LINES, OR BOUNDARIES IS FOR GENERAL INFORMATION ONLY AND SHALL NOT BE USED FOR DESIGN, MODIFICATION, OR CONSTRUCTION OF IMPROVEMENTS TO REAL PROPERTY OR FOR FLOOD PLAIN DETERMINATION.
 - THE HORIZONTAL DATUM IS STATE PLANE VIRGINIA SOUTH ZONE NAD-83 (2011)
 - THE VERTICAL DATUM(S) IS BASED UPON NGS MEAN SEA LEVEL (OCT. 2022), AND NAVD-88 (OCT. 2023).



NO.	REVISION	DATE

SHEET TITLE NOVEMBER VOLUME CHANGE
 NOVEMBER 2022 TO NOVEMBER 2023
 PROJECT TITLE
 MONTHLY TOPOGRAPHY ANALYSIS
 SOLID WASTE PERMIT #588

CLIENT
 CITY OF BRISTOL INTEGRATED SOLID
 WASTE MANAGEMENT FACILITY
 2655 VALLEY DRIVE
 BRISTOL, VIRGINIA 24201

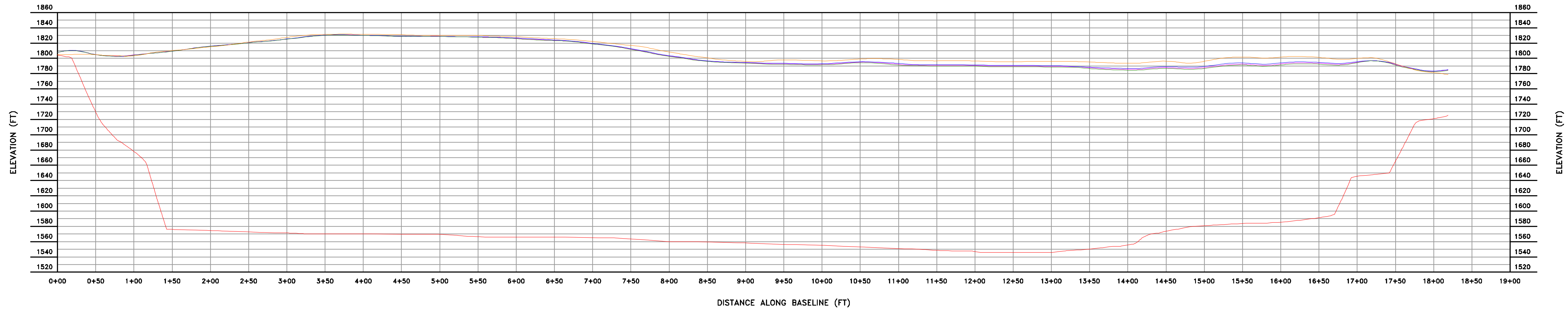
SCS ENGINEERS
 STEARNS, CONRAD AND SCHMIDT
 CONSULTING ENGINEERS, INC.
 15231 MIDLOTHIAN TPK - MIDLOTHIAN, VA 23113
 PH: (804) 378-7440 FAX: (804) 378-7433

PROJ. NO. 20208.05
 DESK BY: C:JW
 DATE: 12/08/23
 DRAWN BY: HDW
 CHECK BY: C:JW
 O/A REV BY: C:JW
 APP. BY: C:JW

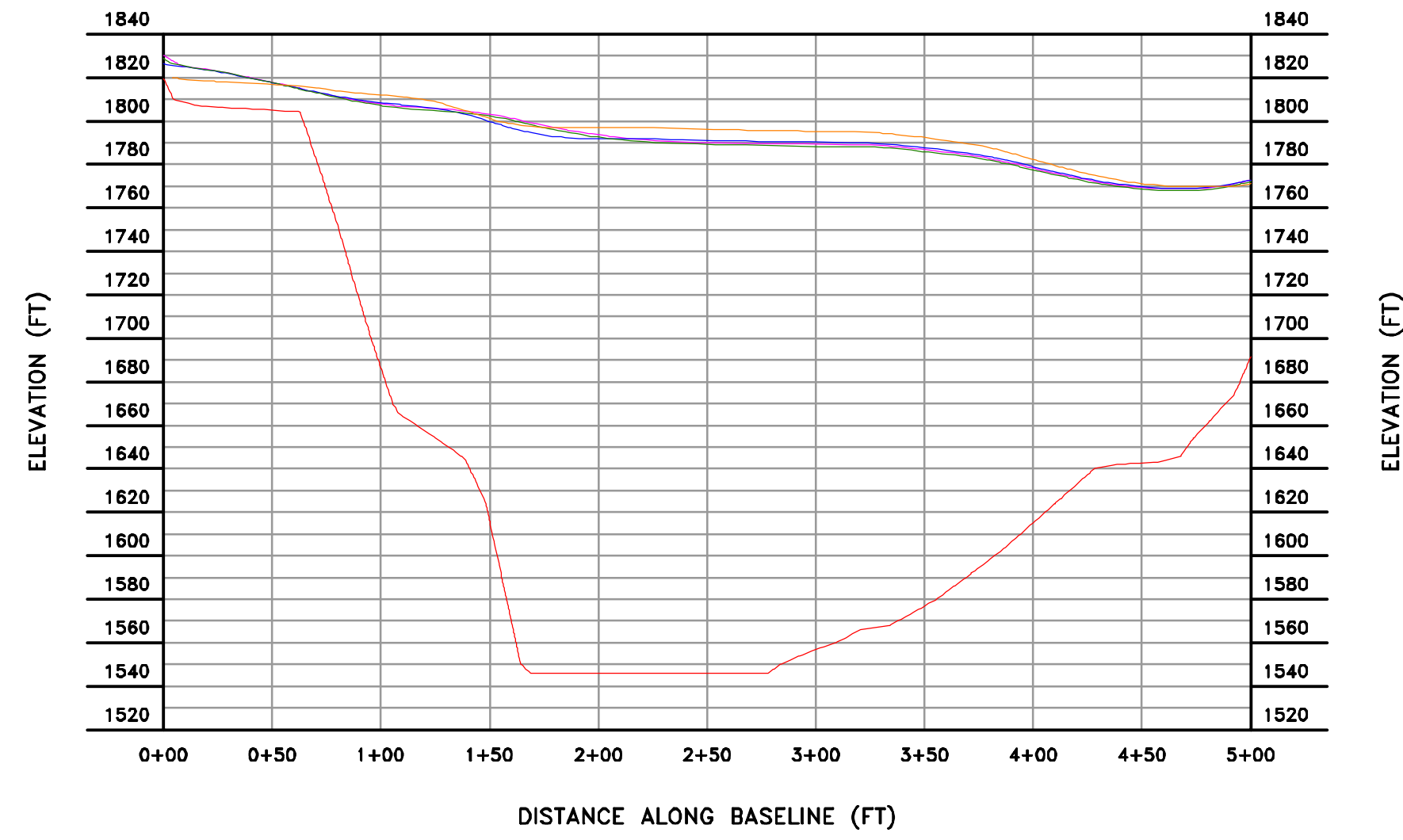
CADD FILE:
 SURF COMP
 DATE:
 12/6/2023
 SCALE:

DRAWING NO.
 7 of 8

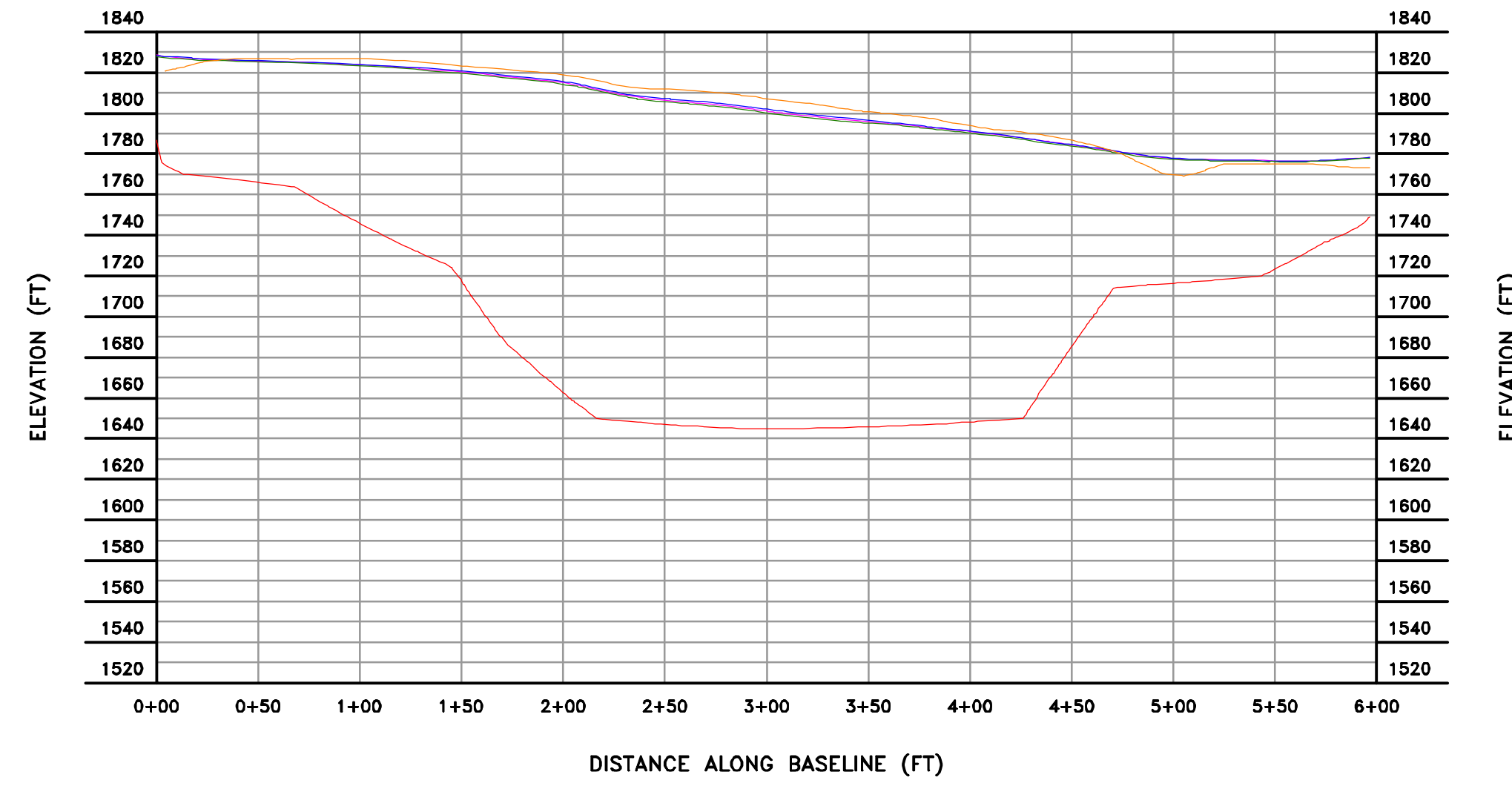
LONGITUDINAL PROFILE A ALIGN



LONGITUDINAL PROFILE B ALIGN



LONGITUDINAL PROFILE C ALIGN



LEGEND

- BOTTOM LINER ELEVATION
- NOVEMBER 2022 TOPO
- AUGUST 2023 TOPO
- OCTOBER 2023 TOPO
- NOVEMBER 2023 TOPO

PROFILES	
SHEET TITLE	MONTHLY TOPOGRAPHY ANALYSIS
PROJECT TITLE	SOLID WASTE PERMIT #588
CLIENT	CITY OF BRISTOL INTEGRATED SOLID WASTE MANAGEMENT FACILITY 2655 VALLEY DRIVE BRISTOL, VIRGINIA 24201
CONTRACT NO.	2208.05
DATE	12/6/2023
SCALE	
DRAWING NO.	8 of 8
CONTRACTOR	SCS ENGINEERS STEARNS, CONRAD AND SCHMIDT CONSULTING ENGINEERS, INC. 1523 MIDLOTHIAN TPK - MIDLOTHIAN, VA 23113 PH: (804) 378-7440 FAX: (804) 378-7433
DESIGNED BY	HCW
CHECKED BY	CJW
DATE	
REVISION	
NO.	

CADD FILE:	SURF COMP
DATE:	12/6/2023
SCALE:	
DRAWING NO.	8 of 8

Appendix F
Field Logs
Lab Report
Historical LFG-EW Leachate Monitoring Results Summary

Appendix F
Field Logs
Lab Reports
Historical LFG-EW Leachate Monitoring Results Summary
Time-Series Plots

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Liquid Level Measurement Log

Date		November 6 - 9, 2023										
Personnel		A. Minnick, W. Fabrie										
Location ID	Date	Measured Well Casing Depth		Pump Installed	Pump Depth (ft)	Cycle Count 10/30/23	Cycle Count	Depth to Liquid (ft)	Casing Stickup (ft)	Liquid Column Thickness (ft)	Pump Running (Y/N)	Comments
		(ft)	(Date)									
EW-100	11/7/2023	108.50	5/3/2023	Y	---	299698	299753	71.01	3.92	37.49	N	Lines Disconnected
EW-33B	11/6/2023	185.00	Install	Y	140.00	13	17	---	3.85	---	N	Blockage at 7.12
EW-36A	11/7/2023	180.00	Install	Y	130	609040	731829	124.5	4.55	---	Y	No Sample Port
EW-49	11/7/2023	96.15	12/20-21/2022	Y	90	777885	777893	61.46	6.18	34.69	N	---
EW-50	11/7/2023	77.70	12/20-21/2022	Y	83	1284068	1293455	54.8	4.31	22.90	Y	---
EW-51	11/7/2023	92.80	12/20-21/2022	N	80.5	1005496	---	43.19	3.00	49.61	---	---
EW-52	11/7/2023	98.70	12/20-21/2022	Y	93	318094	347462	73.05	3.42	25.65	Y	---
EW-53	11/7/2023	100.70	12/20-21/2022	Y	---	2327974	2330728	51.81	3.65	48.89	N	---
EW-54	11/7/2023	82.70	12/20-21/2022	Y	75	597284	597295	37.3	5.50	45.40	N	Airline Off
EW-55	11/7/2023	90.40	12/20-21/2022	Y	90	660393	691799	53.66	6.55	36.74	Y	---
EW-56	11/7/2023	58.50	12/20-21/2022	Y	58	---	---	10.8	5.00	47.70	N	Lines Disconnected
EW-57	11/7/2023	107.40	12/20-21/2022	Y	71	704441	43	40.65	4.80	66.75	N	Airline Off
EW-58	11/7/2023	84.50	12/20-21/2022	Y	82	2490474	2490483	31.19	5.45	53.31	N	Airline Off
EW-59	11/7/2023	73.40	12/20-21/2022	Y	64	2454032	2485500	38.52	4.75	34.88	N	---
EW-60	11/7/2023	81.80	12/20-21/2022	Y	70	529865	549649	36.30	3.62	45.50	Y	---
EW-61	11/7/2023	87.80	12/20-21/2022	Y	66	244061	---	55.26	4.60	32.54	N	---
EW-62	11/6/2023	110.60	12/20-21/2022	Y	80	199873	201145	66.02	7.35	44.58	N	---
EW-63	11/6/2023	62.10	12/20-21/2022	N	64	---	---	62.75	4.75	-0.65	---	---
EW-64	11/6/2023	109.00	12/20-21/2022	Y	113	177589	177591	81.34	3.98	27.66	N	Airline Off
EW-65	11/6/2023	88.40	12/20-21/2022	Y	50	---	4814	56.72	4.80	31.68	N	---
EW-67	11/7/2023	107.75	12/20-21/2022	Y	62.5	864971	865001	48.97	4.48	58.78	N	No Sample Port
EW-68	11/7/2023	73.57	12/20-21/2022	Y	68	2219102	2222470	38.32	1.00	35.25	N	---
EW-69	11/6/2023	98.00	5/3/2023	Y	85	---	9	97.39	4.25	0.61	N	---
EW-70	11/6/2023	71.00	5/3/2023	Y	58	15	12	21.31	2.00	49.69	N	---
EW-71	11/6/2023	185.80	7/18/2023	Y	140	---	---	171.79	4.92	14.01	N	---
EW-72	11/6/2023	141.21	8/17/2023	N	140	23	---	151.49	4.15	-10.28	---	---
EW-73	11/6/2023	116.00	5/3/2023	Y	103	23	24	48.74	3.52	67.26	N	---
EW-74	11/6/2023	184.15	7/18/2023	Y	140	16	17	92.03	5.43	92.12	N	---
EW-75	11/6/2023	124.58	8/17/2023	Y	140	18	11	106.39	4.95	18.19	N	No Sample Port
EW-76	11/6/2023	127.00	5/3/2023	Y	108	23	23	38.31	3.48	88.69	N	---
EW-77	11/6/2023	185.22	8/17/2023	N	N/A	---	---	126.37	5.80	58.85	---	---
EW-78	11/6/2023	57.00	5/3/2023	Y	---	68100	71480	48.39	3.62	8.61	Y	---
EW-79	11/6/2023	185.64	8/17/2023	N	N/A	---	---	Dry	5.00	N/A	---	---
EW-80	11/6/2023	149.00	5/3/2023	N	N/A	---	---	Dry	3.95	N/A	---	---
EW-81	11/6/2023	151.56	8/17/2023	Y	N/A	968837	60170	120.68	5.54	30.88	Y	No Sample Port
EW-82	11/7/2023	163.26	8/17/2023	Y	N/A	698211	816750	121.02	4.80	42.24	Y	No Sample Port
EW-83	11/6/2023	167.04	8/17/2023	Y	145	829303	44601	131.3	4.25	35.74	Y	No Sample Port
EW-84	11/6/2023	130.56	8/17/2023	N	N/A	---	---	72.98	4.51	57.58	---	---
EW-85	11/7/2023	91.00	5/3/2023	Y	---	78778	115595	50.69	3.55	40.31	Y	No Sample Port
EW-86	11/7/2023	153.00	5/3/2023	N	N/A	---	---	80.19	3.95	72.81	---	---
EW-87	11/7/2023	149.57	8/16/2023	Y	125	665065	906359	62.61	3.90	86.96	Y	---
EW-88	11/7/2023	100.00	5/3/2023	Y	82	0	216240	42.36	3.60	57.64	N	No Sample Port
EW-89	11/7/2023	84.57	8/16/2023	Y	70	0	---	39.79	3.08	44.78	N	No Sample Port
EW-90	11/7/2023	114.00	5/3/2023	Y	---	170671	170676	91.43	2.75	22.57	N	No Sample Port
EW-91	11/7/2023	137.70	8/16/2023	Y	---	787184	207535	59.85	4.15	77.85	Y	No Sample Port
EW-92	11/7/2023	112.99	8/16/2023	Y	95	767911	32765	56.7	5.86	56.29	Y	No Sample Port
EW-93	11/7/2023	111.00	5/3/2023	N	---	---	---	32.85	3.86	78.15	---	---
EW-94	11/7/2023	50.00	5/3/2023	Y	40	519848	519868	25.7	4.18	24.30	N	Airline Off
EW-95	11/7/2023	68.00	5/3/2023	N	---	---	---	61.5	2.45	6.50	---	---

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Liquid Level Measurement Log

Date	November 6 - 9, 2023											
Personnel	A. Minnick, W. Fabrie											
Location ID	Date	Measured Well Casing Depth		Pump Installed	Pump Depth (ft)	Cycle Count 10/30/23	Cycle Count	Depth to Liquid (ft)	Casing Stickup (ft)	Liquid Column Thickness (ft)	Pump Running (Y/N)	Comments
		(ft)	(Date)									
EW-96	11/7/2023	164.35	7/18/2023	Y	145	375626	---	72.15	6.75	92.20	Y	No Sample Port
EW-97	11/7/2023	185.00	Install	N	---	---	---	87.17	5.66	97.83	---	---
EW-98	11/7/2023	51.00	5/3/2023	Y	---	1347784	1348199	26.57	3.82	24.43	Y	---
EW-99	11/7/2023	65.00	5/3/2023	N	---	---	---	61.35	3.89	3.65	---	---

Log Checked By: L. Howard

--- = not applicable/available

City of Bristol SWP 588 Landfill
Dual Phase LFG-EW Sample Collection Log

Location ID	Sample Date	Sample Time	Temperature (°C)	pH (s.u.)	Specific Conductance (mS/cm)	Dissolved Oxygen (mg/L)	ORP (mV)	Turbidity (NTU)	Observations
EW-50	11/7/2023	8:10	54.9	7.83	20.89	0.15	-140.1	53.89	Flaky coarse solids in fluid
EW-52	11/9/2023	7:40	62.4	5.47	38.9	0.2	-76.7	>1100	
EW-53	11/7/2023	9:05	62.1	6.1	16.45	0.13	-79.9	>1100	Grey foam head
EW-55	11/8/2023	7:40	61.7	5.48	35.9	0.31	-50	>1100	
EW-59	11/8/2023	8:00	65.1	5.98	30.4	0.1	-104.2	>1100	
EW-62	11/8/2023	8:25	55.4	7.9	18.59	0.05	-269.4	28.12	Caramel color
EW-78	11/7/2023	7:50	43	8.11	18.81	0.78	-21.9	>1100	Brown, caramel color
EW-87	11/7/2023	9:35	66	5.47	38.8	0.2	-45.3	>1100	
EW-98	11/8/2023	9:00	64.8	6.67	17.4	0.33	-95.7	>1100	

Sampler: A. Minnick, W. Fabrie

Samples Shipped By: Courier

Log Checked By: J. Robb

Laboratory: Enthalpy Analytical



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

Certificate of Analysis

Final Report

Laboratory Order ID 23K0323

Client Name: SCS Engineers-Winchester
296 Victory Road
Winchester, VA 22602

Date Received: November 8, 2023 8:00
Date Issued: November 30, 2023 15:48
Project Number: 02218208.15 Task 1
Purchase Order:

Submitted To: Jennifer Robb

Client Site I.D.: City of Bristol Landfill

Enclosed are the results of analyses for samples received by the laboratory on 11/08/2023 08:00. 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.

This report shall not be reproduced except in full without the expressed and written approval of an authorized representative of Enthalpy Analytical.

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Laboratory Sample ID: 23K0323-01

Client Sample ID: EW-78

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	01	SW6020B	340		3.0	3.0	10	ug/L
Barium	01	SW6020B	670		10.0	50.0	10	ug/L
Chromium	01	SW6020B	251		3.00	3.00	10	ug/L
Copper	01	SW6020B	3.87		3.00	3.00	10	ug/L
Lead	01	SW6020B	3.2		3.0	3.0	10	ug/L
Nickel	01	SW6020B	249.2		10.00	10.00	10	ug/L
Zinc	01	SW6020B	72.2		25.0	50.0	10	ug/L
2-Butanone (MEK)	01	SW8260D	78.8	J	30.0	100	10	ug/L
Acetone	01	SW8260D	104		70.0	100	10	ug/L
Benzene	01	SW8260D	323		4.00	10.0	10	ug/L
Ethylbenzene	01	SW8260D	26.9		4.00	10.0	10	ug/L
m+p-Xylenes	01	SW8260D	17.2	J	6.00	20.0	10	ug/L
o-Xylene	01	SW8260D	8.10	J	4.00	10.0	10	ug/L
Tetrahydrofuran	01	SW8260D	358		100	100	10	ug/L
Toluene	01	SW8260D	48.7		5.00	10.0	10	ug/L
Xylenes, Total	01	SW8260D	25.3	J	10.0	30.0	10	ug/L
Ammonia as N	01	EPA350.1 R2.0	1800		146	200	2000	mg/L
BOD	01	SM5210B-2016	480		0.2	2.0	1	mg/L
COD	01	SM5220D-2011	4710		1000	1000	100	mg/L
Cyanide	01	SW9012B	0.46	Cl	0.05	0.05	5	mg/L
TKN as N	01	EPA351.2 R2.0	2270		100	250	500	mg/L
Total Recoverable Phenolics	01	SW9065	3.65		0.150	0.250	1	mg/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Laboratory Sample ID: 23K0323-02 Client Sample ID: EW-50

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	02	SW6020B	230		3.0	3.0	10	ug/L
Barium	02	SW6020B	572		10.0	50.0	10	ug/L
Chromium	02	SW6020B	391		0.00	3.00	10	ug/L
Copper	02	SW6020B	6.07		3.00	3.00	10	ug/L
Nickel	02	SW6020B	117.8		10.00	10.00	10	ug/L
Zinc	02	SW6020B	47.1	J	25.0	50.0	10	ug/L
2-Butanone (MEK)	02RE1	SW8260D	3990		300	1000	100	ug/L
Acetone	02RE1	SW8260D	5560		700	1000	100	ug/L
Benzene	02	SW8260D	80.8		2.00	5.00	5	ug/L
Ethylbenzene	02	SW8260D	26.3		2.00	5.00	5	ug/L
m+p-Xylenes	02	SW8260D	37.4		3.00	10.0	5	ug/L
o-Xylene	02	SW8260D	18.6		2.00	5.00	5	ug/L
Tetrahydrofuran	02	SW8260D	199		50.0	50.0	5	ug/L
Toluene	02	SW8260D	47.3		2.50	5.00	5	ug/L
Xylenes, Total	02	SW8260D	56.0		5.00	15.0	5	ug/L
Ammonia as N	02	EPA350.1 R2.0	1260		146	200	2000	mg/L
BOD	02	SM5210B-2016	1910		0.2	2.0	1	mg/L
COD	02	SM5220D-2011	6200		2000	2000	200	mg/L
Cyanide	02	SW9012B	0.37	CI	0.05	0.05	5	mg/L
Nitrite as N	02	SM4500-NO2B-2011	0.06	J	0.05	0.25	1	mg/L
TKN as N	02	EPA351.2 R2.0	1440		100	250	500	mg/L
Total Recoverable Phenolics	02	SW9065	7.88		0.600	1.00	1	mg/L

Analysis Detects Report

 Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Laboratory Sample ID: 23K0323-03

Client Sample ID: EW-53

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	03	SW6020B	530		3.0	3.0	10	ug/L
Barium	03	SW6020B	2280		10.0	50.0	10	ug/L
Chromium	03	SW6020B	510		3.00	3.00	10	ug/L
Copper	03	SW6020B	21.2		3.00	3.00	10	ug/L
Lead	03	SW6020B	4.6		3.0	3.0	10	ug/L
Mercury	03	SW7470A	0.00606		0.00400	0.00400	1	mg/L
Nickel	03	SW6020B	124.2		10.00	10.00	10	ug/L
Selenium	03	SW6020B	3.14		3.00	3.00	10	ug/L
Zinc	03	SW6020B	53.4		25.0	50.0	10	ug/L
2-Butanone (MEK)	03RE1	SW8260D	22300		1500	5000	500	ug/L
Acetone	03RE1	SW8260D	43100		3500	5000	500	ug/L
Benzene	03	SW8260D	1070		20.0	50.0	50	ug/L
Ethylbenzene	03	SW8260D	62.0		20.0	50.0	50	ug/L
m+p-Xylenes	03	SW8260D	74.5	J	30.0	100	50	ug/L
o-Xylene	03	SW8260D	41.5	J	20.0	50.0	50	ug/L
Tetrahydrofuran	03	SW8260D	4780		500	500	50	ug/L
Toluene	03	SW8260D	62.5		25.0	50.0	50	ug/L
Xylenes, Total	03	SW8260D	116	J	50.0	150	50	ug/L
Ammonia as N	03	EPA350.1 R2.0	1830		146	200	2000	mg/L
BOD	03	SM5210B-2016	27500		0.2	2.0	1	mg/L
COD	03	SM5220D-2011	48100		5000	5000	500	mg/L
Cyanide	03	SW9012B	0.31	CI	0.05	0.05	5	mg/L
TKN as N	03	EPA351.2 R2.0	2630		100	250	500	mg/L
Total Recoverable Phenolics	03	SW9065	36.4		0.600	1.00	1	mg/L

Analysis Detects Report

 Client Name: SCS Engineers-Winchester
 Client Site ID: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Laboratory Sample ID: 23K0323-04 Client Sample ID: EW-87

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	04	SW6020B	270		3.0	3.0	10	ug/L
Barium	04	SW6020B	2060		10.0	50.0	10	ug/L
Chromium	04	SW6020B	403		3.00	3.00	10	ug/L
Lead	04	SW6020B	4.3		3.0	3.0	10	ug/L
Mercury	04	SW7470A	0.00954		0.00400	0.00400	1	mg/L
Nickel	04	SW6020B	133.2		10.00	10.00	10	ug/L
Selenium	04	SW6020B	3.20		3.00	3.00	10	ug/L
Zinc	04	SW6020B	845		25.0	50.0	10	ug/L
2-Butanone (MEK)	04RE1	SW8260D	26700		1500	5000	500	ug/L
Acetone	04RE1	SW8260D	53900		3500	5000	500	ug/L
Benzene	04	SW8260D	1960		20.0	50.0	50	ug/L
Ethylbenzene	04	SW8260D	224		20.0	50.0	50	ug/L
m+p-Xylenes	04	SW8260D	202		30.0	100	50	ug/L
o-Xylene	04	SW8260D	104		20.0	50.0	50	ug/L
Tetrahydrofuran	04	SW8260D	5370		500	500	50	ug/L
Toluene	04	SW8260D	167		25.0	50.0	50	ug/L
Xylenes, Total	04	SW8260D	306		50.0	150	50	ug/L
Ammonia as N	04	EPA350.1 R2.0	2590		146	200	2000	mg/L
BOD	04	SM5210B-2016	>32135		0.2	2.0	1	mg/L
COD	04	SM5220D-2011	63900		10000	10000	1000	mg/L
Cyanide	04	SW9012B	0.16	CI	0.05	0.05	5	mg/L
TKN as N	04	EPA351.2 R2.0	3170		100	250	500	mg/L
Total Recoverable Phenolics	04	SW9065	47.1		0.750	1.25	1	mg/L

Note that this report is not the "Certificate of Analysis". This report only lists the target analytes that displayed concentrations that exceeded the detection limit specified for that analyte. For a complete listing of all analytes requested and the results of the analysis see the "Certificate of Analysis".

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EW-78	23K0323-01	Ground Water	11/07/2023 07:50	11/08/2023 08:00
EW-50	23K0323-02	Ground Water	11/07/2023 08:10	11/08/2023 08:00
EW-53	23K0323-03	Ground Water	11/07/2023 09:05	11/08/2023 08:00
EW-87	23K0323-04	Ground Water	11/07/2023 09:35	11/08/2023 08:00
Trip Blank	23K0323-05	Ground Water	09/20/2023 13:35	11/08/2023 08:00

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-78

Laboratory Sample ID: 23K0323-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	01	7440-22-4	SW6020B	11/09/2023 12:15	11/16/2023 13:29	BLOD		0.600	10.0	10	ug/L	AB
Arsenic	01	7440-38-2	SW6020B	11/09/2023 12:15	11/16/2023 13:29	340		3.0	3.0	10	ug/L	AB
Barium	01	7440-39-3	SW6020B	11/09/2023 12:15	11/16/2023 13:29	670		10.0	50.0	10	ug/L	AB
Cadmium	01	7440-43-9	SW6020B	11/09/2023 12:15	11/16/2023 13:29	BLOD		1.00	3.00	10	ug/L	AB
Chromium	01	7440-47-3	SW6020B	11/09/2023 12:15	11/16/2023 13:29	251		3.00	3.00	10	ug/L	AB
Copper	01	7440-50-8	SW6020B	11/09/2023 12:15	11/16/2023 13:29	3.87		3.00	3.00	10	ug/L	AB
Mercury	01	7439-97-6	SW7470A	11/10/2023 10:50	11/10/2023 13:57	BLOD		0.00040	0.00040	1	mg/L	SGT
Nickel	01	7440-02-0	SW6020B	11/09/2023 12:15	11/16/2023 13:29	249.2		10.00	10.00	10	ug/L	AB
Lead	01	7439-92-1	SW6020B	11/09/2023 12:15	11/16/2023 13:29	3.2		3.0	3.0	10	ug/L	AB
Selenium	01	7782-49-2	SW6020B	11/09/2023 12:15	11/16/2023 13:29	BLOD		3.00	3.00	10	ug/L	AB
Zinc	01	7440-66-6	SW6020B	11/09/2023 12:15	11/16/2023 13:29	72.2		25.0	50.0	10	ug/L	AB
Volatile Organic Compounds by GCMS												
2-Butanone (MEK)	01	78-93-3	SW8260D	11/08/2023 19:08	11/08/2023 19:08	78.8	J	30.0	100	10	ug/L	RJB
Acetone	01	67-64-1	SW8260D	11/08/2023 19:08	11/08/2023 19:08	104		70.0	100	10	ug/L	RJB
Benzene	01	71-43-2	SW8260D	11/08/2023 19:08	11/08/2023 19:08	323		4.00	10.0	10	ug/L	RJB
Ethylbenzene	01	100-41-4	SW8260D	11/08/2023 19:08	11/08/2023 19:08	26.9		4.00	10.0	10	ug/L	RJB
m+p-Xylenes	01	179601-23-1	SW8260D	11/08/2023 19:08	11/08/2023 19:08	17.2	J	6.00	20.0	10	ug/L	RJB
o-Xylene	01	95-47-6	SW8260D	11/08/2023 19:08	11/08/2023 19:08	8.10	J	4.00	10.0	10	ug/L	RJB
Toluene	01	108-88-3	SW8260D	11/08/2023 19:08	11/08/2023 19:08	48.7		5.00	10.0	10	ug/L	RJB
Xylenes, Total	01	1330-20-7	SW8260D	11/08/2023 19:08	11/08/2023 19:08	25.3	J	10.0	30.0	10	ug/L	RJB
Tetrahydrofuran	01	109-99-9	SW8260D	11/08/2023 19:08	11/08/2023 19:08	358		100	100	10	ug/L	RJB
Surr: 1,2-Dichloroethane-d4 (Surr)	01	85.5 %	70-120	11/08/2023 19:08	11/08/2023 19:08							
Surr: 4-Bromofluorobenzene (Surr)	01	102 %	75-120	11/08/2023 19:08	11/08/2023 19:08							
Surr: Dibromofluoromethane (Surr)	01	84.8 %	70-130	11/08/2023 19:08	11/08/2023 19:08							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-78

Laboratory Sample ID: 23K0323-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
<i>Surr: Toluene-d8 (Surr)</i>	01	101 %	70-130	11/08/2023 19:08	11/08/2023 19:08							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-78

Laboratory Sample ID: 23K0323-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
Anthracene	01	120-12-7	SW8270E	11/09/2023 08:30	11/09/2023 19:18	BLOD		50.0	100	10	ug/L	ZDR
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	01	85.4 %	5-136	11/09/2023 08:30	11/09/2023 19:18							
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	01	34.9 %	9-117	11/09/2023 08:30	11/09/2023 19:18							
<i>Surr: 2-Fluorophenol (Surr)</i>	01	29.2 %	5-60	11/09/2023 08:30	11/09/2023 19:18							
<i>Surr: Nitrobenzene-d5 (Surr)</i>	01	42.6 %	5-151	11/09/2023 08:30	11/09/2023 19:18							
<i>Surr: Phenol-d5 (Surr)</i>	01	26.4 %	5-60	11/09/2023 08:30	11/09/2023 19:18							
<i>Surr: p-Terphenyl-d14 (Surr)</i>	01	15.5 %	5-141	11/09/2023 08:30	11/09/2023 19:18							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-78

Laboratory Sample ID: 23K0323-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Ammonia as N	01	7664-41-7	EPA350.1 R2.0	11/20/2023 17:37	11/20/2023 17:37	1800		146	200	2000	mg/L	LAM
BOD	01	E1640606	SM5210B-20 16	11/08/2023 13:39	11/08/2023 13:39	480		0.2	2.0	1	mg/L	LAM
Cyanide	01	57-12-5	SW9012B	11/14/2023 15:26	11/14/2023 15:26	0.46	CI	0.05	0.05	5	mg/L	MGC
COD	01	NA	SM5220D-20 11	11/14/2023 10:15	11/14/2023 10:15	4710		1000	1000	100	mg/L	MJRL
Nitrate as N	01	14797-55-8	Calc.	11/20/2023 15:57	11/20/2023 15:57	BLOD		0.150	0.350	1	mg/L	AJM
Nitrate+Nitrite as N	01	E701177	SM4500-NO 3F-2016	11/20/2023 15:57	11/20/2023 15:57	BLOD		0.10	0.10	1	mg/L	MGC
Nitrite as N	01	14797-65-0	SM4500-NO 2B-2011	11/08/2023 15:56	11/08/2023 15:56	BLOD		0.05	0.25	1	mg/L	AJM
Total Recoverable Phenolics	01	NA	SW9065	11/13/2023 08:48	11/13/2023 08:48	3.65		0.150	0.250	1	mg/L	AAL
TKN as N	01	E17148461	EPA351.2 R2.0	11/17/2023 15:48	11/17/2023 15:48	2270		100	250	500	mg/L	SPH

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-50

Laboratory Sample ID: 23K0323-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	02	7440-22-4	SW6020B	11/09/2023 12:15	11/16/2023 13:32	BLOD		0.600	10.0	10	ug/L	AB
Arsenic	02	7440-38-2	SW6020B	11/09/2023 12:15	11/16/2023 13:32	230		3.0	3.0	10	ug/L	AB
Barium	02	7440-39-3	SW6020B	11/09/2023 12:15	11/16/2023 13:32	572		10.0	50.0	10	ug/L	AB
Cadmium	02	7440-43-9	SW6020B	11/09/2023 12:15	11/16/2023 13:32	BLOD		1.00	3.00	10	ug/L	AB
Chromium	02	7440-47-3	SW6020B	11/09/2023 12:15	11/16/2023 13:32	391		0.00	3.00	10	ug/L	AB
Copper	02	7440-50-8	SW6020B	11/09/2023 12:15	11/16/2023 13:32	6.07		3.00	3.00	10	ug/L	AB
Mercury	02	7439-97-6	SW7470A	11/10/2023 10:50	11/10/2023 14:00	BLOD		0.00020	0.00020	1	mg/L	SGT
Nickel	02	7440-02-0	SW6020B	11/09/2023 12:15	11/16/2023 13:32	117.8		10.00	10.00	10	ug/L	AB
Lead	02	7439-92-1	SW6020B	11/09/2023 12:15	11/16/2023 13:32	BLOD		3.0	3.0	10	ug/L	AB
Selenium	02	7782-49-2	SW6020B	11/09/2023 12:15	11/16/2023 13:32	BLOD		3.00	3.00	10	ug/L	AB
Zinc	02	7440-66-6	SW6020B	11/09/2023 12:15	11/16/2023 13:32	47.1	J	25.0	50.0	10	ug/L	AB
Volatile Organic Compounds by GCMS												
2-Butanone (MEK)	02RE1	78-93-3	SW8260D	11/09/2023 19:10	11/09/2023 19:10	3990		300	1000	100	ug/L	RJB
Acetone	02RE1	67-64-1	SW8260D	11/09/2023 19:10	11/09/2023 19:10	5560		700	1000	100	ug/L	RJB
Benzene	02	71-43-2	SW8260D	11/08/2023 18:44	11/08/2023 18:44	80.8		2.00	5.00	5	ug/L	RJB
Ethylbenzene	02	100-41-4	SW8260D	11/08/2023 18:44	11/08/2023 18:44	26.3		2.00	5.00	5	ug/L	RJB
m+p-Xylenes	02	179601-23-1	SW8260D	11/08/2023 18:44	11/08/2023 18:44	37.4		3.00	10.0	5	ug/L	RJB
o-Xylene	02	95-47-6	SW8260D	11/08/2023 18:44	11/08/2023 18:44	18.6		2.00	5.00	5	ug/L	RJB
Toluene	02	108-88-3	SW8260D	11/08/2023 18:44	11/08/2023 18:44	47.3		2.50	5.00	5	ug/L	RJB
Xylenes, Total	02	1330-20-7	SW8260D	11/08/2023 18:44	11/08/2023 18:44	56.0		5.00	15.0	5	ug/L	RJB
Tetrahydrofuran	02	109-99-9	SW8260D	11/08/2023 18:44	11/08/2023 18:44	199		50.0	50.0	5	ug/L	RJB
Surr: 1,2-Dichloroethane-d4 (Surr)	02	86.9 %	70-120	11/08/2023 18:44	11/08/2023 18:44							
Surr: 4-Bromofluorobenzene (Surr)	02	104 %	75-120	11/08/2023 18:44	11/08/2023 18:44							
Surr: Dibromofluoromethane (Surr)	02	85.4 %	70-130	11/08/2023 18:44	11/08/2023 18:44							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-50

Laboratory Sample ID: 23K0323-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: Toluene-d8 (Surr)	02	101 %	70-130	11/08/2023 18:44	11/08/2023 18:44							
Surr: 1,2-Dichloroethane-d4 (Surr)	02RE1	85.9 %	70-120	11/09/2023 19:10	11/09/2023 19:10							
Surr: 4-Bromofluorobenzene (Surr)	02RE1	99.5 %	75-120	11/09/2023 19:10	11/09/2023 19:10							
Surr: Dibromofluoromethane (Surr)	02RE1	86.1 %	70-130	11/09/2023 19:10	11/09/2023 19:10							
Surr: Toluene-d8 (Surr)	02RE1	94.7 %	70-130	11/09/2023 19:10	11/09/2023 19:10							
Semivolatile Organic Compounds by GCMS												
Anthracene	02	120-12-7	SW8270E	11/09/2023 08:30	11/09/2023 19:52	BLOD		20.0	40.0	4	ug/L	ZDR
Surr: 2,4,6-Tribromophenol (Surr)	02	90.9 %	5-136	11/09/2023 08:30	11/09/2023 19:52							
Surr: 2-Fluorobiphenyl (Surr)	02	34.3 %	9-117	11/09/2023 08:30	11/09/2023 19:52							
Surr: 2-Fluorophenol (Surr)	02	27.1 %	5-60	11/09/2023 08:30	11/09/2023 19:52							
Surr: Nitrobenzene-d5 (Surr)	02	54.8 %	5-151	11/09/2023 08:30	11/09/2023 19:52							
Surr: Phenol-d5 (Surr)	02	0.0600 %	5-60	11/09/2023 08:30	11/09/2023 19:52							DS
Surr: p-Terphenyl-d14 (Surr)	02	15.9 %	5-141	11/09/2023 08:30	11/09/2023 19:52							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-50

Laboratory Sample ID: 23K0323-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Ammonia as N	02	7664-41-7	EPA350.1 R2.0	11/20/2023 17:37	11/20/2023 17:37	1260		146	200	2000	mg/L	LAM
BOD	02	E1640606	SM5210B-20 16	11/08/2023 13:34	11/08/2023 13:34	1910		0.2	2.0	1	mg/L	LAM
Cyanide	02	57-12-5	SW9012B	11/14/2023 15:26	11/14/2023 15:26	0.37	CI	0.05	0.05	5	mg/L	MGC
COD	02	NA	SM5220D-20 11	11/14/2023 10:15	11/14/2023 10:15	6200		2000	2000	200	mg/L	MJRL
Nitrate as N	02	14797-55-8	Calc.	11/20/2023 15:57	11/20/2023 15:57	BLOD		0.150	0.350	1	mg/L	AJM
Nitrate+Nitrite as N	02	E701177	SM4500-NO 3F-2016	11/20/2023 15:57	11/20/2023 15:57	BLOD		0.10	0.10	1	mg/L	MGC
Nitrite as N	02	14797-65-0	SM4500-NO 2B-2011	11/08/2023 15:56	11/08/2023 15:56	0.06	J	0.05	0.25	1	mg/L	AJM
Total Recoverable Phenolics	02	NA	SW9065	11/13/2023 08:48	11/13/2023 08:48	7.88		0.600	1.00	1	mg/L	AAL
TKN as N	02	E17148461	EPA351.2 R2.0	11/17/2023 15:48	11/17/2023 15:48	1440		100	250	500	mg/L	SPH

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-53

Laboratory Sample ID: 23K0323-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	03	7440-22-4	SW6020B	11/09/2023 12:15	11/16/2023 13:35	BLOD		0.600	10.0	10	ug/L	AB
Arsenic	03	7440-38-2	SW6020B	11/09/2023 12:15	11/16/2023 13:35	530		3.0	3.0	10	ug/L	AB
Barium	03	7440-39-3	SW6020B	11/09/2023 12:15	11/16/2023 13:35	2280		10.0	50.0	10	ug/L	AB
Cadmium	03	7440-43-9	SW6020B	11/09/2023 12:15	11/16/2023 13:35	BLOD		1.00	3.00	10	ug/L	AB
Chromium	03	7440-47-3	SW6020B	11/09/2023 12:15	11/16/2023 13:35	510		3.00	3.00	10	ug/L	AB
Copper	03	7440-50-8	SW6020B	11/09/2023 12:15	11/16/2023 13:35	21.2		3.00	3.00	10	ug/L	AB
Mercury	03	7439-97-6	SW7470A	11/10/2023 10:50	11/10/2023 14:02	0.00606		0.00400	0.00400	1	mg/L	SGT
Nickel	03	7440-02-0	SW6020B	11/09/2023 12:15	11/16/2023 13:35	124.2		10.00	10.00	10	ug/L	AB
Lead	03	7439-92-1	SW6020B	11/09/2023 12:15	11/16/2023 13:35	4.6		3.0	3.0	10	ug/L	AB
Selenium	03	7782-49-2	SW6020B	11/09/2023 12:15	11/16/2023 13:35	3.14		3.00	3.00	10	ug/L	AB
Zinc	03	7440-66-6	SW6020B	11/09/2023 12:15	11/16/2023 13:35	53.4		25.0	50.0	10	ug/L	AB
Volatile Organic Compounds by GCMS												
2-Butanone (MEK)	03RE1	78-93-3	SW8260D	11/09/2023 19:36	11/09/2023 19:36	22300		1500	5000	500	ug/L	RJB
Acetone	03RE1	67-64-1	SW8260D	11/09/2023 19:36	11/09/2023 19:36	43100		3500	5000	500	ug/L	RJB
Benzene	03	71-43-2	SW8260D	11/08/2023 19:31	11/08/2023 19:31	1070		20.0	50.0	50	ug/L	RJB
Ethylbenzene	03	100-41-4	SW8260D	11/08/2023 19:31	11/08/2023 19:31	62.0		20.0	50.0	50	ug/L	RJB
m+p-Xylenes	03	179601-23-1	SW8260D	11/08/2023 19:31	11/08/2023 19:31	74.5	J	30.0	100	50	ug/L	RJB
o-Xylene	03	95-47-6	SW8260D	11/08/2023 19:31	11/08/2023 19:31	41.5	J	20.0	50.0	50	ug/L	RJB
Toluene	03	108-88-3	SW8260D	11/08/2023 19:31	11/08/2023 19:31	62.5		25.0	50.0	50	ug/L	RJB
Xylenes, Total	03	1330-20-7	SW8260D	11/08/2023 19:31	11/08/2023 19:31	116	J	50.0	150	50	ug/L	RJB
Tetrahydrofuran	03	109-99-9	SW8260D	11/08/2023 19:31	11/08/2023 19:31	4780		500	500	50	ug/L	RJB
Surr: 1,2-Dichloroethane-d4 (Surr)	03	85.5 %	70-120	11/08/2023 19:31	11/08/2023 19:31							
Surr: 4-Bromofluorobenzene (Surr)	03	104 %	75-120	11/08/2023 19:31	11/08/2023 19:31							
Surr: Dibromofluoromethane (Surr)	03	86.8 %	70-130	11/08/2023 19:31	11/08/2023 19:31							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-53

Laboratory Sample ID: 23K0323-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: Toluene-d8 (Surr)	03	102 %	70-130	11/08/2023 19:31	11/08/2023 19:31							
Surr: 1,2-Dichloroethane-d4 (Surr)	03RE1	86.1 %	70-120	11/09/2023 19:36	11/09/2023 19:36							
Surr: 4-Bromofluorobenzene (Surr)	03RE1	98.7 %	75-120	11/09/2023 19:36	11/09/2023 19:36							
Surr: Dibromofluoromethane (Surr)	03RE1	84.5 %	70-130	11/09/2023 19:36	11/09/2023 19:36							
Surr: Toluene-d8 (Surr)	03RE1	94.6 %	70-130	11/09/2023 19:36	11/09/2023 19:36							
Semivolatile Organic Compounds by GCMS												
Anthracene	03	120-12-7	SW8270E	11/09/2023 08:30	11/09/2023 20:27	BLOD		400	800	20	ug/L	ZDR
Surr: 2,4,6-Tribromophenol (Surr)	03	%	5-136	11/09/2023 08:30	11/09/2023 20:27							DS
Surr: 2-Fluorobiphenyl (Surr)	03	%	9-117	11/09/2023 08:30	11/09/2023 20:27							DS
Surr: 2-Fluorophenol (Surr)	03	24.4 %	5-60	11/09/2023 08:30	11/09/2023 20:27							
Surr: Nitrobenzene-d5 (Surr)	03	67.2 %	5-151	11/09/2023 08:30	11/09/2023 20:27							
Surr: Phenol-d5 (Surr)	03	0.800 %	5-60	11/09/2023 08:30	11/09/2023 20:27							DS
Surr: p-Terphenyl-d14 (Surr)	03	12.0 %	5-141	11/09/2023 08:30	11/09/2023 20:27							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-53

Laboratory Sample ID: 23K0323-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Ammonia as N	03	7664-41-7	EPA350.1 R2.0	11/20/2023 17:37	11/20/2023 17:37	1830		146	200	2000	mg/L	LAM
BOD	03	E1640606	SM5210B-20 16	11/09/2023 09:11	11/09/2023 09:11	27500		0.2	2.0	1	mg/L	LAM
Cyanide	03	57-12-5	SW9012B	11/14/2023 15:26	11/14/2023 15:26	0.31	CI	0.05	0.05	5	mg/L	MGC
COD	03	NA	SM5220D-20 11	11/17/2023 14:01	11/17/2023 14:01	48100		5000	5000	500	mg/L	MGC
Nitrate as N	03	14797-55-8	Calc.	11/20/2023 15:57	11/20/2023 15:57	BLOD		1.50	5.50	100	mg/L	AJM
Nitrate+Nitrite as N	03	E701177	SM4500-NO 3F-2016	11/20/2023 15:57	11/20/2023 15:57	BLOD		0.50	0.50	5	mg/L	MGC
Nitrite as N	03	14797-65-0	SM4500-NO 2B-2011	11/08/2023 15:56	11/08/2023 15:56	BLOD		1.00	5.00	100	mg/L	AJM
Total Recoverable Phenolics	03	NA	SW9065	11/13/2023 08:48	11/13/2023 08:48	36.4		0.600	1.00	1	mg/L	AAL
TKN as N	03	E17148461	EPA351.2 R2.0	11/17/2023 15:48	11/17/2023 15:48	2630		100	250	500	mg/L	SPH

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-87

Laboratory Sample ID: 23K0323-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	04	7440-22-4	SW6020B	11/09/2023 12:15	11/16/2023 13:38	BLOD		0.600	10.0	10	ug/L	AB
Arsenic	04	7440-38-2	SW6020B	11/09/2023 12:15	11/16/2023 13:38	270		3.0	3.0	10	ug/L	AB
Barium	04	7440-39-3	SW6020B	11/09/2023 12:15	11/16/2023 13:38	2060		10.0	50.0	10	ug/L	AB
Cadmium	04	7440-43-9	SW6020B	11/09/2023 12:15	11/16/2023 13:38	BLOD		1.00	3.00	10	ug/L	AB
Chromium	04	7440-47-3	SW6020B	11/09/2023 12:15	11/16/2023 13:38	403		3.00	3.00	10	ug/L	AB
Copper	04	7440-50-8	SW6020B	11/09/2023 12:15	11/16/2023 13:38	BLOD		3.00	3.00	10	ug/L	AB
Mercury	04	7439-97-6	SW7470A	11/10/2023 10:50	11/10/2023 14:05	0.00954		0.00400	0.00400	1	mg/L	SGT
Nickel	04	7440-02-0	SW6020B	11/09/2023 12:15	11/16/2023 13:38	133.2		10.00	10.00	10	ug/L	AB
Lead	04	7439-92-1	SW6020B	11/09/2023 12:15	11/16/2023 13:38	4.3		3.0	3.0	10	ug/L	AB
Selenium	04	7782-49-2	SW6020B	11/09/2023 12:15	11/16/2023 13:38	3.20		3.00	3.00	10	ug/L	AB
Zinc	04	7440-66-6	SW6020B	11/09/2023 12:15	11/16/2023 13:38	845		25.0	50.0	10	ug/L	AB
Volatile Organic Compounds by GCMS												
2-Butanone (MEK)	04RE1	78-93-3	SW8260D	11/09/2023 20:02	11/09/2023 20:02	26700		1500	5000	500	ug/L	RJB
Acetone	04RE1	67-64-1	SW8260D	11/09/2023 20:02	11/09/2023 20:02	53900		3500	5000	500	ug/L	RJB
Benzene	04	71-43-2	SW8260D	11/08/2023 19:54	11/08/2023 19:54	1960		20.0	50.0	50	ug/L	RJB
Ethylbenzene	04	100-41-4	SW8260D	11/08/2023 19:54	11/08/2023 19:54	224		20.0	50.0	50	ug/L	RJB
m+p-Xylenes	04	179601-23-1	SW8260D	11/08/2023 19:54	11/08/2023 19:54	202		30.0	100	50	ug/L	RJB
o-Xylene	04	95-47-6	SW8260D	11/08/2023 19:54	11/08/2023 19:54	104		20.0	50.0	50	ug/L	RJB
Toluene	04	108-88-3	SW8260D	11/08/2023 19:54	11/08/2023 19:54	167		25.0	50.0	50	ug/L	RJB
Xylenes, Total	04	1330-20-7	SW8260D	11/08/2023 19:54	11/08/2023 19:54	306		50.0	150	50	ug/L	RJB
Tetrahydrofuran	04	109-99-9	SW8260D	11/08/2023 19:54	11/08/2023 19:54	5370		500	500	50	ug/L	RJB
Surr: 1,2-Dichloroethane-d4 (Surr)	04	86.0 %	70-120	11/08/2023 19:54	11/08/2023 19:54							
Surr: 4-Bromofluorobenzene (Surr)	04	101 %	75-120	11/08/2023 19:54	11/08/2023 19:54							
Surr: Dibromofluoromethane (Surr)	04	86.5 %	70-130	11/08/2023 19:54	11/08/2023 19:54							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-87

Laboratory Sample ID: 23K0323-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: Toluene-d8 (Surr)	04	103 %	70-130	11/08/2023 19:54	11/08/2023 19:54							
Surr: 1,2-Dichloroethane-d4 (Surr)	04RE1	88.2 %	70-120	11/09/2023 20:02	11/09/2023 20:02							
Surr: 4-Bromofluorobenzene (Surr)	04RE1	98.2 %	75-120	11/09/2023 20:02	11/09/2023 20:02							
Surr: Dibromofluoromethane (Surr)	04RE1	85.1 %	70-130	11/09/2023 20:02	11/09/2023 20:02							
Surr: Toluene-d8 (Surr)	04RE1	95.5 %	70-130	11/09/2023 20:02	11/09/2023 20:02							
Semivolatile Organic Compounds by GCMS												
Anthracene	04	120-12-7	SW8270E	11/09/2023 08:30	11/09/2023 21:01	BLOD		400	800	20	ug/L	ZDR
Surr: 2,4,6-Tribromophenol (Surr)	04	%	5-136	11/09/2023 08:30	11/09/2023 21:01							DS
Surr: 2-Fluorobiphenyl (Surr)	04	%	9-117	11/09/2023 08:30	11/09/2023 21:01							DS
Surr: 2-Fluorophenol (Surr)	04	13.6 %	5-60	11/09/2023 08:30	11/09/2023 21:01							
Surr: Nitrobenzene-d5 (Surr)	04	37.6 %	5-151	11/09/2023 08:30	11/09/2023 21:01							
Surr: Phenol-d5 (Surr)	04	11.6 %	5-60	11/09/2023 08:30	11/09/2023 21:01							
Surr: p-Terphenyl-d14 (Surr)	04	25.6 %	5-141	11/09/2023 08:30	11/09/2023 21:01							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Client Sample ID: EW-87

Laboratory Sample ID: 23K0323-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Ammonia as N	04	7664-41-7	EPA350.1 R2.0	11/20/2023 17:37	11/20/2023 17:37	2590		146	200	2000	mg/L	LAM
BOD	04	E1640606	SM5210B-2016	11/09/2023 09:33	11/09/2023 09:33	>32135		0.2	2.0	1	mg/L	LAM
BOD	04	E1640606	SM5210B-2016	11/09/2023 09:33	11/09/2023 09:33	>32135		0.2	2.0	1	mg/L	LAM
Cyanide	04	57-12-5	SW9012B	11/14/2023 15:26	11/14/2023 15:26	0.16	CI	0.05	0.05	5	mg/L	MGC
COD	04	NA	SM5220D-2011	11/17/2023 14:01	11/17/2023 14:01	63900		10000	10000	1000	mg/L	MGC
Nitrate as N	04	14797-55-8	Calc.	11/20/2023 15:57	11/20/2023 15:57	BLOD		1.50	5.50	100	mg/L	AJM
Nitrate+Nitrite as N	04	E701177	SM4500-NO3F-2016	11/20/2023 15:57	11/20/2023 15:57	BLOD		0.50	0.50	5	mg/L	MGC
Nitrite as N	04	14797-65-0	SM4500-NO2B-2011	11/08/2023 15:56	11/08/2023 15:56	BLOD		1.00	5.00	100	mg/L	AJM
Total Recoverable Phenolics	04	NA	SW9065	11/13/2023 08:48	11/13/2023 08:48	47.1		0.750	1.25	1	mg/L	AAL
TKN as N	04	E17148461	EPA351.2 R2.0	11/17/2023 15:48	11/17/2023 15:48	3170		100	250	500	mg/L	SPH

Certificate of Analysis

Client Name: SCS Engineers-Winchester

Date Issued: 11/30/2023 3:48:54PM

Client Site I.D.: City of Bristol Landfill

Submitted To: Jennifer Robb

Client Sample ID: Trip Blank

Laboratory Sample ID: 23K0323-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
2-Butanone (MEK)	05	78-93-3	SW8260D	11/08/2023 18:21	11/08/2023 18:21	BLOD		3.00	10.0	1	ug/L	RJB
Acetone	05	67-64-1	SW8260D	11/08/2023 18:21	11/08/2023 18:21	BLOD		7.00	10.0	1	ug/L	RJB
Benzene	05	71-43-2	SW8260D	11/08/2023 18:21	11/08/2023 18:21	BLOD		0.40	1.00	1	ug/L	RJB
Ethylbenzene	05	100-41-4	SW8260D	11/08/2023 18:21	11/08/2023 18:21	BLOD		0.40	1.00	1	ug/L	RJB
m+p-Xylenes	05	179601-23-1	SW8260D	11/08/2023 18:21	11/08/2023 18:21	BLOD		0.60	2.00	1	ug/L	RJB
o-Xylene	05	95-47-6	SW8260D	11/08/2023 18:21	11/08/2023 18:21	BLOD		0.40	1.00	1	ug/L	RJB
Toluene	05	108-88-3	SW8260D	11/08/2023 18:21	11/08/2023 18:21	BLOD		0.50	1.00	1	ug/L	RJB
Xylenes, Total	05	1330-20-7	SW8260D	11/08/2023 18:21	11/08/2023 18:21	BLOD		1.00	3.00	1	ug/L	RJB
Tetrahydrofuran	05	109-99-9	SW8260D	11/08/2023 18:21	11/08/2023 18:21	BLOD		10.0	10.0	1	ug/L	RJB
Surr: 1,2-Dichloroethane-d4 (Surr)	05	88.0 %	70-120	11/08/2023 18:21	11/08/2023 18:21							
Surr: 4-Bromofluorobenzene (Surr)	05	104 %	75-120	11/08/2023 18:21	11/08/2023 18:21							
Surr: Dibromofluoromethane (Surr)	05	87.1 %	70-130	11/08/2023 18:21	11/08/2023 18:21							
Surr: Toluene-d8 (Surr)	05	102 %	70-130	11/08/2023 18:21	11/08/2023 18:21							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0385 - EPA200.8 R5.4

Blank (BGK0385-BLK1)

Prepared: 11/09/2023 Analyzed: 11/16/2023

Arsenic	ND	1.0	ug/L							
Barium	ND	5.00	ug/L							
Cadmium	ND	1.00	ug/L							
Chromium	ND	1.00	ug/L							
Copper	ND	1.00	ug/L							
Lead	ND	1.0	ug/L							
Nickel	ND	1.000	ug/L							
Selenium	ND	1.00	ug/L							
Silver	ND	1.00	ug/L							
Zinc	ND	5.00	ug/L							

LCS (BGK0385-BS1)

Prepared: 11/09/2023 Analyzed: 11/16/2023

Arsenic	52	1.0	ug/L	50.0		104	80-120			
Barium	51.8	5.00	ug/L	50.0		104	80-120			
Cadmium	52.7	1.00	ug/L	50.0		105	80-120			
Chromium	53.0	1.00	ug/L	50.0		106	80-120			
Copper	54.2	1.00	ug/L	50.0		108	80-120			
Lead	54	1.0	ug/L	50.0		108	80-120			
Nickel	53.73	1.000	ug/L	50.0		107	80-120			
Selenium	50.3	1.00	ug/L	50.0		101	80-120			
Silver	10.6	1.00	ug/L	10.0		106	80-120			
Zinc	53.7	5.00	ug/L	50.0		107	80-120			

Matrix Spike (BGK0385-MS1)

Source: 23K0406-03

Prepared: 11/09/2023 Analyzed: 11/16/2023

Arsenic	51	1.0	ug/L	50.0	BLOD	103	75-125			
Barium	88.4	5.00	ug/L	50.0	36.4	104	75-125			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0385 - EPA200.8 R5.4

Matrix Spike (BGK0385-MS1)		Source: 23K0406-03			Prepared: 11/09/2023 Analyzed: 11/16/2023					
Cadmium	52.4	1.00	ug/L	50.0	BLOD	105	75-125			
Chromium	54.1	1.00	ug/L	50.0	1.23	106	75-125			
Copper	53.4	1.00	ug/L	50.0	BLOD	107	75-125			
Lead	54	1.0	ug/L	50.0	BLOD	109	75-125			
Nickel	53.07	1.000	ug/L	50.0	BLOD	106	75-125			
Selenium	49.2	1.00	ug/L	50.0	BLOD	98.4	75-125			
Silver	10.5	1.00	ug/L	10.0	BLOD	105	75-125			
Zinc	57.0	5.00	ug/L	50.0	4.38	105	75-125			
Matrix Spike (BGK0385-MS2)		Source: 23K0410-08			Prepared: 11/09/2023 Analyzed: 11/16/2023					
Arsenic	51	1.0	ug/L	50.0	BLOD	103	75-125			
Barium	72.9	5.00	ug/L	50.0	22.0	102	75-125			
Cadmium	52.1	1.00	ug/L	50.0	BLOD	104	75-125			
Chromium	53.1	1.00	ug/L	50.0	BLOD	106	75-125			
Copper	53.9	1.00	ug/L	50.0	BLOD	108	75-125			
Lead	54	1.0	ug/L	50.0	BLOD	107	75-125			
Nickel	54.35	1.000	ug/L	50.0	1.606	105	75-125			
Selenium	49.1	1.00	ug/L	50.0	BLOD	98.2	75-125			
Silver	10.5	1.00	ug/L	10.0	BLOD	105	75-125			
Zinc	55.6	5.00	ug/L	50.0	BLOD	111	75-125			
Matrix Spike Dup (BGK0385-MSD1)		Source: 23K0406-03			Prepared: 11/09/2023 Analyzed: 11/16/2023					
Arsenic	52	1.0	ug/L	50.0	BLOD	104	75-125	1.04	20	
Barium	87.3	5.00	ug/L	50.0	36.4	102	75-125	1.24	20	
Cadmium	52.8	1.00	ug/L	50.0	BLOD	106	75-125	0.710	20	
Chromium	54.9	1.00	ug/L	50.0	1.23	107	75-125	1.38	20	

Certificate of Analysis

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Date Issued: 11/30/2023 3:48:54PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0385 - EPA200.8 R5.4

Matrix Spike Dup (BGK0385-MSD1)		Source: 23K0406-03			Prepared: 11/09/2023 Analyzed: 11/16/2023					
Copper	54.6	1.00	ug/L	50.0	BLOD	109	75-125	2.23	20	
Lead	55	1.0	ug/L	50.0	BLOD	109	75-125	0.409	20	
Nickel	53.97	1.000	ug/L	50.0	BLOD	108	75-125	1.68	20	
Selenium	49.8	1.00	ug/L	50.0	BLOD	99.6	75-125	1.15	20	
Silver	10.6	1.00	ug/L	10.0	BLOD	106	75-125	0.862	20	
Zinc	58.4	5.00	ug/L	50.0	4.38	108	75-125	2.45	20	

Matrix Spike Dup (BGK0385-MSD2)		Source: 23K0410-08			Prepared: 11/09/2023 Analyzed: 11/16/2023					
Arsenic	51	1.0	ug/L	50.0	BLOD	102	75-125	0.313	20	
Barium	71.7	5.00	ug/L	50.0	22.0	99.4	75-125	1.65	20	
Cadmium	52.0	1.00	ug/L	50.0	BLOD	104	75-125	0.126	20	
Chromium	52.8	1.00	ug/L	50.0	BLOD	106	75-125	0.612	20	
Copper	53.7	1.00	ug/L	50.0	BLOD	107	75-125	0.311	20	
Lead	55	1.0	ug/L	50.0	BLOD	109	75-125	1.51	20	
Nickel	53.97	1.000	ug/L	50.0	1.606	105	75-125	0.690	20	
Selenium	48.7	1.00	ug/L	50.0	BLOD	97.4	75-125	0.755	20	
Silver	10.6	1.00	ug/L	10.0	BLOD	106	75-125	0.910	20	
Zinc	54.7	5.00	ug/L	50.0	BLOD	109	75-125	1.71	20	

Batch BGK0431 - SW7470A

Blank (BGK0431-BLK1)		Prepared & Analyzed: 11/10/2023									
Mercury	ND	0.00020	mg/L								

LCS (BGK0431-BS1)		Prepared & Analyzed: 11/10/2023								
Mercury	0.00250	0.00020	mg/L	0.00250	100	80-120				

Certificate of Analysis

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Date Issued: 11/30/2023 3:48:54PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0431 - SW7470A

Matrix Spike (BGK0431-MS1)	Source: 23K0481-01	Prepared & Analyzed: 11/10/2023								
Mercury	0.00259	0.00020	mg/L	0.00250	BLOD	104	80-120			
Matrix Spike Dup (BGK0431-MSD1)	Source: 23K0481-01	Prepared & Analyzed: 11/10/2023								
Mercury	0.00245	0.00020	mg/L	0.00250	BLOD	98.0	80-120	5.56	20	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0337 - SW5030B-MS

Blank (BGK0337-BLK1)

Prepared & Analyzed: 11/08/2023

2-Butanone (MEK)	ND	10.0	ug/L							
Acetone	ND	10.0	ug/L							
Benzene	ND	1.00	ug/L							
Ethylbenzene	ND	1.00	ug/L							
m+p-Xylenes	ND	2.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
Xylenes, Total	ND	3.00	ug/L							

<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	44.6		ug/L	50.0		89.3	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	52.1		ug/L	50.0		104	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	45.9		ug/L	50.0		91.9	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	50.2		ug/L	50.0		100	70-130			

LCS (BGK0337-BS1)

Prepared & Analyzed: 11/08/2023

1,1,1,2-Tetrachloroethane	53.3	0.4	ug/L	50.0		107	80-130			
1,1,1-Trichloroethane	49.5	1	ug/L	50.0		99.0	65-130			
1,1,2,2-Tetrachloroethane	43.3	0.4	ug/L	50.0		86.7	65-130			
1,1,2-Trichloroethane	49.9	1	ug/L	50.0		99.7	75-125			
1,1-Dichloroethane	45.5	1	ug/L	50.0		91.0	70-135			
1,1-Dichloroethylene	49.0	1	ug/L	50.0		98.0	70-130			
1,1-Dichloropropene	48.9	1	ug/L	50.0		97.8	75-135			
1,2,3-Trichlorobenzene	52.9	1	ug/L	50.0		106	55-140			
1,2,3-Trichloropropane	40.9	1	ug/L	50.0		81.8	75-125			
1,2,4-Trichlorobenzene	54.4	1	ug/L	50.0		109	65-135			
1,2,4-Trimethylbenzene	54.8	1	ug/L	50.0		110	75-130			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0337 - SW5030B-MS

LCS (BGK0337-BS1)

Prepared & Analyzed: 11/08/2023

1,2-Dibromo-3-chloropropane (DBCP)	42.9	1	ug/L	50.0		85.7	50-130			
1,2-Dibromoethane (EDB)	47.5	1	ug/L	50.0		95.0	80-120			
1,2-Dichlorobenzene	49.6	0.5	ug/L	50.0		99.2	70-120			
1,2-Dichloroethane	45.8	1	ug/L	50.0		91.6	70-130			
1,2-Dichloropropane	47.7	0.5	ug/L	50.0		95.3	75-125			
1,3,5-Trimethylbenzene	53.4	1	ug/L	50.0		107	75-125			
1,3-Dichlorobenzene	51.9	1	ug/L	50.0		104	75-125			
1,3-Dichloropropane	48.7	1	ug/L	50.0		97.5	75-125			
1,4-Dichlorobenzene	50.3	1	ug/L	50.0		101	75-125			
2,2-Dichloropropane	49.2	1	ug/L	50.0		98.4	70-135			
2-Butanone (MEK)	34.1	10	ug/L	50.0		68.2	30-150			
2-Chlorotoluene	54.2	1	ug/L	50.0		108	75-125			
2-Hexanone (MBK)	37.4	5	ug/L	50.0		74.9	55-130			
4-Chlorotoluene	55.1	1	ug/L	50.0		110	75-130			
4-Isopropyltoluene	53.3	1	ug/L	50.0		107	75-130			
4-Methyl-2-pentanone (MIBK)	40.4	5	ug/L	50.0		80.9	60-135			
Acetone	39.0	10	ug/L	50.0		77.9	40-140			
Benzene	50.5	1	ug/L	50.0		101	80-120			
Bromobenzene	51.0	1	ug/L	50.0		102	75-125			
Bromochloromethane	48.2	1	ug/L	50.0		96.5	65-130			
Bromodichloromethane	51.5	0.5	ug/L	50.0		103	75-120			
Bromoform	52.4	1	ug/L	50.0		105	70-130			
Bromomethane	41.6	1	ug/L	50.0		83.2	30-145			
Carbon disulfide	41.5	10	ug/L	50.0		83.1	35-160			
Carbon tetrachloride	52.8	1	ug/L	50.0		106	65-140			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0337 - SW5030B-MS

LCS (BGK0337-BS1)

Prepared & Analyzed: 11/08/2023

Chlorobenzene	51.7	1	ug/L	50.0		103	80-120			
Chloroethane	44.5	1	ug/L	50.0		88.9	60-135			
Chloroform	46.4	0.5	ug/L	50.0		92.7	65-135			
Chloromethane	47.8	1	ug/L	50.0		95.7	40-125			
cis-1,2-Dichloroethylene	47.2	1	ug/L	50.0		94.4	70-125			
cis-1,3-Dichloropropene	50.6	1	ug/L	50.0		101	70-130			
Dibromochloromethane	54.6	0.5	ug/L	50.0		109	60-135			
Dibromomethane	47.5	1	ug/L	50.0		95.0	75-125			
Dichlorodifluoromethane	54.8	1	ug/L	50.0		110	30-155			
Ethylbenzene	53.8	1	ug/L	50.0		108	75-125			
Hexachlorobutadiene	52.3	0.8	ug/L	50.0		105	50-140			
Isopropylbenzene	48.9	1	ug/L	50.0		97.8	75-125			
m+p-Xylenes	105	2	ug/L	100		105	75-130			
Methylene chloride	47.4	4	ug/L	50.0		94.9	55-140			
Methyl-t-butyl ether (MTBE)	45.8	1	ug/L	50.0		91.5	65-125			
Naphthalene	47.0	1	ug/L	50.0		94.0	55-140			
n-Butylbenzene	50.2	1	ug/L	50.0		100	70-135			
n-Propylbenzene	56.4	1	ug/L	50.0		113	70-130			
o-Xylene	52.3	1	ug/L	50.0		105	80-120			
sec-Butylbenzene	54.3	1	ug/L	50.0		109	70-125			
Styrene	51.7	1	ug/L	50.0		103	65-135			
tert-Butylbenzene	53.0	1	ug/L	50.0		106	70-130			
Tetrachloroethylene (PCE)	51.7	1	ug/L	50.0		103	45-150			
Toluene	53.7	1	ug/L	50.0		107	75-120			
trans-1,2-Dichloroethylene	48.3	1	ug/L	50.0		96.6	60-140			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0337 - SW5030B-MS

LCS (BGK0337-BS1)

Prepared & Analyzed: 11/08/2023

trans-1,3-Dichloropropene	56.3	1	ug/L	50.0		113	55-140			
Trichloroethylene	51.4	1	ug/L	50.0		103	70-125			
Trichlorofluoromethane	55.6	1	ug/L	50.0		111	60-145			
Vinyl chloride	51.0	0.5	ug/L	50.0		102	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	46.7		ug/L	50.0		93.4	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	48.4		ug/L	50.0		96.8	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	46.3		ug/L	50.0		92.7	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	51.3		ug/L	50.0		103	70-130			

Matrix Spike (BGK0337-MS1)

Source: 23K0312-01

Prepared & Analyzed: 11/08/2023

1,1,1,2-Tetrachloroethane	55.6	0.4	ug/L	50.0	BLOD	111	80-130			
1,1,1-Trichloroethane	52.8	1	ug/L	50.0	BLOD	106	65-130			
1,1,2,2-Tetrachloroethane	52.7	0.4	ug/L	50.0	11.9	81.5	65-130			
1,1,2-Trichloroethane	54.4	1	ug/L	50.0	0.61	108	75-125			
1,1-Dichloroethane	63.4	1	ug/L	50.0	36.3	54.2	70-135			M
1,1-Dichloroethylene	77.0	1	ug/L	50.0	61.9	30.2	50-145			M
1,1-Dichloropropene	48.2	1	ug/L	50.0	BLOD	96.3	75-135			
1,2,3-Trichlorobenzene	53.8	1	ug/L	50.0	BLOD	108	55-140			
1,2,3-Trichloropropane	42.8	1	ug/L	50.0	BLOD	85.6	75-125			
1,2,4-Trichlorobenzene	55.0	1	ug/L	50.0	0.59	109	65-135			
1,2,4-Trimethylbenzene	52.6	1	ug/L	50.0	BLOD	105	75-130			
1,2-Dibromo-3-chloropropane (DBCP)	48.1	1	ug/L	50.0	BLOD	96.2	50-130			
1,2-Dibromoethane (EDB)	48.6	1	ug/L	50.0	BLOD	97.2	80-120			
1,2-Dichlorobenzene	49.5	0.5	ug/L	50.0	BLOD	98.9	70-120			
1,2-Dichloroethane	49.2	1	ug/L	50.0	BLOD	98.3	70-130			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0337 - SW5030B-MS

Matrix Spike (BGK0337-MS1)	Source: 23K0312-01			Prepared & Analyzed: 11/08/2023						
1,2-Dichloropropane	46.2	0.5	ug/L	50.0	BLOD	92.3	75-125			
1,3,5-Trimethylbenzene	51.7	1	ug/L	50.0	BLOD	103	75-124			
1,3-Dichlorobenzene	51.1	1	ug/L	50.0	BLOD	102	75-125			
1,3-Dichloropropane	52.3	1	ug/L	50.0	BLOD	105	75-125			
1,4-Dichlorobenzene	49.7	1	ug/L	50.0	BLOD	99.4	75-125			
2,2-Dichloropropane	49.6	1	ug/L	50.0	BLOD	99.3	70-135			
2-Butanone (MEK)	37.7	10	ug/L	50.0	BLOD	75.4	30-150			
2-Chlorotoluene	53.3	1	ug/L	50.0	BLOD	107	75-125			
2-Hexanone (MBK)	42.5	5	ug/L	50.0	BLOD	85.0	55-130			
4-Chlorotoluene	54.2	1	ug/L	50.0	BLOD	108	75-130			
4-Isopropyltoluene	52.6	1	ug/L	50.0	BLOD	105	75-130			
4-Methyl-2-pentanone (MIBK)	48.5	5	ug/L	50.0	BLOD	96.9	60-135			
Acetone	44.4	10	ug/L	50.0	BLOD	88.8	40-140			
Benzene	53.0	1	ug/L	50.0	0.72	105	80-120			
Bromobenzene	54.9	1	ug/L	50.0	BLOD	110	75-125			
Bromochloromethane	50.0	1	ug/L	50.0	BLOD	99.9	65-130			
Bromodichloromethane	56.1	0.5	ug/L	50.0	BLOD	112	75-136			
Bromoform	57.1	1	ug/L	50.0	BLOD	114	70-130			
Bromomethane	42.9	1	ug/L	50.0	BLOD	85.8	30-145			
Carbon disulfide	32.6	10	ug/L	50.0	BLOD	65.1	35-160			
Carbon tetrachloride	61.8	1	ug/L	50.0	2.61	118	65-140			
Chlorobenzene	52.8	1	ug/L	50.0	BLOD	106	80-120			
Chloroethane	40.5	1	ug/L	50.0	BLOD	81.1	60-135			
Chloroform	51.2	0.5	ug/L	50.0	5.88	90.5	65-135			
Chloromethane	41.2	1	ug/L	50.0	BLOD	82.5	40-125			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0337 - SW5030B-MS

Matrix Spike (BGK0337-MS1)

Source: 23K0312-01

Prepared & Analyzed: 11/08/2023

cis-1,2-Dichloroethylene	48.9	1	ug/L	50.0	1.74	94.2	70-125			
cis-1,3-Dichloropropene	52.7	1	ug/L	50.0	BLOD	105	47-136			
Dibromochloromethane	61.8	0.5	ug/L	50.0	BLOD	124	60-135			
Dibromomethane	53.1	1	ug/L	50.0	BLOD	106	75-125			
Dichlorodifluoromethane	54.7	1	ug/L	50.0	BLOD	109	30-155			
Ethylbenzene	54.4	1	ug/L	50.0	BLOD	109	75-125			
Hexachlorobutadiene	53.5	0.8	ug/L	50.0	BLOD	107	50-140			
Isopropylbenzene	49.6	1	ug/L	50.0	BLOD	99.2	75-125			
m+p-Xylenes	109	2	ug/L	100	BLOD	109	75-130			
Methylene chloride	41.4	4	ug/L	50.0	BLOD	82.8	55-140			
Methyl-t-butyl ether (MTBE)	47.7	1	ug/L	50.0	BLOD	95.4	65-125			
Naphthalene	51.4	1	ug/L	50.0	BLOD	102	55-140			
n-Butylbenzene	47.5	1	ug/L	50.0	BLOD	95.1	70-135			
n-Propylbenzene	55.2	1	ug/L	50.0	BLOD	110	70-130			
o-Xylene	53.5	1	ug/L	50.0	BLOD	107	80-120			
sec-Butylbenzene	52.9	1	ug/L	50.0	BLOD	106	70-125			
Styrene	52.3	1	ug/L	50.0	BLOD	105	65-135			
tert-Butylbenzene	51.8	1	ug/L	50.0	BLOD	104	70-130			
Tetrachloroethylene (PCE)	55.6	1	ug/L	50.0	0.48	110	51-231			
Toluene	58.1	1	ug/L	50.0	BLOD	116	75-120			
trans-1,2-Dichloroethylene	47.7	1	ug/L	50.0	BLOD	95.3	60-140			
trans-1,3-Dichloropropene	60.2	1	ug/L	50.0	BLOD	120	55-140			
Trichloroethylene	58.6	1	ug/L	50.0	6.03	105	70-125			
Trichlorofluoromethane	59.8	1	ug/L	50.0	BLOD	120	60-145			
Vinyl chloride	42.5	0.5	ug/L	50.0	BLOD	84.9	50-145			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0337 - SW5030B-MS

Matrix Spike (BGK0337-MS1)

Source: 23K0312-01

Prepared & Analyzed: 11/08/2023

<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	42.4		ug/L	50.0		84.8	70-120		
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	47.2		ug/L	50.0		94.3	75-120		
<i>Surr: Dibromofluoromethane (Surr)</i>	42.6		ug/L	50.0		85.3	70-130		
<i>Surr: Toluene-d8 (Surr)</i>	51.7		ug/L	50.0		103	70-130		

Matrix Spike Dup (BGK0337-MSD1)

Source: 23K0312-01

Prepared & Analyzed: 11/08/2023

1,1,1,2-Tetrachloroethane	58.4	0.4	ug/L	50.0	BLOD	117	80-130	4.98	30	
1,1,1-Trichloroethane	55.6	1	ug/L	50.0	BLOD	111	65-130	5.11	30	
1,1,2,2-Tetrachloroethane	54.5	0.4	ug/L	50.0	11.9	85.1	65-130	3.30	30	
1,1,2-Trichloroethane	54.9	1	ug/L	50.0	0.61	109	75-125	0.787	30	
1,1-Dichloroethane	65.7	1	ug/L	50.0	36.3	58.9	70-135	3.61	30	M
1,1-Dichloroethylene	76.5	1	ug/L	50.0	61.9	29.2	50-145	0.651	30	M
1,1-Dichloropropene	50.8	1	ug/L	50.0	BLOD	102	75-135	5.26	30	
1,2,3-Trichlorobenzene	55.8	1	ug/L	50.0	BLOD	112	55-140	3.56	30	
1,2,3-Trichloropropane	44.0	1	ug/L	50.0	BLOD	88.0	75-125	2.72	30	
1,2,4-Trichlorobenzene	54.8	1	ug/L	50.0	0.59	108	65-135	0.401	30	
1,2,4-Trimethylbenzene	55.4	1	ug/L	50.0	BLOD	111	75-130	5.26	30	
1,2-Dibromo-3-chloropropane (DBCP)	50.3	1	ug/L	50.0	BLOD	101	50-130	4.45	30	
1,2-Dibromoethane (EDB)	51.0	1	ug/L	50.0	BLOD	102	80-120	4.82	30	
1,2-Dichlorobenzene	51.3	0.5	ug/L	50.0	BLOD	103	70-120	3.71	30	
1,2-Dichloroethane	52.2	1	ug/L	50.0	BLOD	104	70-130	5.92	30	
1,2-Dichloropropane	49.0	0.5	ug/L	50.0	BLOD	97.9	75-125	5.91	30	
1,3,5-Trimethylbenzene	53.5	1	ug/L	50.0	BLOD	107	75-124	3.38	30	
1,3-Dichlorobenzene	53.6	1	ug/L	50.0	BLOD	107	75-125	4.80	30	
1,3-Dichloropropane	54.2	1	ug/L	50.0	BLOD	108	75-125	3.60	30	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0337 - SW5030B-MS

Matrix Spike Dup (BGK0337-MSD1)	Source: 23K0312-01			Prepared & Analyzed: 11/08/2023						
1,4-Dichlorobenzene	51.6	1	ug/L	50.0	BLOD	103	75-125	3.73	30	
2,2-Dichloropropane	51.7	1	ug/L	50.0	BLOD	103	70-135	4.08	30	
2-Butanone (MEK)	52.8	10	ug/L	50.0	BLOD	106	30-150	33.2	30	P
2-Chlorotoluene	56.1	1	ug/L	50.0	BLOD	112	75-125	5.10	30	
2-Hexanone (MBK)	40.6	5	ug/L	50.0	BLOD	81.2	55-130	4.60	30	
4-Chlorotoluene	55.4	1	ug/L	50.0	BLOD	111	75-130	2.06	30	
4-Isopropyltoluene	54.4	1	ug/L	50.0	BLOD	109	75-130	3.46	30	
4-Methyl-2-pentanone (MIBK)	48.2	5	ug/L	50.0	BLOD	96.3	60-135	0.600	30	
Acetone	44.0	10	ug/L	50.0	BLOD	88.0	40-140	0.928	30	
Benzene	55.1	1	ug/L	50.0	0.72	109	80-120	3.77	30	
Bromobenzene	56.4	1	ug/L	50.0	BLOD	113	75-125	2.71	30	
Bromochloromethane	52.0	1	ug/L	50.0	BLOD	104	65-130	4.08	30	
Bromodichloromethane	58.1	0.5	ug/L	50.0	BLOD	116	75-136	3.38	30	
Bromoform	60.4	1	ug/L	50.0	BLOD	121	70-130	5.62	30	
Bromomethane	44.2	1	ug/L	50.0	BLOD	88.3	30-145	2.94	30	
Carbon disulfide	36.8	10	ug/L	50.0	BLOD	73.6	35-160	12.2	30	
Carbon tetrachloride	63.1	1	ug/L	50.0	2.61	121	65-140	2.08	30	
Chlorobenzene	55.6	1	ug/L	50.0	BLOD	111	80-120	5.05	30	
Chloroethane	44.8	1	ug/L	50.0	BLOD	89.6	60-135	10.0	30	
Chloroform	53.4	0.5	ug/L	50.0	5.88	95.0	65-135	4.29	30	
Chloromethane	43.4	1	ug/L	50.0	BLOD	86.8	40-125	5.17	30	
cis-1,2-Dichloroethylene	50.5	1	ug/L	50.0	1.74	97.6	70-125	3.36	30	
cis-1,3-Dichloropropene	54.5	1	ug/L	50.0	BLOD	109	47-136	3.26	30	
Dibromochloromethane	64.2	0.5	ug/L	50.0	BLOD	128	60-135	3.79	30	
Dibromomethane	55.1	1	ug/L	50.0	BLOD	110	75-125	3.84	30	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0337 - SW5030B-MS

Matrix Spike Dup (BGK0337-MSD1)

Source: 23K0312-01

Prepared & Analyzed: 11/08/2023

Dichlorodifluoromethane	58.5	1	ug/L	50.0	BLOD	117	30-155	6.68	30	
Ethylbenzene	56.5	1	ug/L	50.0	BLOD	113	75-125	3.86	30	
Hexachlorobutadiene	56.9	0.8	ug/L	50.0	BLOD	114	50-140	6.25	30	
Isopropylbenzene	51.8	1	ug/L	50.0	BLOD	104	75-125	4.38	30	
m+p-Xylenes	112	2	ug/L	100	BLOD	112	75-130	2.80	30	
Methylene chloride	45.4	4	ug/L	50.0	BLOD	90.8	55-140	9.12	30	
Methyl-t-butyl ether (MTBE)	50.5	1	ug/L	50.0	BLOD	101	65-125	5.70	30	
Naphthalene	53.1	1	ug/L	50.0	BLOD	105	55-140	3.23	30	
n-Butylbenzene	49.1	1	ug/L	50.0	BLOD	98.2	70-135	3.21	30	
n-Propylbenzene	57.1	1	ug/L	50.0	BLOD	114	70-130	3.49	30	
o-Xylene	55.6	1	ug/L	50.0	BLOD	111	80-120	3.94	30	
sec-Butylbenzene	54.6	1	ug/L	50.0	BLOD	109	70-125	3.22	30	
Styrene	54.5	1	ug/L	50.0	BLOD	109	65-135	4.19	30	
tert-Butylbenzene	54.7	1	ug/L	50.0	BLOD	109	70-130	5.48	30	
Tetrachloroethylene (PCE)	57.6	1	ug/L	50.0	0.48	114	51-231	3.64	30	
Toluene	60.2	1	ug/L	50.0	BLOD	120	75-120	3.68	30	M
trans-1,2-Dichloroethylene	50.2	1	ug/L	50.0	BLOD	100	60-140	5.23	30	
trans-1,3-Dichloropropene	62.7	1	ug/L	50.0	BLOD	125	55-140	4.07	30	
Trichloroethylene	60.2	1	ug/L	50.0	6.03	108	70-125	2.85	30	
Trichlorofluoromethane	63.0	1	ug/L	50.0	BLOD	126	60-145	5.23	30	
Vinyl chloride	52.3	0.5	ug/L	50.0	BLOD	105	50-145	20.8	30	
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>42.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>85.6</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>47.1</i>		<i>ug/L</i>	<i>50.0</i>		<i>94.3</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>42.9</i>		<i>ug/L</i>	<i>50.0</i>		<i>85.8</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>51.3</i>		<i>ug/L</i>	<i>50.0</i>		<i>103</i>	<i>70-130</i>			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0337 - SW5030B-MS

Matrix Spike Dup (BGK0337-MSD1) Source: 23K0312-01 Prepared & Analyzed: 11/08/2023

Batch BGK0405 - SW5030B-MS

Blank (BGK0405-BLK1) Prepared & Analyzed: 11/09/2023

2-Butanone (MEK)	ND	10.0	ug/L							
Acetone	ND	10.0	ug/L							
Benzene	ND	1.00	ug/L							
Ethylbenzene	ND	1.00	ug/L							
m+p-Xylenes	ND	2.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
Xylenes, Total	ND	3.00	ug/L							
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>45.5</i>		ug/L	<i>50.0</i>		<i>91.0</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>48.8</i>		ug/L	<i>50.0</i>		<i>97.6</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>42.9</i>		ug/L	<i>50.0</i>		<i>85.9</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>47.6</i>		ug/L	<i>50.0</i>		<i>95.2</i>	<i>70-130</i>			
<hr/>										
LCS (BGK0405-BS1) Prepared & Analyzed: 11/09/2023										
1,1,1,2-Tetrachloroethane	46.5	0.4	ug/L	50.0		93.0	80-130			
1,1,1-Trichloroethane	52.0	1	ug/L	50.0		104	65-130			
1,1,2,2-Tetrachloroethane	39.6	0.4	ug/L	50.0		79.2	65-130			
1,1,2-Trichloroethane	56.2	1	ug/L	50.0		112	75-125			
1,1-Dichloroethane	44.1	1	ug/L	50.0		88.3	70-135			
1,1-Dichloroethylene	49.0	1	ug/L	50.0		98.1	70-130			
1,1-Dichloropropene	50.6	1	ug/L	50.0		101	75-135			
1,2,3-Trichlorobenzene	38.0	1	ug/L	50.0		75.9	55-140			

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0405 - SW5030B-MS

LCS (BGK0405-BS1)

Prepared & Analyzed: 11/09/2023

1,2,3-Trichloropropane	39.8	1	ug/L	50.0		79.7	75-125			
1,2,4-Trichlorobenzene	47.6	1	ug/L	50.0		95.2	65-135			
1,2,4-Trimethylbenzene	49.2	1	ug/L	50.0		98.4	75-130			
1,2-Dibromo-3-chloropropane (DBCP)	36.2	1	ug/L	50.0		72.4	50-130			
1,2-Dibromoethane (EDB)	45.1	1	ug/L	50.0		90.2	80-120			
1,2-Dichlorobenzene	53.0	0.5	ug/L	50.0		106	70-120			
1,2-Dichloroethane	41.7	1	ug/L	50.0		83.4	70-130			
1,2-Dichloropropane	54.2	0.5	ug/L	50.0		108	75-125			
1,3,5-Trimethylbenzene	47.2	1	ug/L	50.0		94.3	75-125			
1,3-Dichlorobenzene	55.4	1	ug/L	50.0		111	75-125			
1,3-Dichloropropane	54.2	1	ug/L	50.0		108	75-125			
1,4-Dichlorobenzene	54.7	1	ug/L	50.0		109	75-125			
2,2-Dichloropropane	47.8	1	ug/L	50.0		95.5	70-135			
2-Butanone (MEK)	40.2	10	ug/L	50.0		80.3	30-150			
2-Chlorotoluene	50.4	1	ug/L	50.0		101	75-125			
2-Hexanone (MBK)	29.9	5	ug/L	50.0		59.8	55-130			
4-Chlorotoluene	51.8	1	ug/L	50.0		104	75-130			
4-Isopropyltoluene	53.5	1	ug/L	50.0		107	75-130			
4-Methyl-2-pentanone (MIBK)	42.0	5	ug/L	50.0		84.1	60-135			
Acetone	30.3	10	ug/L	50.0		60.7	40-140			
Benzene	53.9	1	ug/L	50.0		108	80-120			
Bromobenzene	51.0	1	ug/L	50.0		102	75-125			
Bromochloromethane	54.1	1	ug/L	50.0		108	65-130			
Bromodichloromethane	54.5	0.5	ug/L	50.0		109	75-120			
Bromoform	43.1	1	ug/L	50.0		86.2	70-130			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0405 - SW5030B-MS

LCS (BGK0405-BS1)

Prepared & Analyzed: 11/09/2023

Bromomethane	59.5	1	ug/L	50.0		119	30-145			
Carbon disulfide	37.9	10	ug/L	50.0		75.8	35-160			
Carbon tetrachloride	49.4	1	ug/L	50.0		98.9	65-140			
Chlorobenzene	47.2	1	ug/L	50.0		94.5	80-120			
Chloroethane	39.1	1	ug/L	50.0		78.2	60-135			
Chloroform	47.7	0.5	ug/L	50.0		95.5	65-135			
Chloromethane	41.2	1	ug/L	50.0		82.4	40-125			
cis-1,2-Dichloroethylene	46.4	1	ug/L	50.0		92.9	70-125			
cis-1,3-Dichloropropene	58.3	1	ug/L	50.0		117	70-130			
Dibromochloromethane	58.8	0.5	ug/L	50.0		118	60-135			
Dibromomethane	59.1	1	ug/L	50.0		118	75-125			
Dichlorodifluoromethane	72.9	1	ug/L	50.0		146	30-155			
Ethylbenzene	43.2	1	ug/L	50.0		86.5	75-125			
Hexachlorobutadiene	53.1	0.8	ug/L	50.0		106	50-140			
Isopropylbenzene	42.4	1	ug/L	50.0		84.8	75-125			
m+p-Xylenes	88.2	2	ug/L	100		88.2	75-130			
Methylene chloride	51.4	4	ug/L	50.0		103	55-140			
Methyl-t-butyl ether (MTBE)	41.9	1	ug/L	50.0		83.8	65-125			
Naphthalene	41.4	1	ug/L	50.0		82.7	55-140			
n-Butylbenzene	52.2	1	ug/L	50.0		104	70-135			
n-Propylbenzene	50.4	1	ug/L	50.0		101	70-130			
o-Xylene	44.8	1	ug/L	50.0		89.6	80-120			
sec-Butylbenzene	51.0	1	ug/L	50.0		102	70-125			
Styrene	45.8	1	ug/L	50.0		91.7	65-135			
tert-Butylbenzene	49.9	1	ug/L	50.0		99.7	70-130			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0405 - SW5030B-MS

LCS (BGK0405-BS1)

Prepared & Analyzed: 11/09/2023

Tetrachloroethylene (PCE)	51.6	1	ug/L	50.0		103	45-150			
Toluene	55.8	1	ug/L	50.0		112	75-120			
trans-1,2-Dichloroethylene	47.4	1	ug/L	50.0		94.7	60-140			
trans-1,3-Dichloropropene	63.0	1	ug/L	50.0		126	55-140			
Trichloroethylene	58.9	1	ug/L	50.0		118	70-125			
Trichlorofluoromethane	53.2	1	ug/L	50.0		106	60-145			
Vinyl chloride	51.6	0.5	ug/L	50.0		103	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	46.6		ug/L	50.0		93.2	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	41.4		ug/L	50.0		82.7	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	41.5		ug/L	50.0		82.9	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	47.2		ug/L	50.0		94.4	70-130			

Duplicate (BGK0405-DUP1)

Source: 23K0389-06

Prepared & Analyzed: 11/09/2023

1,1,1,2-Tetrachloroethane	ND	2.00	ug/L		BLOD			NA	30	
1,1,1-Trichloroethane	ND	5.00	ug/L		BLOD			NA	30	
1,1,2,2-Tetrachloroethane	ND	2.00	ug/L		BLOD			NA	30	
1,1,2-Trichloroethane	ND	5.00	ug/L		BLOD			NA	30	
1,1-Dichloroethane	10.8	5.00	ug/L		12.4			13.3	30	
1,1-Dichloroethylene	ND	5.00	ug/L		BLOD			NA	30	
1,1-Dichloropropene	ND	5.00	ug/L		BLOD			NA	30	
1,2,3-Trichlorobenzene	ND	5.00	ug/L		BLOD			NA	30	
1,2,3-Trichloropropane	ND	5.00	ug/L		BLOD			NA	30	
1,2,4-Trichlorobenzene	ND	5.00	ug/L		BLOD			NA	30	
1,2,4-Trimethylbenzene	ND	5.00	ug/L		BLOD			NA	30	
1,2-Dibromo-3-chloropropane (DBCP)	ND	5.00	ug/L		BLOD			NA	30	

Certificate of Analysis

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 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0405 - SW5030B-MS

Duplicate (BGK0405-DUP1)

Source: 23K0389-06

Prepared & Analyzed: 11/09/2023

1,2-Dibromoethane (EDB)	ND	5.00	ug/L		BLOD			NA	30	
1,2-Dichlorobenzene	ND	2.50	ug/L		BLOD			NA	30	
1,2-Dichloroethane	250	5.00	ug/L		244			2.49	30	
1,2-Dichloropropane	ND	2.50	ug/L		BLOD			NA	30	
1,3,5-Trimethylbenzene	ND	5.00	ug/L		BLOD			NA	30	
1,3-Dichlorobenzene	ND	5.00	ug/L		BLOD			NA	30	
1,3-Dichloropropane	ND	5.00	ug/L		BLOD			NA	30	
1,4-Dichlorobenzene	ND	5.00	ug/L		BLOD			NA	30	
2,2-Dichloropropane	ND	5.00	ug/L		BLOD			NA	30	
2-Butanone (MEK)	ND	50.0	ug/L		BLOD			NA	30	
2-Chlorotoluene	ND	5.00	ug/L		BLOD			NA	30	
2-Hexanone (MBK)	ND	25.0	ug/L		BLOD			NA	30	
4-Chlorotoluene	ND	5.00	ug/L		BLOD			NA	30	
4-Isopropyltoluene	ND	5.00	ug/L		BLOD			NA	30	
4-Methyl-2-pentanone (MIBK)	7.60	25.0	ug/L		7.60			NA	30	
Acetone	ND	50.0	ug/L		BLOD			NA	30	
Benzene	211	5.00	ug/L		213			0.895	30	
Bromobenzene	ND	5.00	ug/L		BLOD			NA	30	
Bromochloromethane	ND	5.00	ug/L		BLOD			NA	30	
Bromodichloromethane	ND	2.50	ug/L		BLOD			NA	30	
Bromoform	ND	5.00	ug/L		BLOD			NA	30	
Bromomethane	ND	5.00	ug/L		BLOD			NA	30	
Carbon disulfide	ND	50.0	ug/L		BLOD			NA	30	
Carbon tetrachloride	ND	5.00	ug/L		BLOD			NA	30	
Chlorobenzene	4.15	5.00	ug/L		4.05			NA	30	

Certificate of Analysis

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0405 - SW5030B-MS

Duplicate (BGK0405-DUP1)

Source: 23K0389-06

Prepared & Analyzed: 11/09/2023

Chloroethane	ND	5.00	ug/L		BLOD			NA	30	
Chloroform	23.7	2.50	ug/L		24.1			1.67	30	
Chloromethane	ND	5.00	ug/L		BLOD			NA	30	
cis-1,2-Dichloroethylene	447	5.00	ug/L		438			2.05	30	
cis-1,3-Dichloropropene	ND	5.00	ug/L		BLOD			NA	30	
Dibromochloromethane	ND	2.50	ug/L		BLOD			NA	30	
Dibromomethane	ND	5.00	ug/L		BLOD			NA	30	
Dichlorodifluoromethane	ND	5.00	ug/L		BLOD			NA	30	
Di-isopropyl ether (DIPE)	ND	25.0	ug/L		BLOD			NA	30	
Ethylbenzene	11.2	5.00	ug/L		11.4			2.21	30	
Hexachlorobutadiene	ND	4.00	ug/L		BLOD			NA	30	
Iodomethane	ND	50.0	ug/L		BLOD			NA	30	
Isopropylbenzene	ND	5.00	ug/L		BLOD			NA	30	
m+p-Xylenes	19.8	10.0	ug/L		20.2			2.00	30	
Methylene chloride	ND	20.0	ug/L		BLOD			NA	30	
Methyl-t-butyl ether (MTBE)	ND	5.00	ug/L		BLOD			NA	30	
Naphthalene	4.85	5.00	ug/L		4.45			NA	30	
n-Butylbenzene	ND	5.00	ug/L		BLOD			NA	30	
n-Propylbenzene	ND	5.00	ug/L		BLOD			NA	30	
o-Xylene	17.9	5.00	ug/L		17.5			2.26	30	
sec-Butylbenzene	ND	5.00	ug/L		BLOD			NA	30	
Styrene	ND	5.00	ug/L		BLOD			NA	30	
tert-Butylbenzene	ND	5.00	ug/L		BLOD			NA	30	
Tetrachloroethylene (PCE)	ND	5.00	ug/L		BLOD			NA	30	
Toluene	37.6	5.00	ug/L		38.2			1.72	30	

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0405 - SW5030B-MS

Duplicate (BGK0405-DUP1)	Source: 23K0389-06			Prepared & Analyzed: 11/09/2023						
trans-1,2-Dichloroethylene	16.9	5.00	ug/L		13.7			20.9	30	
trans-1,3-Dichloropropene	ND	5.00	ug/L		BLOD			NA	30	
Trichloroethylene	2.40	5.00	ug/L		2.30			NA	30	
Trichlorofluoromethane	ND	5.00	ug/L		BLOD			NA	30	
Vinyl acetate	ND	50.0	ug/L		BLOD			NA	30	
Vinyl chloride	3310	2.50	ug/L		3380			2.35	30	
Xylenes, Total	37.7	15.0	ug/L		37.7			0.00	30	
Tetrahydrofuran	84.0	50.0	ug/L		82.8			1.38	30	

<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	42.1		ug/L	50.0		84.2	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	48.8		ug/L	50.0		97.6	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	41.6		ug/L	50.0		83.2	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	47.9		ug/L	50.0		95.8	70-130			

Matrix Spike (BGK0405-MS1)	Source: 23K0389-01			Prepared & Analyzed: 11/09/2023						
1,1,1,2-Tetrachloroethane	44.0	0.4	ug/L	50.0	BLOD	88.1	80-130			
1,1,1-Trichloroethane	54.4	1	ug/L	50.0	BLOD	109	65-130			
1,1,2,2-Tetrachloroethane	37.4	0.4	ug/L	50.0	0.55	73.7	65-130			
1,1,2-Trichloroethane	52.9	1	ug/L	50.0	0.93	104	75-125			
1,1-Dichloroethane	48.1	1	ug/L	50.0	BLOD	96.3	70-135			
1,1-Dichloroethylene	124	1	ug/L	50.0	68.9	110	50-145			
1,1-Dichloropropene	50.5	1	ug/L	50.0	BLOD	101	75-135			
1,2,3-Trichlorobenzene	44.8	1	ug/L	50.0	BLOD	89.6	55-140			
1,2,3-Trichloropropane	40.6	1	ug/L	50.0	BLOD	81.3	75-125			
1,2,4-Trichlorobenzene	46.4	1	ug/L	50.0	BLOD	92.7	65-135			
1,2,4-Trimethylbenzene	56.1	1	ug/L	50.0	11.8	88.7	75-130			

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Enthalpy Analytical

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Batch BGK0405 - SW5030B-MS

Matrix Spike (BGK0405-MS1)

Source: 23K0389-01

Prepared & Analyzed: 11/09/2023

1,2-Dibromo-3-chloropropane (DBCP)	40.8	1	ug/L	50.0	BLOD	81.6	50-130			
1,2-Dibromoethane (EDB)	43.1	1	ug/L	50.0	BLOD	86.1	80-120			
1,2-Dichlorobenzene	52.0	0.5	ug/L	50.0	1.24	101	70-120			
1,2-Dichloroethane	183	1	ug/L	50.0	140	85.2	70-130			
1,2-Dichloropropane	51.5	0.5	ug/L	50.0	BLOD	103	75-125			
1,3,5-Trimethylbenzene	48.4	1	ug/L	50.0	3.92	89.0	75-124			
1,3-Dichlorobenzene	50.7	1	ug/L	50.0	BLOD	101	75-125			
1,3-Dichloropropane	52.2	1	ug/L	50.0	BLOD	104	75-125			
1,4-Dichlorobenzene	52.2	1	ug/L	50.0	BLOD	104	75-125			
2,2-Dichloropropane	44.1	1	ug/L	50.0	BLOD	88.1	70-135			
2-Butanone (MEK)	16.6	10	ug/L	50.0	BLOD	33.2	30-150			
2-Chlorotoluene	48.9	1	ug/L	50.0	BLOD	97.8	75-125			
2-Hexanone (MBK)	32.2	5	ug/L	50.0	BLOD	64.4	55-130			
4-Chlorotoluene	48.2	1	ug/L	50.0	BLOD	96.5	75-130			
4-Isopropyltoluene	48.8	1	ug/L	50.0	BLOD	97.6	75-130			
4-Methyl-2-pentanone (MIBK)	50.1	5	ug/L	50.0	6.44	87.2	60-135			
Acetone	35.3	10	ug/L	50.0	BLOD	70.6	40-140			
Benzene	379	1	ug/L	50.0	334	89.6	80-120			
Bromobenzene	49.0	1	ug/L	50.0	BLOD	97.9	75-125			
Bromochloromethane	46.4	1	ug/L	50.0	BLOD	92.9	65-130			
Bromodichloromethane	48.5	0.5	ug/L	50.0	BLOD	97.0	75-136			
Bromoform	35.8	1	ug/L	50.0	BLOD	71.7	70-130			
Bromomethane	61.8	1	ug/L	50.0	BLOD	124	30-145			
Carbon disulfide	51.6	10	ug/L	50.0	BLOD	101	35-160			
Carbon tetrachloride	40.1	1	ug/L	50.0	BLOD	80.2	65-140			

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Enthalpy Analytical

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Batch BGK0405 - SW5030B-MS

Matrix Spike (BGK0405-MS1)

Source: 23K0389-01

Prepared & Analyzed: 11/09/2023

Chlorobenzene	49.6	1	ug/L	50.0	4.06	91.0	80-120			
Chloroethane	48.4	1	ug/L	50.0	BLOD	96.8	60-135			
Chloroform	147	0.5	ug/L	50.0	104	86.5	65-135			
Chloromethane	42.0	1	ug/L	50.0	BLOD	83.9	40-125			
cis-1,2-Dichloroethylene	7110	1	ug/L	50.0	7290	-346	70-125			M
cis-1,3-Dichloropropene	55.9	1	ug/L	50.0	BLOD	112	47-136			
Dibromochloromethane	51.8	0.5	ug/L	50.0	BLOD	104	60-135			
Dibromomethane	55.0	1	ug/L	50.0	BLOD	110	75-125			
Dichlorodifluoromethane	82.9	1	ug/L	50.0	BLOD	166	30-155			M
Ethylbenzene	77.4	1	ug/L	50.0	45.5	63.8	75-125			M
Hexachlorobutadiene	54.2	0.8	ug/L	50.0	BLOD	108	50-140			
Isopropylbenzene	47.9	1	ug/L	50.0	4.13	87.6	75-125			
m+p-Xylenes	174	2	ug/L	100	109	64.6	75-130			M
Methylene chloride	50.6	4	ug/L	50.0	BLOD	95.9	55-140			
Methyl-t-butyl ether (MTBE)	41.2	1	ug/L	50.0	BLOD	82.3	65-125			
Naphthalene	55.8	1	ug/L	50.0	4.40	103	55-140			
n-Butylbenzene	47.2	1	ug/L	50.0	BLOD	94.4	70-135			
n-Propylbenzene	52.5	1	ug/L	50.0	3.71	97.6	70-130			
o-Xylene	95.2	1	ug/L	50.0	64.1	62.1	80-120			M
sec-Butylbenzene	46.8	1	ug/L	50.0	BLOD	93.5	70-125			
Styrene	43.9	1	ug/L	50.0	BLOD	87.8	65-135			
tert-Butylbenzene	47.4	1	ug/L	50.0	BLOD	94.9	70-130			
Tetrachloroethylene (PCE)	50.0	1	ug/L	50.0	BLOD	100	51-231			
Toluene	141	1	ug/L	50.0	92.5	97.5	75-120			
trans-1,2-Dichloroethylene	241	1	ug/L	50.0	195	93.3	60-140			

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0405 - SW5030B-MS

Matrix Spike (BGK0405-MS1)

Source: 23K0389-01

Prepared & Analyzed: 11/09/2023

trans-1,3-Dichloropropene	56.3	1	ug/L	50.0	BLOD	113	55-140			
Trichloroethylene	349	1	ug/L	50.0	293	112	70-125			
Trichlorofluoromethane	54.5	1	ug/L	50.0	BLOD	109	60-145			
Vinyl chloride	3170	0.5	ug/L	50.0	3150	57.5	50-145			
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>39.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>78.0</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>42.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>83.9</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>41.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>83.2</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>47.2</i>		<i>ug/L</i>	<i>50.0</i>		<i>94.3</i>	<i>70-130</i>			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0314 - SW3510C/EPA600-MS

Matrix Spike (BGK0314-MS1)	Source: 23K0321-15			Prepared & Analyzed: 11/09/2023						
1,2,4-Trichlorobenzene	25.0	10.0	ug/L	50.0	BLOD	50.0	44-142			
1,2-Dichlorobenzene	26.2	10.0	ug/L	50.0	BLOD	52.5	22-115			
1,3-Dichlorobenzene	25.1	10.0	ug/L	50.0	BLOD	50.2	22-112			
1,4-Dichlorobenzene	26.6	10.0	ug/L	50.0	BLOD	53.3	13-112			
2,4,6-Trichlorophenol	26.1	10.0	ug/L	50.0	BLOD	52.3	37-144			
2,4-Dichlorophenol	27.8	10.0	ug/L	50.0	BLOD	55.5	39-135			
2,4-Dimethylphenol	28.9	5.00	ug/L	50.0	BLOD	57.8	32-120			
2,4-Dinitrophenol	22.1	50.0	ug/L	50.0	BLOD	44.3	39-139			
2,4-Dinitrotoluene	30.4	10.0	ug/L	50.0	BLOD	60.7	10-191			
2,6-Dinitrotoluene	30.4	10.0	ug/L	50.0	BLOD	60.7	50-158			
2-Chloronaphthalene	26.8	10.0	ug/L	50.0	BLOD	53.6	60-120			M
2-Chlorophenol	22.7	10.0	ug/L	50.0	BLOD	45.3	23-134			
2-Nitrophenol	28.4	10.0	ug/L	50.0	BLOD	56.7	29-182			
3,3'-Dichlorobenzidine	46.8	10.0	ug/L	50.0	BLOD	93.5	10-262			
4,6-Dinitro-2-methylphenol	34.0	50.0	ug/L	50.0	BLOD	67.9	10-181			
4-Bromophenyl phenyl ether	30.1	10.0	ug/L	50.0	BLOD	60.1	53-127			
4-Chlorophenyl phenyl ether	31.7	10.0	ug/L	50.0	BLOD	63.4	25-158			
4-Nitrophenol	12.3	50.0	ug/L	50.0	BLOD	24.5	10-132			
Acenaphthene	28.4	10.0	ug/L	50.0	BLOD	56.9	47-145			
Acenaphthylene	33.4	10.0	ug/L	50.0	BLOD	66.8	33-145			
Acetophenone	27.5	20.0	ug/L	50.0	BLOD	55.0	0-200			
Anthracene	38.2	10.0	ug/L	50.0	BLOD	76.3	27-133			
Benzo (a) anthracene	39.2	10.0	ug/L	50.0	BLOD	78.4	33-143			
Benzo (a) pyrene	40.1	10.0	ug/L	50.0	BLOD	80.1	17-163			
Benzo (b) fluoranthene	39.6	10.0	ug/L	50.0	BLOD	79.1	24-159			

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Batch BGK0314 - SW3510C/EPA600-MS

Matrix Spike (BGK0314-MS1)
Source: 23K0321-15
Prepared & Analyzed: 11/09/2023

Benzo (g,h,i) perylene	41.1	10.0	ug/L	50.0	BLOD	82.2	10-219			
Benzo (k) fluoranthene	36.4	10.0	ug/L	50.0	BLOD	72.9	11-162			
bis (2-Chloroethoxy) methane	29.2	10.0	ug/L	50.0	BLOD	58.5	33-184			
bis (2-Chloroethyl) ether	31.2	10.0	ug/L	50.0	BLOD	62.4	12-158			
2,2'-Oxybis (1-chloropropane)	26.9	10.0	ug/L	50.0	BLOD	53.7	36-166			
bis (2-Ethylhexyl) phthalate	44.1	10.0	ug/L	50.0	BLOD	88.2	10-158			
Butyl benzyl phthalate	44.5	10.0	ug/L	50.0	BLOD	89.0	10-152			
Chrysene	40.5	10.0	ug/L	50.0	BLOD	80.9	17-169			
Dibenz (a,h) anthracene	42.5	10.0	ug/L	50.0	BLOD	85.0	10-227			
Diethyl phthalate	35.6	10.0	ug/L	50.0	BLOD	71.1	10-120			
Dimethyl phthalate	30.5	10.0	ug/L	50.0	BLOD	60.9	10-120			
Di-n-butyl phthalate	49.9	10.0	ug/L	50.0	BLOD	99.7	10-120			
Di-n-octyl phthalate	41.2	10.0	ug/L	50.0	BLOD	82.5	10-146			
Fluoranthene	43.3	10.0	ug/L	50.0	BLOD	86.6	26-137			
Fluorene	36.9	10.0	ug/L	50.0	BLOD	73.8	59-121			
Hexachlorobenzene	22.9	1.00	ug/L	50.0	BLOD	45.8	10-152			
Hexachlorobutadiene	27.1	10.0	ug/L	50.0	BLOD	54.3	24-120			
Hexachlorocyclopentadiene	13.8	10.0	ug/L	50.0	BLOD	27.7	10-90			
Hexachloroethane	25.5	10.0	ug/L	50.0	BLOD	50.9	40-120			
Indeno (1,2,3-cd) pyrene	42.3	10.0	ug/L	50.0	BLOD	84.7	10-171			
Isophorone	20.6	10.0	ug/L	50.0	BLOD	41.2	21-196			
Naphthalene	31.0	5.00	ug/L	50.0	BLOD	62.1	21-133			
Nitrobenzene	26.9	10.0	ug/L	50.0	BLOD	53.7	35-180			
n-Nitrosodimethylamine	17.9	10.0	ug/L	50.0	BLOD	35.8	10-85			
n-Nitrosodi-n-propylamine	27.0	10.0	ug/L	50.0	BLOD	54.0	10-230			

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Batch BGK0314 - SW3510C/EPA600-MS

Matrix Spike (BGK0314-MS1)

Source: 23K0321-15

Prepared & Analyzed: 11/09/2023

n-Nitrosodiphenylamine	27.2	10.0	ug/L	50.0	BLOD	54.4	12-111			
p-Chloro-m-cresol	28.3	10.0	ug/L	50.0	BLOD	56.6	10-127			
Pentachlorophenol	39.2	20.0	ug/L	50.0	BLOD	78.5	14-176			
Phenanthrene	44.1	10.0	ug/L	50.0	BLOD	88.2	54-120			
Phenol	11.9	10.0	ug/L	50.5	BLOD	23.6	10-120			
Pyrene	41.8	10.0	ug/L	50.0	BLOD	83.5	52-120			
Pyridine	23.0	10.0	ug/L	50.0	BLOD	46.1	10-110			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	59.4		ug/L	100		59.4	5-136			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	26.1		ug/L	50.0		52.3	9-117			
<i>Surr: 2-Fluorophenol (Surr)</i>	32.8		ug/L	100		32.8	5-60			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	25.1		ug/L	50.0		50.2	5-151			
<i>Surr: Phenol-d5 (Surr)</i>	20.8		ug/L	100		20.8	5-60			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	27.0		ug/L	50.0		53.9	5-141			

Matrix Spike Dup (BGK0314-MSD1)

Source: 23K0321-15

Prepared & Analyzed: 11/09/2023

1,2,4-Trichlorobenzene	26.7	10.0	ug/L	50.0	BLOD	53.4	44-142	6.57	20	
1,2-Dichlorobenzene	28.2	10.0	ug/L	50.0	BLOD	56.4	22-115	7.31	20	
1,3-Dichlorobenzene	27.0	10.0	ug/L	50.0	BLOD	53.9	22-112	7.07	20	
1,4-Dichlorobenzene	28.6	10.0	ug/L	50.0	BLOD	57.2	13-112	7.13	20	
2,4,6-Trichlorophenol	26.9	10.0	ug/L	50.0	BLOD	53.7	37-144	2.79	20	
2,4-Dichlorophenol	30.4	10.0	ug/L	50.0	BLOD	60.9	39-135	9.21	20	
2,4-Dimethylphenol	31.0	5.00	ug/L	50.0	BLOD	62.0	32-120	7.11	20	
2,4-Dinitrophenol	22.4	50.0	ug/L	50.0	BLOD	44.7	39-139	0.989	20	
2,4-Dinitrotoluene	30.5	10.0	ug/L	50.0	BLOD	61.0	10-191	0.493	20	
2,6-Dinitrotoluene	30.5	10.0	ug/L	50.0	BLOD	61.0	50-158	0.493	20	

Certificate of Analysis

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Date Issued: 11/30/2023 3:48:54PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0314 - SW3510C/EPA600-MS

Matrix Spike Dup (BGK0314-MSD1)	Source: 23K0321-15			Prepared & Analyzed: 11/09/2023						
2-Chloronaphthalene	28.2	10.0	ug/L	50.0	BLOD	56.4	60-120	5.20	20	M
2-Chlorophenol	24.7	10.0	ug/L	50.0	BLOD	49.4	23-134	8.57	20	
2-Nitrophenol	31.6	10.0	ug/L	50.0	BLOD	63.2	29-182	10.8	20	
3,3'-Dichlorobenzidine	42.4	10.0	ug/L	50.0	BLOD	84.9	10-262	9.66	20	
4,6-Dinitro-2-methylphenol	30.3	50.0	ug/L	50.0	BLOD	60.7	10-181	11.3	20	
4-Bromophenyl phenyl ether	30.2	10.0	ug/L	50.0	BLOD	60.4	53-127	0.365	20	
4-Chlorophenyl phenyl ether	31.5	10.0	ug/L	50.0	BLOD	62.9	25-158	0.728	20	
4-Nitrophenol	11.2	50.0	ug/L	50.0	BLOD	22.4	10-132	9.13	20	
Acenaphthene	29.5	10.0	ug/L	50.0	BLOD	59.0	47-145	3.62	20	
Acenaphthylene	34.4	10.0	ug/L	50.0	BLOD	68.7	33-145	2.83	20	
Acetophenone	29.8	20.0	ug/L	50.0	BLOD	59.5	0-200	7.86	20	
Anthracene	38.5	10.0	ug/L	50.0	BLOD	77.0	27-133	0.939	20	
Benzo (a) anthracene	36.6	10.0	ug/L	50.0	BLOD	73.1	33-143	6.94	20	
Benzo (a) pyrene	37.8	10.0	ug/L	50.0	BLOD	75.6	17-163	5.78	20	
Benzo (b) fluoranthene	36.6	10.0	ug/L	50.0	BLOD	73.3	24-159	7.64	20	
Benzo (g,h,i) perylene	39.5	10.0	ug/L	50.0	BLOD	79.0	10-219	3.94	20	
Benzo (k) fluoranthene	35.2	10.0	ug/L	50.0	BLOD	70.3	11-162	3.63	20	
bis (2-Chloroethoxy) methane	29.4	10.0	ug/L	50.0	BLOD	58.7	33-184	0.444	20	
bis (2-Chloroethyl) ether	34.5	10.0	ug/L	50.0	BLOD	69.0	12-158	10.1	20	
2,2'-Oxybis (1-chloropropane)	30.8	10.0	ug/L	50.0	BLOD	61.5	36-166	13.5	20	
bis (2-Ethylhexyl) phthalate	39.3	10.0	ug/L	50.0	BLOD	78.6	10-158	11.4	20	
Butyl benzyl phthalate	41.4	10.0	ug/L	50.0	BLOD	82.7	10-152	7.27	20	
Chrysene	37.7	10.0	ug/L	50.0	BLOD	75.5	17-169	6.96	20	
Dibenz (a,h) anthracene	41.2	10.0	ug/L	50.0	BLOD	82.4	10-227	3.13	20	
Diethyl phthalate	33.5	10.0	ug/L	50.0	BLOD	67.0	10-120	5.91	20	

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0314 - SW3510C/EPA600-MS

Matrix Spike Dup (BGK0314-MSD1)

Source: 23K0321-15

Prepared & Analyzed: 11/09/2023

Dimethyl phthalate	30.0	10.0	ug/L	50.0	BLOD	60.0	10-120	1.46	20	
Di-n-butyl phthalate	45.0	10.0	ug/L	50.0	BLOD	90.1	10-120	10.1	20	
Di-n-octyl phthalate	38.0	10.0	ug/L	50.0	BLOD	75.9	10-146	8.31	20	
Fluoranthene	41.6	10.0	ug/L	50.0	BLOD	83.2	26-137	4.07	20	
Fluorene	36.4	10.0	ug/L	50.0	BLOD	72.8	59-121	1.39	20	
Hexachlorobenzene	22.5	1.00	ug/L	50.0	BLOD	45.0	10-152	1.72	20	
Hexachlorobutadiene	29.0	10.0	ug/L	50.0	BLOD	58.0	24-120	6.56	20	
Hexachlorocyclopentadiene	15.6	10.0	ug/L	50.0	BLOD	31.3	10-90	12.1	20	
Hexachloroethane	29.2	10.0	ug/L	50.0	BLOD	58.4	40-120	13.7	20	
Indeno (1,2,3-cd) pyrene	39.0	10.0	ug/L	50.0	BLOD	78.0	10-171	8.19	20	
Isophorone	21.4	10.0	ug/L	50.0	BLOD	42.9	21-196	3.95	20	
Naphthalene	32.4	5.00	ug/L	50.0	BLOD	64.8	21-133	4.32	20	
Nitrobenzene	28.5	10.0	ug/L	50.0	BLOD	57.1	35-180	6.03	20	
n-Nitrosodimethylamine	19.4	10.0	ug/L	50.0	BLOD	38.7	10-85	7.84	20	
n-Nitrosodi-n-propylamine	28.8	10.0	ug/L	50.0	BLOD	57.7	10-230	6.59	20	
n-Nitrosodiphenylamine	25.5	10.0	ug/L	50.0	BLOD	50.9	12-111	6.68	20	
p-Chloro-m-cresol	28.9	10.0	ug/L	50.0	BLOD	57.8	10-127	1.99	20	
Pentachlorophenol	36.2	20.0	ug/L	50.0	BLOD	72.3	14-176	8.20	20	
Phenanthrene	43.7	10.0	ug/L	50.0	BLOD	87.4	54-120	0.934	20	
Phenol	14.8	10.0	ug/L	50.5	BLOD	29.2	10-120	21.1	20	P
Pyrene	38.8	10.0	ug/L	50.0	BLOD	77.5	52-120	7.43	20	
Pyridine	14.4	10.0	ug/L	50.0	BLOD	28.8	10-110	46.2	20	P
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>62.1</i>		ug/L	<i>100</i>		<i>62.1</i>	<i>5-136</i>			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	<i>28.3</i>		ug/L	<i>50.0</i>		<i>56.7</i>	<i>9-117</i>			
<i>Surr: 2-Fluorophenol (Surr)</i>	<i>38.0</i>		ug/L	<i>100</i>		<i>38.0</i>	<i>5-60</i>			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0314 - SW3510C/EPA600-MS

Matrix Spike Dup (BGK0314-MSD1) **Source: 23K0321-15** Prepared & Analyzed: 11/09/2023

<i>Surr: Nitrobenzene-d5 (Surr)</i>	27.9		ug/L	50.0		55.8	5-151
<i>Surr: Phenol-d5 (Surr)</i>	23.4		ug/L	100		23.4	5-60
<i>Surr: p-Terphenyl-d14 (Surr)</i>	25.8		ug/L	50.0		51.5	5-141

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0310 - No Prep Wet Chem										
Blank (BGK0310-BLK1)				Prepared & Analyzed: 11/08/2023						
BOD	ND	2.0	mg/L							
LCS (BGK0310-BS1)				Prepared & Analyzed: 11/08/2023						
BOD	195	2	mg/L	198		98.5	84.6-115.4			
Duplicate (BGK0310-DUP1)				Source: 23K0225-01		Prepared & Analyzed: 11/08/2023				
BOD	ND	2.0	mg/L		BLOD			NA	20	
Batch BGK0347 - No Prep Wet Chem										
Blank (BGK0347-BLK1)				Prepared & Analyzed: 11/08/2023						
Nitrite as N	ND	0.05	mg/L							
LCS (BGK0347-BS1)				Prepared & Analyzed: 11/08/2023						
Nitrite as N	0.10	0.05	mg/L	0.100		99.0	80-120			
Matrix Spike (BGK0347-MS1)				Source: 23K0312-01		Prepared & Analyzed: 11/08/2023				
Nitrite as N	0.11	0.05	mg/L	0.100	BLOD	112	80-120			
Matrix Spike Dup (BGK0347-MSD1)				Source: 23K0312-01		Prepared & Analyzed: 11/08/2023				
Nitrite as N	0.11	0.05	mg/L	0.100	BLOD	109	80-120	2.71	20	
Batch BGK0388 - No Prep Wet Chem										
Blank (BGK0388-BLK1)				Prepared & Analyzed: 11/09/2023						
BOD	ND	2.0	mg/L							

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0388 - No Prep Wet Chem										
LCS (BGK0388-BS1)				Prepared & Analyzed: 11/09/2023						
BOD	187	2	mg/L	198		94.4	84.6-115.4			
Duplicate (BGK0388-DUP1)				Source: 23K0263-01 Prepared & Analyzed: 11/09/2023						
BOD	ND	2.0	mg/L		2.4			NA	20	
Batch BGK0504 - No Prep Wet Chem										
Blank (BGK0504-BLK1)				Prepared & Analyzed: 11/13/2023						
Total Recoverable Phenolics	ND	0.050	mg/L							
LCS (BGK0504-BS1)				Prepared & Analyzed: 11/13/2023						
Total Recoverable Phenolics	0.42	0.050	mg/L	0.505		83.6	80-120			
Matrix Spike (BGK0504-MS1)				Source: 23J1488-01 Prepared & Analyzed: 11/13/2023						
Total Recoverable Phenolics	0.50	0.050	mg/L	0.500	BLOD	101	70-130			
Matrix Spike Dup (BGK0504-MSD1)				Source: 23J1488-01 Prepared & Analyzed: 11/13/2023						
Total Recoverable Phenolics	0.44	0.050	mg/L	0.500	BLOD	87.6	70-130	14.0	20	
Batch BGK0588 - No Prep Wet Chem										
Blank (BGK0588-BLK1)				Prepared & Analyzed: 11/14/2023						
COD	ND	10.0	mg/L							
LCS (BGK0588-BS1)				Prepared & Analyzed: 11/14/2023						
COD	49.4	10.0	mg/L	50.0		98.8	88-119			

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0588 - No Prep Wet Chem										
Matrix Spike (BGK0588-MS1)		Source: 23K0343-01			Prepared & Analyzed: 11/14/2023					
COD	51.0	10.0	mg/L	50.0	BLOD	102	72.4-130			
Matrix Spike Dup (BGK0588-MSD1)		Source: 23K0343-01			Prepared & Analyzed: 11/14/2023					
COD	50.4	10.0	mg/L	50.0	BLOD	101	72.4-130	1.26	20	
Batch BGK0600 - No Prep Wet Chem										
Blank (BGK0600-BLK1)					Prepared & Analyzed: 11/14/2023					
Cyanide	ND	0.01	mg/L							
LCS (BGK0600-BS1)					Prepared & Analyzed: 11/14/2023					
Cyanide	0.23	0.01	mg/L	0.250		90.1	80-120			
Matrix Spike (BGK0600-MS1)		Source: 23K0260-01			Prepared & Analyzed: 11/14/2023					
Cyanide	0.25	0.01	mg/L	0.250	BLOD	98.2	80-120			
Matrix Spike (BGK0600-MS2)		Source: 23K0407-01			Prepared & Analyzed: 11/14/2023					
Cyanide	0.23	0.01	mg/L	0.250	BLOD	93.0	80-120			
Matrix Spike Dup (BGK0600-MSD1)		Source: 23K0260-01			Prepared & Analyzed: 11/14/2023					
Cyanide	0.25	0.01	mg/L	0.250	BLOD	98.3	80-120	0.121	20	
Matrix Spike Dup (BGK0600-MSD2)		Source: 23K0407-01			Prepared & Analyzed: 11/14/2023					
Cyanide	0.24	0.01	mg/L	0.250	BLOD	95.4	80-120	2.58	20	
Batch BGK0789 - No Prep Wet Chem										
Blank (BGK0789-BLK1)					Prepared & Analyzed: 11/17/2023					
COD	ND	10.0	mg/L							

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0789 - No Prep Wet Chem										
LCS (BGK0789-BS1)				Prepared & Analyzed: 11/17/2023						
COD	46.8	10.0	mg/L	50.0		93.6	88-119			
Matrix Spike (BGK0789-MS1)				Source: 23K0722-01 Prepared & Analyzed: 11/17/2023						
COD	48.4	10.0	mg/L	50.0	BLOD	96.8	72.4-130			
Matrix Spike Dup (BGK0789-MSD1)				Source: 23K0722-01 Prepared & Analyzed: 11/17/2023						
COD	48.4	10.0	mg/L	50.0	BLOD	96.8	72.4-130	0.00	20	
Batch BGK0814 - No Prep Wet Chem										
Blank (BGK0814-BLK1)				Prepared & Analyzed: 11/17/2023						
TKN as N	ND	0.50	mg/L							
LCS (BGK0814-BS1)				Prepared & Analyzed: 11/17/2023						
TKN as N	5.19	0.50	mg/L	5.00		104	90-110			
Matrix Spike (BGK0814-MS1)				Source: 23K0326-01 Prepared & Analyzed: 11/17/2023						
TKN as N	4.26	0.50	mg/L	5.00	BLOD	85.2	90-110			M
Matrix Spike (BGK0814-MS2)				Source: 23K0380-01 Prepared & Analyzed: 11/17/2023						
TKN as N	5.70	0.50	mg/L	5.00	0.66	101	90-110			
Matrix Spike Dup (BGK0814-MSD1)				Source: 23K0326-01 Prepared & Analyzed: 11/17/2023						
TKN as N	4.16	0.50	mg/L	5.00	BLOD	83.2	90-110	2.37	20	M
Matrix Spike Dup (BGK0814-MSD2)				Source: 23K0380-01 Prepared & Analyzed: 11/17/2023						
TKN as N	5.84	0.50	mg/L	5.00	0.66	103	90-110	2.38	20	

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0867 - No Prep Wet Chem										
Blank (BGK0867-BLK1)				Prepared & Analyzed: 11/20/2023						
Nitrate+Nitrite as N	ND	0.10	mg/L							
LCS (BGK0867-BS1)				Prepared & Analyzed: 11/20/2023						
Nitrate+Nitrite as N	1.01	0.1	mg/L	1.00		101	90-110			
Matrix Spike (BGK0867-MS1)				Source: 23K0399-02 Prepared & Analyzed: 11/20/2023						
Nitrate+Nitrite as N	0.97	0.1	mg/L	1.00	BLOD	92.2	90-120			
Matrix Spike (BGK0867-MS2)				Source: 23K0324-02 Prepared & Analyzed: 11/20/2023						
Nitrate+Nitrite as N	1.03	0.1	mg/L	1.00	0.13	90.1	90-120			
Matrix Spike Dup (BGK0867-MSD1)				Source: 23K0399-02 Prepared & Analyzed: 11/20/2023						
Nitrate+Nitrite as N	0.95	0.1	mg/L	1.00	BLOD	90.2	90-120	2.15	20	
Matrix Spike Dup (BGK0867-MSD2)				Source: 23K0324-02 Prepared & Analyzed: 11/20/2023						
Nitrate+Nitrite as N	1.02	0.1	mg/L	1.00	0.13	89.4	90-120	0.704	20	M
Batch BGK0887 - No Prep Wet Chem										
Blank (BGK0887-BLK1)				Prepared & Analyzed: 11/20/2023						
Ammonia as N	ND	0.10	mg/L							
LCS (BGK0887-BS1)				Prepared & Analyzed: 11/20/2023						
Ammonia as N	0.99	0.1	mg/L	1.00		99.2	90-110			
Matrix Spike (BGK0887-MS1)				Source: 23K0326-02 Prepared & Analyzed: 11/20/2023						
Ammonia as N	1.04	0.1	mg/L	1.00	BLOD	102	89.3-131			

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0887 - No Prep Wet Chem										
Matrix Spike (BGK0887-MS2)		Source: 23K0324-06			Prepared & Analyzed: 11/20/2023					
Ammonia as N	1.05	0.1	mg/L	1.00	BLOD	104	89.3-131			
Matrix Spike Dup (BGK0887-MSD1)		Source: 23K0326-02			Prepared & Analyzed: 11/20/2023					
Ammonia as N	1.05	0.1	mg/L	1.00	BLOD	103	89.3-131	0.862	20	
Matrix Spike Dup (BGK0887-MSD2)		Source: 23K0324-06			Prepared & Analyzed: 11/20/2023					
Ammonia as N	1.04	0.1	mg/L	1.00	BLOD	103	89.3-131	0.858	20	

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Analytical Summary

23K0323-01 Subcontract
 23K0323-02 Subcontract
 23K0323-03 Subcontract
 23K0323-04 Subcontract

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: EPA200.8 R5.4		
23K0323-01	50.0 mL / 50.0 mL	SW6020B	BGK0385	SGK0654	AK30267
23K0323-02	50.0 mL / 50.0 mL	SW6020B	BGK0385	SGK0654	AK30267
23K0323-03	50.0 mL / 50.0 mL	SW6020B	BGK0385	SGK0654	AK30267
23K0323-04	50.0 mL / 50.0 mL	SW6020B	BGK0385	SGK0654	AK30267

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method: No Prep Wet Chem		
23K0323-01	300 mL / 300 mL	SM5210B-2016	BGK0310	SGK0521	
23K0323-02	300 mL / 300 mL	SM5210B-2016	BGK0310	SGK0521	
23K0323-01	5.00 mL / 25.0 mL	SM4500-NO2B-2011	BGK0347	SGK0332	AJ30297
23K0323-02	5.00 mL / 25.0 mL	SM4500-NO2B-2011	BGK0347	SGK0332	AJ30297
23K0323-03	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0347	SGK0332	AJ30297
23K0323-04	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0347	SGK0332	AJ30297
23K0323-03	300 mL / 300 mL	SM5210B-2016	BGK0388	SGK0566	
23K0323-04	300 mL / 300 mL	SM5210B-2016	BGK0388	SGK0566	
23K0323-01	1.00 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
23K0323-02	0.250 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
23K0323-03	0.250 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
23K0323-04	0.200 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
23K0323-01	2.00 mL / 2.00 mL	SM5220D-2011	BGK0588	SGK0549	AJ30254
23K0323-02	2.00 mL / 2.00 mL	SM5220D-2011	BGK0588	SGK0549	AJ30254

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
23K0323-01	6.00 mL / 6.00 mL	SW9012B	BGK0600	SGK0561	AK30250
23K0323-02	6.00 mL / 6.00 mL	SW9012B	BGK0600	SGK0561	AK30250
23K0323-03	6.00 mL / 6.00 mL	SW9012B	BGK0600	SGK0561	AK30250
23K0323-04	6.00 mL / 6.00 mL	SW9012B	BGK0600	SGK0561	AK30250
23K0323-03	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
23K0323-04	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
23K0323-01	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0814	SGK0769	AK30287
23K0323-02	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0814	SGK0769	AK30287
23K0323-03	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0814	SGK0769	AK30287
23K0323-04	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0814	SGK0769	AK30287
23K0323-01	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0867	SGK0804	AK30293
23K0323-02	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0867	SGK0804	AK30293
23K0323-03	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0867	SGK0804	AK30293
23K0323-03RE1	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0867	SGK0804	AK30293
23K0323-04	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0867	SGK0804	AK30293
23K0323-04RE1	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0867	SGK0804	AK30293
23K0323-01	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0887	SGK0819	AK30295
23K0323-02	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0887	SGK0819	AK30295
23K0323-03	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0887	SGK0819	AK30295
23K0323-04	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0887	SGK0819	AK30295

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3510C/EPA600-MS	
23K0323-01	500 mL / 0.500 mL	SW8270E	BGK0314	SGK0417	AK30208
23K0323-02	500 mL / 0.500 mL	SW8270E	BGK0314	SGK0417	AK30208
23K0323-03	500 mL / 2.00 mL	SW8270E	BGK0314	SGK0417	AK30208
23K0323-04	500 mL / 2.00 mL	SW8270E	BGK0314	SGK0417	AK30208

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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 Submitted To: Jennifer Robb

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
23K0323-01	5.00 mL / 5.00 mL	SW8260D	BGK0337	SGK0347	AK30209
23K0323-02	5.00 mL / 5.00 mL	SW8260D	BGK0337	SGK0347	AK30209
23K0323-03	5.00 mL / 5.00 mL	SW8260D	BGK0337	SGK0347	AK30209
23K0323-04	5.00 mL / 5.00 mL	SW8260D	BGK0337	SGK0347	AK30209
23K0323-05	5.00 mL / 5.00 mL	SW8260D	BGK0337	SGK0347	AK30209
23K0323-02RE1	5.00 mL / 5.00 mL	SW8260D	BGK0405	SGK0392	AE30265
23K0323-03RE1	5.00 mL / 5.00 mL	SW8260D	BGK0405	SGK0392	AE30265
23K0323-04RE1	5.00 mL / 5.00 mL	SW8260D	BGK0405	SGK0392	AE30265

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
23K0323-01	10.0 mL / 20.0 mL	SW7470A	BGK0431	SGK0452	AK30236
23K0323-02	20.0 mL / 20.0 mL	SW7470A	BGK0431	SGK0452	AK30236
23K0323-03	1.00 mL / 20.0 mL	SW7470A	BGK0431	SGK0452	AK30236
23K0323-04	1.00 mL / 20.0 mL	SW7470A	BGK0431	SGK0452	AK30236

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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QC Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
BGK0385-BLK1	50.0 mL / 50.0 mL	SW6020B	BGK0385	SGK0654	AK30267
BGK0385-BS1	50.0 mL / 50.0 mL	SW6020B	BGK0385	SGK0654	AK30267
BGK0385-MS1	50.0 mL / 50.0 mL	SW6020B	BGK0385	SGK0654	AK30267
BGK0385-MS2	50.0 mL / 50.0 mL	SW6020B	BGK0385	SGK0654	AK30267
BGK0385-MSD1	50.0 mL / 50.0 mL	SW6020B	BGK0385	SGK0654	AK30267
BGK0385-MSD2	50.0 mL / 50.0 mL	SW6020B	BGK0385	SGK0654	AK30267
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BGK0310-BLK1	300 mL / 300 mL	SM5210B-2016	BGK0310	SGK0521	
BGK0310-BS1	300 mL / 300 mL	SM5210B-2016	BGK0310	SGK0521	
BGK0310-DUP1	300 mL / 300 mL	SM5210B-2016	BGK0310	SGK0521	
BGK0347-BLK1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0347	SGK0332	AJ30297
BGK0347-BS1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0347	SGK0332	AJ30297
BGK0347-MRL1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0347	SGK0332	AJ30297
BGK0347-MS1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0347	SGK0332	AJ30297
BGK0347-MSD1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0347	SGK0332	AJ30297
BGK0388-BLK1	300 mL / 300 mL	SM5210B-2016	BGK0388	SGK0566	
BGK0388-BS1	300 mL / 300 mL	SM5210B-2016	BGK0388	SGK0566	
BGK0388-DUP1	300 mL / 300 mL	SM5210B-2016	BGK0388	SGK0566	
BGK0504-BLK1	5.00 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
BGK0504-BS1	5.00 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
BGK0504-MRL1	5.00 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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 Submitted To: Jennifer Robb

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BGK0504-MS1	5.00 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
BGK0504-MSD1	5.00 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
BGK0588-BLK1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0588	SGK0549	AJ30254
BGK0588-BS1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0588	SGK0549	AJ30254
BGK0588-MRL1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0588	SGK0549	AJ30254
BGK0588-MS1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0588	SGK0549	AJ30254
BGK0588-MSD1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0588	SGK0549	AJ30254
BGK0600-BLK1	6.00 mL / 6.00 mL	SW9012B	BGK0600	SGK0561	AK30250
BGK0600-BS1	6.00 mL / 6.00 mL	SW9012B	BGK0600	SGK0561	AK30250
BGK0600-MRL1	6.00 mL / 6.00 mL	SW9012B	BGK0600	SGK0561	AK30250
BGK0600-MS1	6.00 mL / 6.00 mL	SW9012B	BGK0600	SGK0561	AK30250
BGK0600-MS2	6.00 mL / 6.00 mL	SW9012B	BGK0600	SGK0561	AK30250
BGK0600-MSD1	6.00 mL / 6.00 mL	SW9012B	BGK0600	SGK0561	AK30250
BGK0600-MSD2	6.00 mL / 6.00 mL	SW9012B	BGK0600	SGK0561	AK30250
BGK0789-BLK1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0789-BS1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0789-MRL1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0789-MS1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0789-MSD1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0814-BLK1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0814	SGK0769	AK30287
BGK0814-BS1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0814	SGK0769	AK30287
BGK0814-MRL1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0814	SGK0769	AK30287
BGK0814-MS1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0814	SGK0769	AK30287
BGK0814-MS2	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0814	SGK0769	AK30287
BGK0814-MSD1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0814	SGK0769	AK30287
BGK0814-MSD2	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0814	SGK0769	AK30287
BGK0867-BLK1	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0867	SGK0804	AK30293
BGK0867-BS1	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0867	SGK0804	AK30293
BGK0867-MS1	20.0 mL / 20.0 mL	SM4500-NO3F-2016	BGK0867	SGK0804	AK30293

Certificate of Analysis

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BGK0867-MS2	20.0 mL / 20.0 mL	SM4500-NO3F-2016	BGK0867	SGK0804	AK30293
BGK0867-MSD1	20.0 mL / 20.0 mL	SM4500-NO3F-2016	BGK0867	SGK0804	AK30293
BGK0867-MSD2	20.0 mL / 20.0 mL	SM4500-NO3F-2016	BGK0867	SGK0804	AK30293
BGK0887-BLK1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0887	SGK0819	AK30295
BGK0887-BS1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0887	SGK0819	AK30295
BGK0887-MRL1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0887	SGK0819	AK30295
BGK0887-MS1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0887	SGK0819	AK30295
BGK0887-MS2	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0887	SGK0819	AK30295
BGK0887-MSD1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0887	SGK0819	AK30295
BGK0887-MSD2	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0887	SGK0819	AK30295

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3510C/EPA600-MS	
BGK0314-BLK1		SW8270E	BGK0314	SGK0354	AE30336
BGK0314-BLK2		SW8270E	BGK0314	SGK0418	AJ30390
BGK0314-BLK3		SW8270E	BGK0314	SGK0418	AJ30390
BGK0314-BLK4		SW8270E	BGK0314	SGK0418	AJ30390
BGK0314-BS1		SW8270E	BGK0314	SGK0354	AE30336
BGK0314-MRL1		SW8270E	BGK0314	SGK0418	AJ30390
BGK0314-MRL2		SW8270E	BGK0314	SGK0418	AJ30390
BGK0314-MRL3		SW8270E	BGK0314	SGK0418	AJ30390
BGK0314-MS1	1000 mL / 1.00 mL	SW8270E	BGK0314	SGK0417	AK30208
BGK0314-MSD1	1000 mL / 1.00 mL	SW8270E	BGK0314	SGK0417	AK30208

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method:	SW5030B-MS	
BGK0337-BLK1	5.00 mL / 5.00 mL	SW8260D	BGK0337	SGK0347	AK30209
BGK0337-BS1	5.00 mL / 5.00 mL	SW8260D	BGK0337	SGK0347	AK30209

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method:	SW5030B-MS	
BGK0337-MS1	5.00 mL / 5.00 mL	SW8260D	BGK0337	SGK0347	AK30209
BGK0337-MSD1	5.00 mL / 5.00 mL	SW8260D	BGK0337	SGK0347	AK30209
BGK0405-BLK1	5.00 mL / 5.00 mL	SW8260D	BGK0405	SGK0392	AE30265
BGK0405-BS1	5.00 mL / 5.00 mL	SW8260D	BGK0405	SGK0392	AE30265
BGK0405-DUP1	5.00 mL / 5.00 mL	SW8260D	BGK0405	SGK0392	AE30265
BGK0405-MS1	5.00 mL / 5.00 mL	SW8260D	BGK0405	SGK0392	AE30265

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	SW7470A	
BGK0431-BLK1	20.0 mL / 20.0 mL	SW7470A	BGK0431	SGK0452	AK30236
BGK0431-BS1	20.0 mL / 20.0 mL	SW7470A	BGK0431	SGK0452	AK30236
BGK0431-MS1	20.0 mL / 20.0 mL	SW7470A	BGK0431	SGK0452	AK30236
BGK0431-MSD1	20.0 mL / 20.0 mL	SW7470A	BGK0431	SGK0452	AK30236

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Certified Analyses included in this Report

Analyte	Certifications
<i>EPA350.1 R2.0 in Non-Potable Water</i>	
Ammonia as N	VELAP,NCDEQ,PADEP,WVDEP
<i>EPA351.2 R2.0 in Non-Potable Water</i>	
TKN as N	VELAP,NCDEQ,WVDEP
<i>SM4500-NO2B-2011 in Non-Potable Water</i>	
Nitrite as N	VELAP,WVDEP,NCDEQ
<i>SM4500-NO3F-2016 in Non-Potable Water</i>	
Nitrate+Nitrite as N	VELAP,WVDEP
<i>SM5210B-2016 in Non-Potable Water</i>	
BOD	VELAP,NCDEQ,WVDEP
<i>SM5220D-2011 in Non-Potable Water</i>	
COD	VELAP,NCDEQ,PADEP,WVDEP
<i>SW6020B in Non-Potable Water</i>	
Arsenic	VELAP,WVDEP
Barium	VELAP,WVDEP
Cadmium	VELAP,WVDEP
Chromium	VELAP,WVDEP
Copper	VELAP,WVDEP
Lead	VELAP,WVDEP
Nickel	VELAP,WVDEP
Selenium	VELAP,WVDEP
Silver	VELAP,WVDEP
Zinc	VELAP,WVDEP
<i>SW7470A in Non-Potable Water</i>	
Mercury	VELAP,NCDEQ,WVDEP

Certificate of Analysis

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Certified Analyses included in this Report

Analyte	Certifications
<i>SW8260D in Non-Potable Water</i>	
2-Butanone (MEK)	VELAP,NCDEQ,PADEP,WVDEP
Acetone	VELAP,NCDEQ,PADEP,WVDEP
Benzene	VELAP,NCDEQ,PADEP,WVDEP
Ethylbenzene	VELAP,NCDEQ,PADEP,WVDEP
m+p-Xylenes	VELAP,NCDEQ,PADEP,WVDEP
o-Xylene	VELAP,NCDEQ,PADEP,WVDEP
Toluene	VELAP,NCDEQ,PADEP,WVDEP
Xylenes, Total	VELAP,NCDEQ,PADEP,WVDEP
Tetrahydrofuran	VELAP,PADEP
<i>SW8270E in Non-Potable Water</i>	
Anthracene	VELAP,PADEP,NCDEQ,WVDEP
<i>SW9012B in Non-Potable Water</i>	
Cyanide	VELAP,WVDEP
<i>SW9065 in Non-Potable Water</i>	
Total Recoverable Phenolics	VELAP,WVDEP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Code	Description	Laboratory ID	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2023
NC	North Carolina DENR	495	12/31/2023
NCDEQ	North Carolina DEQ	495	12/31/2023
NCDOH	North Carolina Department of Health	51714	07/31/2024
NYDOH	New York DOH Drinking Water	12069	04/01/2024
PADEP	NELAP-Pennsylvania Certificate #009	68-03503	10/31/2024
SCDHEC	South Carolina Dept of Health and Environmental Control Certificate 93016001	93016	06/14/2024
TXCEQ	Texas Comm on Environmental Quality #T104704576-23-1	T104704576	05/31/2024
VELAP	NELAP-Virginia Certificate #12617	460021	06/14/2024
WVDEP	West Virginia DEP	350	11/30/2024

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Qualifiers and Definitions

CI	Residual Chlorine or other oxidizing agent was detected in the container used to analyze this sample.
DS	Surrogate concentration reflects a dilution factor.
J	The reported result is an estimated value.
M	Matrix spike recovery is outside established acceptance limits
P	Duplicate analysis does not meet the acceptance criteria for precision
RPD	Relative Percent Difference
Qual	Qualifiers
-RE	Denotes sample was re-analyzed
LOD	Limit of Detection
BLOD	Below Limit of Detection
LOQ	Limit of Quantitation
DF	Dilution Factor
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.
PCBs, Total	Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.



1941 REYMET ROAD
RICHMOND, VIRGINIA 23237
(804) 358-8295 PHONE
(804)358-8297 FAX

CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers	INVOICE TO: SAME	PROJECT NAME/Quote #:
CONTACT: Jennifer Robb	INVOICE CONTACT:	SITE NAME: 2023 City of Bristol Landfill
ADDRESS: 296 Victory Road	INVOICE ADDRESS:	PROJECT NUMBER: 02218208.15 Task 1
Winchester, VA 22602	INVOICE PHONE #:	P.O. #:
PHONE #: 703-471-6150	EMAIL: jrobb@scsengineers.com	Pretreatment Program:
Is sample for compliance reporting? YES NO	Regulatory State: V A	Is sample from a chlorinated supply? YES NO
PWS I.D. #:		
SAMPLER NAME (PRINT): A. Minnick	SAMPLER SIGNATURE:	Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)											COMMENTS
											Ammonia - EPA 350.1	BOD - SM22 5210B-2021	COD - SM22 5220D-2011	Cyanide - 9012B	Nitrate SM22 450-NO3F-2011 (report separately from Nitrite)	Nitrite SM22 450-NO3F-2011	SVOC (Anthracene) 8270	Total Metals (As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn) 6010	TKN - EPA 351.2 R2.0	Mercury - 7470	Total Recoverable Phenolics - 9065	
1) EW-78	X					110723	750		GW	3	X	X	X	X	X	X	X	X	X	X	X	<p>Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol</p> <p>Note VOC 8260 no HCl</p> <p>PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)</p>
2) EW-50	X					110723	810		GW	3	X	X	X	X	X	X	X	X	X	X	X	
3) EW-53	X					110723	905		GW	3	X	X	X	X	X	X	X	X	X	X	X	
4) EW-87	X					110723	935		GW	3	X	X	X	X	X	X	X	X	X	X	X	
5)									GW													
6)									GW													
7)									GW													
8)									GW													
9)									GW													
10) Trip Blank						110723	1335		DI	2											X	

RELINQUISHED:	DATE / TIME: 12/01/110723	RECEIVED: LCW	DATE / TIME:	QC Data Package	LAB USE ONLY Custody Seals used and intact? (Y/N)	Therm ID: 330	COOLER TEMP °C Received on ice? (Y/N)
RELINQUISHED: LCW	DATE / TIME:	RECEIVED:	DATE / TIME: 11/8/23	SCS-W	23K0323		
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	City of Bristol Semi-Annual			

Recd: 11/08/2023 Due: 11/22/2023

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Sample Preservation Log

Order ID 23K0323

Date Performed: 11-8-23

Analyst Performing Check: RCJ

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/808/508) PCB DW only			SVOC (525/6270/625)			CrVI * **		Post/PCB (508) / SVOC(525)		COD		Phenolics						
		pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	Received Res. Cl	final + or -	Received Res. Cl	final + or -	Received pH	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH					
		< 2	Other	> 12	Other	> 9	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	+	-	+	-			< 2	Other	< 2	Other							
01	A	7	<2																																	
01	B							7	<2	7	<2			7	<2												7	<2								
01	D			8	>12																															
01	F																													7	<2					
02	A	7	<2																																	
02	B							7	<2	7	<2			7	<2																					
02	D			8	>12																															
02	F																																			
03	A	7	<2																																	
03	B							7	<2	7	<2			7	<2																					
03	D			8	>12																															
03	F																																			
04	A	7	<2																																	
04	B							7	<2	7	<2			7	<2																					
04	D			7	>12																															

NaOH ID: 2H00468

HNO3 ID: 3K02234

CrVI preserved date/time: _____ Analyst Initials: _____

H2SO4 ID: 3K02567

Na2S2O3 ID: _____

* pH must be adjusted between 9.3 - 9.7

Ammonia Buffer Sol'n ID: _____

HCL ID: _____

Na2SO3 ID: _____

5N NaOH ID: _____

Metals were received with pH = 7 HNO3 was added on 08 Nov 2023 at 1207 by RCJ in the Log-In room to bring pH = <2.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: City of Bristol Landfill
Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

Laboratory Order ID: 23K0323

Sample Conditions Checklist

Samples Received at:	0.80°C
How were samples received?	
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	No
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?	Yes
Are all volatile organic and TOX containers free of headspace?	Yes
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.	Yes
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis. In addition, field parameters are always received outside holding time and will be marked accordingly.	No

*Metals (excepting Hg) were logged by 6020 per project history, which differs from the chain of custody (6010).

*H2SO4-preserved containers for all samples were received with a pH greater than 2, and H2SO4 was added to bring the pH to less than 2.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: City of Bristol Landfill
Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:54PM

*NaOH-preserved containers for all samples were received with a pH less than 12,
and NaOH was added to bring the pH to greater than 12.
Jennifer Robb notified via email. MRS 11/08/23 1423



November 30, 2023

Virginia Thrasher
Enthalpy
1941 Reymet Road
Richmond, VA 23237

RE: Project: 23K0323
Pace Project No.: 20296584

Dear Virginia Thrasher:

Enclosed are the analytical results for sample(s) received by the laboratory on November 10, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Baton Rouge

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh
ruth.welsh@pacelabs.com
(225) 678-1833
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 23K0323
 Pace Project No.: 20296584

Pace Analytical Services Baton Rouge

7979 Innovation Park Drive Ste A, Baton Rouge, LA
 70820-7402

Louisiana Dept of Environmental Quality (NELAC/LELAP):
 01979

Florida Dept of Health (NELAC/FELAP): E87854

DoD ELAP (A2LA) #: 6429.01

Alabama DEM #: 41900

Alaska DEC-DW #: LA00024

Alaska DEC CS-LAP #: 21-001

Arkansas DEQ #: 88-0655

California ELAP #: 3063

Georgia DPD #: C050

Hawaii DOH State Laboratories Division

Illinois EPA #: 200048

Kansas DoHE #: E-10354

Kentucky DEP UST Branch #: 123054

Louisiana DOH #: LA036

Minnesota DOH #: 2233799

Mississippi State Dept of Health

Montana Department of Environmental Quality

Nebraska DHHS #: NE-OS-35.21

Nevada DCNR DEP #: LA00024

New York DOH #: 12149

North Carolina DEQ - WW & GW #: 618

North Dakota DEQ #: R195

Ohio EPA #: 87782

Oklahoma Dept of Environmental Quality #: 9403

Oregon ELAP #: 4168

Pennsylvania Dept of Environmental Protection #: 68-
 05973

South Carolina DHEC #: 73006001

Texas CEQ #: T104704178-23-15

Utah DOH #: LA00024

Virginia DCLS #: 6460215

Washington Dept of Ecology #: C929

Wisconsin DNR #: 399139510

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SAMPLE SUMMARY

Project: 23K0323
Pace Project No.: 20296584

Lab ID	Sample ID	Matrix	Date Collected	Date Received
20296584001	23K0323-01: EW-78	Water	11/07/23 07:50	11/10/23 09:45
20296584002	23K0323-02: EW-50	Water	11/07/23 08:10	11/10/23 09:45
20296584003	23K0323-03: EW-53	Water	11/07/23 09:05	11/10/23 09:45
20296584004	23K0323-04: EW-87	Water	11/07/23 09:35	11/10/23 09:45

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SAMPLE ANALYTE COUNT

Project: 23K0323
Pace Project No.: 20296584

Lab ID	Sample ID	Method	Analysts	Analytes Reported
20296584001	23K0323-01: EW-78	Pace ENV-SOP-BTRO-0042	LHM	10
20296584002	23K0323-02: EW-50	Pace ENV-SOP-BTRO-0042	LHM	10
20296584003	23K0323-03: EW-53	Pace ENV-SOP-BTRO-0042	LHM	10
20296584004	23K0323-04: EW-87	Pace ENV-SOP-BTRO-0042	LHM	10

PASI-BR = Pace Analytical Services - Baton Rouge

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 23K0323
Pace Project No.: 20296584

Method: Pace ENV-SOP-BTRO-0042
Description: BR AM23G Low Level VFA
Client: BR-Enthalpy
Date: November 30, 2023

General Information:

4 samples were analyzed for Pace ENV-SOP-BTRO-0042 by Pace Analytical Services Baton Rouge. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 308769

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- 23K0323-01: EW-78 (Lab ID: 20296584001)

- Lactic Acid

- 23K0323-02: EW-50 (Lab ID: 20296584002)

- Lactic Acid

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- 23K0323-01: EW-78 (Lab ID: 20296584001)

- Hexanoic Acid

- i-Hexanoic Acid

- i-Pentanoic Acid

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 23K0323
Pace Project No.: 20296584

Method: Pace ENV-SOP-BTRO-0042
Description: BR AM23G Low Level VFA
Client: BR-Enthalpy
Date: November 30, 2023

Analyte Comments:

QC Batch: 308769

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- 23K0323-01: EW-78 (Lab ID: 20296584001)
 - Pentanoic Acid
- 23K0323-02: EW-50 (Lab ID: 20296584002)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- BLANK (Lab ID: 1478225)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- LCS (Lab ID: 1478226)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid

QC Batch: 309131

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- 23K0323-03: EW-53 (Lab ID: 20296584003)
 - Lactic Acid
- 23K0323-04: EW-87 (Lab ID: 20296584004)
 - Lactic Acid

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- 23K0323-03: EW-53 (Lab ID: 20296584003)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- 23K0323-04: EW-87 (Lab ID: 20296584004)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- BLANK (Lab ID: 1479986)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 23K0323
Pace Project No.: 20296584

Method: Pace ENV-SOP-BTRO-0042
Description: BR AM23G Low Level VFA
Client: BR-Enthalpy
Date: November 30, 2023

Analyte Comments:

QC Batch: 309131

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- LCS (Lab ID: 1479987)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- MS (Lab ID: 1479988)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- MSD (Lab ID: 1479989)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 23K0323
 Pace Project No.: 20296584

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: 23K0323-01: EW-78								
Lab ID: 20296584001 Collected: 11/07/23 07:50 Received: 11/10/23 09:45 Matrix: Water								
Analytical Method: Pace ENV-SOP-BTRO-0042 Pace Analytical Services - Baton Rouge								
Pentanoic Acid	ND	mg/L	250	500		11/22/23 04:28	109-52-4	N2
Acetic Acid	ND	mg/L	250	500		11/22/23 04:28	64-19-7	
Butyric Acid	ND	mg/L	250	500		11/22/23 04:28	107-92-6	
Formic acid	ND	mg/L	250	500		11/22/23 04:28	64-18-6	
Hexanoic Acid	ND	mg/L	250	500		11/22/23 04:28	142-62-1	N2
i-Hexanoic Acid	ND	mg/L	250	500		11/22/23 04:28	646-07-1	N2
Lactic Acid	ND	mg/L	250	500		11/22/23 04:28	50-21-5	D3
i-Pentanoic Acid	ND	mg/L	250	500		11/22/23 04:28	503-74-2	N2
Propionic Acid	ND	mg/L	250	500		11/22/23 04:28	79-09-4	
Pyruvic Acid	ND	mg/L	250	500		11/22/23 04:28	127-17-3	

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: 23K0323-02: EW-50								
Lab ID: 20296584002 Collected: 11/07/23 08:10 Received: 11/10/23 09:45 Matrix: Water								
Analytical Method: Pace ENV-SOP-BTRO-0042 Pace Analytical Services - Baton Rouge								
Pentanoic Acid	ND	mg/L	250	500		11/22/23 04:53	109-52-4	N2
Acetic Acid	ND	mg/L	250	500		11/22/23 04:53	64-19-7	
Butyric Acid	ND	mg/L	250	500		11/22/23 04:53	107-92-6	
Formic acid	ND	mg/L	250	500		11/22/23 04:53	64-18-6	
Hexanoic Acid	ND	mg/L	250	500		11/22/23 04:53	142-62-1	N2
i-Hexanoic Acid	ND	mg/L	250	500		11/22/23 04:53	646-07-1	N2
Lactic Acid	ND	mg/L	250	500		11/22/23 04:53	50-21-5	D3
i-Pentanoic Acid	ND	mg/L	250	500		11/22/23 04:53	503-74-2	N2
Propionic Acid	ND	mg/L	250	500		11/22/23 04:53	79-09-4	
Pyruvic Acid	ND	mg/L	250	500		11/22/23 04:53	127-17-3	

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
Sample: 23K0323-03: EW-53								
Lab ID: 20296584003 Collected: 11/07/23 09:05 Received: 11/10/23 09:45 Matrix: Water								
Analytical Method: Pace ENV-SOP-BTRO-0042 Pace Analytical Services - Baton Rouge								
Lactic Acid	968	mg/L	250	500		11/27/23 19:23	50-21-5	D3
Propionic Acid	2170	mg/L	250	500		11/27/23 19:23	79-09-4	
Formic acid	887	mg/L	250	500		11/27/23 19:23	64-18-6	
Butyric Acid	1670	mg/L	250	500		11/27/23 19:23	107-92-6	
Pyruvic Acid	ND	mg/L	250	500		11/27/23 19:23	127-17-3	
i-Pentanoic Acid	274	mg/L	250	500		11/27/23 19:23	503-74-2	N2
Pentanoic Acid	ND	mg/L	250	500		11/27/23 19:23	109-52-4	N2
i-Hexanoic Acid	ND	mg/L	250	500		11/27/23 19:23	646-07-1	N2
Hexanoic Acid	ND	mg/L	250	500		11/27/23 19:23	142-62-1	N2

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 23K0323
 Pace Project No.: 20296584

Sample: 23K0323-03: EW-53		Lab ID: 20296584003	Collected: 11/07/23 09:05	Received: 11/10/23 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

BR AM23G Low Level VFA
 Analytical Method: Pace ENV-SOP-BTRO-0042
 Pace Analytical Services - Baton Rouge

Acetic Acid	4950	mg/L	500	1000		11/28/23 15:07	64-19-7	
-------------	------	------	-----	------	--	----------------	---------	--

Sample: 23K0323-04: EW-87		Lab ID: 20296584004	Collected: 11/07/23 09:35	Received: 11/10/23 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

BR AM23G Low Level VFA
 Analytical Method: Pace ENV-SOP-BTRO-0042
 Pace Analytical Services - Baton Rouge

Lactic Acid	1170	mg/L	250	500		11/27/23 19:48	50-21-5	D3
Propionic Acid	3350	mg/L	250	500		11/27/23 19:48	79-09-4	
Formic acid	2130	mg/L	250	500		11/27/23 19:48	64-18-6	
Butyric Acid	2730	mg/L	250	500		11/27/23 19:48	107-92-6	
Pyruvic Acid	ND	mg/L	250	500		11/27/23 19:48	127-17-3	
i-Pentanoic Acid	355	mg/L	250	500		11/27/23 19:48	503-74-2	N2
Pentanoic Acid	289	mg/L	250	500		11/27/23 19:48	109-52-4	N2
i-Hexanoic Acid	ND	mg/L	250	500		11/27/23 19:48	646-07-1	N2
Hexanoic Acid	338	mg/L	250	500		11/27/23 19:48	142-62-1	N2
Acetic Acid	7300	mg/L	500	1000		11/28/23 15:32	64-19-7	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 23K0323
 Pace Project No.: 20296584

QC Batch: 308769 Analysis Method: Pace ENV-SOP-BTRO-0042
 QC Batch Method: Pace ENV-SOP-BTRO-0042 Analysis Description: BR AM23G Low Level VFA
 Laboratory: Pace Analytical Services - Baton Rouge

Associated Lab Samples: 20296584001, 20296584002

METHOD BLANK: 1478225 Matrix: Water

Associated Lab Samples: 20296584001, 20296584002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetic Acid	mg/L	ND	0.50	11/21/23 17:47	
Butyric Acid	mg/L	ND	0.50	11/21/23 17:47	
Formic acid	mg/L	ND	0.50	11/21/23 17:47	
Hexanoic Acid	mg/L	ND	0.50	11/21/23 17:47	N2
i-Hexanoic Acid	mg/L	ND	0.50	11/21/23 17:47	N2
i-Pentanoic Acid	mg/L	ND	0.50	11/21/23 17:47	N2
Lactic Acid	mg/L	ND	0.50	11/21/23 17:47	
Pentanoic Acid	mg/L	ND	0.50	11/21/23 17:47	N2
Propionic Acid	mg/L	ND	0.50	11/21/23 17:47	
Pyruvic Acid	mg/L	ND	0.50	11/21/23 17:47	

LABORATORY CONTROL SAMPLE: 1478226

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetic Acid	mg/L	2	2.1	107	70-130	
Butyric Acid	mg/L	2	1.9	96	70-130	
Formic acid	mg/L	2	2.0	100	70-130	
Hexanoic Acid	mg/L	2	1.2	62	39-114	N2
i-Hexanoic Acid	mg/L	2	1.7	85	39-114	N2
i-Pentanoic Acid	mg/L	2	1.7	83	59-121	N2
Lactic Acid	mg/L	2	2.2	111	70-130	
Pentanoic Acid	mg/L	2	1.7	83	59-121	N2
Propionic Acid	mg/L	2	2.1	103	70-130	
Pyruvic Acid	mg/L	2	2.1	103	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 23K0323
 Pace Project No.: 20296584

QC Batch: 309131 Analysis Method: Pace ENV-SOP-BTRO-0042
 QC Batch Method: Pace ENV-SOP-BTRO-0042 Analysis Description: BR AM23G Low Level VFA
 Laboratory: Pace Analytical Services - Baton Rouge

Associated Lab Samples: 20296584003, 20296584004

METHOD BLANK: 1479986 Matrix: Water
 Associated Lab Samples: 20296584003, 20296584004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butyric Acid	mg/L	ND	0.50	11/27/23 18:34	
Formic acid	mg/L	ND	0.50	11/27/23 18:34	
Hexanoic Acid	mg/L	ND	0.50	11/27/23 18:34	N2
i-Hexanoic Acid	mg/L	ND	0.50	11/27/23 18:34	N2
i-Pentanoic Acid	mg/L	ND	0.50	11/27/23 18:34	N2
Lactic Acid	mg/L	ND	0.50	11/27/23 18:34	
Pentanoic Acid	mg/L	ND	0.50	11/27/23 18:34	N2
Propionic Acid	mg/L	ND	0.50	11/27/23 18:34	
Pyruvic Acid	mg/L	ND	0.50	11/27/23 18:34	

LABORATORY CONTROL SAMPLE: 1479987

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Butyric Acid	mg/L	2	1.9	93	70-130	
Formic acid	mg/L	2	1.9	97	70-130	
Hexanoic Acid	mg/L	2	1.2	58	39-114	N2
i-Hexanoic Acid	mg/L	2	1.6	82	39-114	N2
i-Pentanoic Acid	mg/L	2	1.8	90	59-121	N2
Lactic Acid	mg/L	2	2.0	102	70-130	
Pentanoic Acid	mg/L	2	1.6	78	59-121	N2
Propionic Acid	mg/L	2	2.0	100	70-130	
Pyruvic Acid	mg/L	2	1.8	92	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1479988 1479989

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual
		20296584004 Result	Spike Conc.	Spike Conc.	MS Result						
Butyric Acid	mg/L	2730	1000	1000	3550	3570	82	84	70-130	0	30
Formic acid	mg/L	2130	1000	1000	3060	3060	92	92	70-130	0	30
Hexanoic Acid	mg/L	338	1000	1000	852	846	51	51	39-114	1	30 N2
i-Hexanoic Acid	mg/L	ND	1000	1000	770	747	77	75	39-114	3	30 N2
i-Pentanoic Acid	mg/L	355	1000	1000	1140	1200	79	85	59-121	5	30 N2
Lactic Acid	mg/L	1170	1000	1000	2170	2180	100	100	70-130	0	30
Pentanoic Acid	mg/L	289	1000	1000	1070	1070	78	78	59-121	0	30 N2
Propionic Acid	mg/L	3350	1000	1000	4280	4270	93	92	70-130	0	30
Pyruvic Acid	mg/L	ND	1000	1000	1140	1120	99	96	70-130	2	30

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 23K0323
 Pace Project No.: 20296584

QC Batch: 309469 Analysis Method: Pace ENV-SOP-BTRO-0042
 QC Batch Method: Pace ENV-SOP-BTRO-0042 Analysis Description: BR AM23G Low Level VFA
 Laboratory: Pace Analytical Services - Baton Rouge
 Associated Lab Samples: 20296584003, 20296584004

METHOD BLANK: 1481687 Matrix: Water
 Associated Lab Samples: 20296584003, 20296584004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetic Acid	mg/L	ND	0.50	11/28/23 14:18	

LABORATORY CONTROL SAMPLE: 1481688

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetic Acid	mg/L	2	2.1	106	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 23K0323
Pace Project No.: 20296584

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.
ND - Not Detected at or above adjusted reporting limit.
TNTC - Too Numerous To Count
J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.
MDL - Adjusted Method Detection Limit.
PQL - Practical Quantitation Limit.
RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.
S - Surrogate
1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.
Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.
LCS(D) - Laboratory Control Sample (Duplicate)
MS(D) - Matrix Spike (Duplicate)
DUP - Sample Duplicate
RPD - Relative Percent Difference
NC - Not Calculable.
SG - Silica Gel - Clean-Up
U - Indicates the compound was analyzed for, but not detected.
N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.
Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.
Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.
TNI - The Nelac Institute

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.
N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 23K0323
Pace Project No.: 20296584

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
20296584001	23K0323-01: EW-78	Pace ENV-SOP-BTRO-0042	308769		
20296584002	23K0323-02: EW-50	Pace ENV-SOP-BTRO-0042	308769		
20296584003	23K0323-03: EW-53	Pace ENV-SOP-BTRO-0042	309131		
20296584003	23K0323-03: EW-53	Pace ENV-SOP-BTRO-0042	309469		
20296584004	23K0323-04: EW-87	Pace ENV-SOP-BTRO-0042	309131		
20296584004	23K0323-04: EW-87	Pace ENV-SOP-BTRO-0042	309469		

REPORT OF LABORATORY ANALYSIS

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Pace

Sample Condition Upon Receipt
Workorder

WO#: 20296584

PM: RW

Due Date: 11/28/23

CLIENT: BR-Enthalpy

7979 Innovation Park Dr. Baton Rouge, LA 70806

Cooler Inspected by/date: DTM/11/10/23

Means of receipt: <input type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were custody seals present on the cooler?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	If custody seals were present, were they intact and unbroken?
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles IR Gun ID: <u>6143</u> IR Gun Correction Factor: <u>-0</u> °C	
Cooler #1 Cooler Temp °C: <u>5.0</u> (Actual/True)	Samples on ice pH Strip Lot #
Cooler #2 Cooler Temp °C: _____ (Actual/True)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Cooler #3 Cooler Temp °C: _____ (Actual/True)	Method of coolant:
Cooler #4 Cooler Temp °C: _____ (Actual/True)	<input checked="" type="checkbox"/> Wet <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None
Tracking #: <u>7740 5787 7600</u>	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Is a temperature blank present?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Was a chain of custody (COC) received?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	Was the line and profile number listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Were all coolers received at or below 6.0°C? If no, notify Project Manager notified via email.
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were proper custody procedures (relinquished/received) followed?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	Is the sampler name and signature on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were sample IDs listed on the COC and all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Was collection date & time listed on the COC and all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were all samples containers accounted for? (No missing / excess)
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	Were VOA, 8015C (GRO/VPH), and RSK-175 samples free of bubbles > "pea size" (1/4" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	Trip blank present?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	Filtered volume received for dissolved tests? If no, list affected sample(s) in comments below.
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	Were all metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added, record lots. Dispenser/pipette lot #: _____ HNO ₃ _____ H ₂ SO ₄ _____ NaOH _____ Date: _____ Time: _____	
Comments:	



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

Certificate of Analysis

Final Report

Laboratory Order ID 23K0408

Client Name: SCS Engineers-Winchester
296 Victory Road
Winchester, VA 22602

Date Received: November 9, 2023 8:00
Date Issued: November 30, 2023 15:48
Project Number: 02218208.15 Task 1
Purchase Order:

Submitted To: Jennifer Robb

Client Site I.D.: 2023 City of Bristol Landfill

Enclosed are the results of analyses for samples received by the laboratory on 11/09/2023 08:00. 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.

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Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Laboratory Sample ID: 23K0408-01

Client Sample ID: EW-55

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	01	SW6020B	430		3.0	3.0	10	ug/L
Barium	01	SW6020B	2510		10.0	50.0	10	ug/L
Chromium	01	SW6020B	402		4.00	10.0	10	ug/L
Copper	01	SW6020B	7.56		3.00	3.00	10	ug/L
Lead	01	SW6020B	14		3.0	3.0	10	ug/L
Mercury	01	SW7470A	0.00578		0.00400	0.00400	1	mg/L
Nickel	01	SW6020B	77.91		10.00	10.00	10	ug/L
Selenium	01	SW6020B	3.15		3.00	3.00	10	ug/L
Zinc	01	SW6020B	740		25.0	50.0	10	ug/L
2-Butanone (MEK)	01	SW8260D	17700		150	500	50	ug/L
Acetone	01RE1	SW8260D	61100		3500	5000	500	ug/L
Benzene	01	SW8260D	654		20.0	50.0	50	ug/L
Ethylbenzene	01	SW8260D	54.0		20.0	50.0	50	ug/L
m+p-Xylenes	01	SW8260D	64.5	J	30.0	100	50	ug/L
o-Xylene	01	SW8260D	39.5	J	20.0	50.0	50	ug/L
Tetrahydrofuran	01	SW8260D	3320		500	500	50	ug/L
Toluene	01	SW8260D	51.5		25.0	50.0	50	ug/L
Xylenes, Total	01	SW8260D	104	J	50.0	150	50	ug/L
Ammonia as N	01RE2	EPA350.1 R2.0	2070		146	200	2000	mg/L
BOD	01	SM5210B-2016	>32015		0.2	2.0	1	mg/L
COD	01	SM5220D-2011	57900		5000	5000	500	mg/L
Cyanide	01	SW9012B	0.16	Cl	0.05	0.05	5	mg/L
TKN as N	01RE1	EPA351.2 R2.0	2240		80.0	200	400	mg/L
Total Recoverable Phenolics	01	SW9065	47.4		0.750	1.25	1	mg/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Laboratory Sample ID: 23K0408-02 Client Sample ID: EW-59

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	02	SW6020B	350		3.0	3.0	10	ug/L
Barium	02	SW6020B	1960		10.0	50.0	10	ug/L
Chromium	02	SW6020B	246		4.00	10.0	10	ug/L
Nickel	02	SW6020B	59.44		10.00	10.00	10	ug/L
Zinc	02	SW6020B	53.0		25.0	50.0	10	ug/L
2-Butanone (MEK)	02	SW8260D	10600		150	500	50	ug/L
Acetone	02RE1	SW8260D	36800		3500	5000	500	ug/L
Benzene	02	SW8260D	982		20.0	50.0	50	ug/L
Ethylbenzene	02	SW8260D	76.5		20.0	50.0	50	ug/L
m+p-Xylenes	02	SW8260D	89.0	J	30.0	100	50	ug/L
o-Xylene	02	SW8260D	42.5	J	20.0	50.0	50	ug/L
Tetrahydrofuran	02	SW8260D	785		500	500	50	ug/L
Toluene	02	SW8260D	114		25.0	50.0	50	ug/L
Xylenes, Total	02	SW8260D	132	J	50.0	150	50	ug/L
Ammonia as N	02	EPA350.1 R2.0	2440		366	500	5000	mg/L
BOD	02	SM5210B-2016	29600		0.2	2.0	1	mg/L
COD	02	SM5220D-2011	43700		5000	5000	500	mg/L
Cyanide	02	SW9012B	0.23	CI	0.05	0.05	5	mg/L
TKN as N	02	EPA351.2 R2.0	2530		100	250	500	mg/L
Total Recoverable Phenolics	02	SW9065	46.9		1.50	2.50	1	mg/L

Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Laboratory Sample ID: 23K0408-03 Client Sample ID: EW-62

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	03	SW6020B	780		3.0	3.0	10	ug/L
Barium	03	SW6020B	418		10.0	50.0	10	ug/L
Chromium	03	SW6020B	343		4.00	10.0	10	ug/L
Copper	03	SW6020B	3.41		3.00	3.00	10	ug/L
Nickel	03	SW6020B	149.3		10.00	10.00	10	ug/L
Zinc	03	SW6020B	61.8		25.0	50.0	10	ug/L
2-Butanone (MEK)	03RE1	SW8260D	17600		1500	5000	500	ug/L
Acetone	03RE1	SW8260D	32800		3500	5000	500	ug/L
Benzene	03	SW8260D	31.3		2.00	5.00	5	ug/L
Ethylbenzene	03	SW8260D	45.4		2.00	5.00	5	ug/L
m+p-Xylenes	03	SW8260D	32.2		3.00	10.0	5	ug/L
o-Xylene	03	SW8260D	15.9		2.00	5.00	5	ug/L
Tetrahydrofuran	03	SW8260D	325		50.0	50.0	5	ug/L
Toluene	03	SW8260D	50.4		2.50	5.00	5	ug/L
Xylenes, Total	03	SW8260D	48.0		5.00	15.0	5	ug/L
Ammonia as N	03RE1	EPA350.1 R2.0	1170		183	250	2500	mg/L
BOD	03	SM5210B-2016	3640		0.2	2.0	1	mg/L
COD	03	SM5220D-2011	5620		2000	2000	200	mg/L
Cyanide	03	SW9012B	0.40		0.05	0.05	5	mg/L
TKN as N	03	EPA351.2 R2.0	1120		100	250	500	mg/L
Total Recoverable Phenolics	03	SW9065	4.76		0.600	1.00	1	mg/L

Analysis Detects Report

 Client Name: SCS Engineers-Winchester
 Client Site ID: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Laboratory Sample ID: 23K0408-04 Client Sample ID: EW-98

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	04	SW6020B	200		3.0	3.0	10	ug/L
Barium	04	SW6020B	2840		10.0	50.0	10	ug/L
Chromium	04	SW6020B	222		4.00	10.0	10	ug/L
Nickel	04	SW6020B	52.77		10.00	10.00	10	ug/L
Zinc	04	SW6020B	31.3	J	25.0	50.0	10	ug/L
2-Butanone (MEK)	04RE1	SW8260D	31200		1500	5000	500	ug/L
Acetone	04RE1	SW8260D	67800		3500	5000	500	ug/L
Benzene	04	SW8260D	1190		20.0	50.0	50	ug/L
Ethylbenzene	04	SW8260D	60.5		20.0	50.0	50	ug/L
m+p-Xylenes	04	SW8260D	90.0	J	30.0	100	50	ug/L
o-Xylene	04	SW8260D	48.0	J	20.0	50.0	50	ug/L
Tetrahydrofuran	04	SW8260D	4600		500	500	50	ug/L
Toluene	04	SW8260D	114		25.0	50.0	50	ug/L
Xylenes, Total	04	SW8260D	138	J	50.0	150	50	ug/L
Ammonia as N	04RE1	EPA350.1 R2.0	2080		183	250	2500	mg/L
BOD	04	SM5210B-2016	21500		0.2	2.0	1	mg/L
COD	04	SM5220D-2011	37600		5000	5000	500	mg/L
Cyanide	04	SW9012B	0.17	CI	0.05	0.05	5	mg/L
TKN as N	04RE1	EPA351.2 R2.0	2120		80.0	200	400	mg/L
Total Recoverable Phenolics	04	SW9065	29.1		1.50	2.50	50	mg/L

Laboratory Sample ID: 23K0408-05 Client Sample ID: Trip Blank

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Toluene	05	SW8260D	5.46		0.50	1.00	1	ug/L

Note that this report is not the "Certificate of Analysis". This report only lists the target analytes that displayed concentrations that exceeded the detection limit specified for that analyte. For a complete listing of all analytes requested and the results of the analysis see the " Certificate of Analysis".

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EW-55	23K0408-01	Ground Water	11/08/2023 07:40	11/09/2023 08:00
EW-59	23K0408-02	Ground Water	11/08/2023 08:00	11/09/2023 08:00
EW-62	23K0408-03	Ground Water	11/08/2023 08:25	11/09/2023 08:00
EW-98	23K0408-04	Ground Water	11/08/2023 09:00	11/09/2023 08:00
Trip Blank	23K0408-05	Ground Water	09/22/2023 12:15	11/09/2023 08:00

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: EW-55

Laboratory Sample ID: 23K0408-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	01	7440-22-4	SW6020B	11/13/2023 11:30	11/20/2023 11:33	BLOD		0.600	10.0	10	ug/L	AB
Arsenic	01	7440-38-2	SW6020B	11/13/2023 11:30	11/20/2023 11:33	430		3.0	3.0	10	ug/L	AB
Barium	01	7440-39-3	SW6020B	11/13/2023 11:30	11/20/2023 11:33	2510		10.0	50.0	10	ug/L	AB
Cadmium	01	7440-43-9	SW6020B	11/13/2023 11:30	11/20/2023 11:33	BLOD		1.00	3.00	10	ug/L	AB
Chromium	01	7440-47-3	SW6020B	11/13/2023 11:30	11/20/2023 11:33	402		4.00	10.0	10	ug/L	AB
Copper	01	7440-50-8	SW6020B	11/13/2023 11:30	11/20/2023 11:33	7.56		3.00	3.00	10	ug/L	AB
Mercury	01	7439-97-6	SW7470A	11/13/2023 09:30	11/13/2023 15:02	0.00578		0.00400	0.00400	1	mg/L	SGT
Nickel	01	7440-02-0	SW6020B	11/13/2023 11:30	11/20/2023 11:33	77.91		10.00	10.00	10	ug/L	AB
Lead	01	7439-92-1	SW6020B	11/13/2023 11:30	11/20/2023 11:33	14		3.0	3.0	10	ug/L	AB
Selenium	01	7782-49-2	SW6020B	11/13/2023 11:30	11/20/2023 11:33	3.15		3.00	3.00	10	ug/L	AB
Zinc	01	7440-66-6	SW6020B	11/13/2023 11:30	11/20/2023 11:33	740		25.0	50.0	10	ug/L	AB
Volatile Organic Compounds by GCMS												
2-Butanone (MEK)	01	78-93-3	SW8260D	11/10/2023 16:39	11/10/2023 16:39	17700		150	500	50	ug/L	RJB
Acetone	01RE1	67-64-1	SW8260D	11/13/2023 18:08	11/13/2023 18:08	61100		3500	5000	500	ug/L	RJB
Benzene	01	71-43-2	SW8260D	11/10/2023 16:39	11/10/2023 16:39	654		20.0	50.0	50	ug/L	RJB
Ethylbenzene	01	100-41-4	SW8260D	11/10/2023 16:39	11/10/2023 16:39	54.0		20.0	50.0	50	ug/L	RJB
m+p-Xylenes	01	179601-23-1	SW8260D	11/10/2023 16:39	11/10/2023 16:39	64.5	J	30.0	100	50	ug/L	RJB
o-Xylene	01	95-47-6	SW8260D	11/10/2023 16:39	11/10/2023 16:39	39.5	J	20.0	50.0	50	ug/L	RJB
Toluene	01	108-88-3	SW8260D	11/10/2023 16:39	11/10/2023 16:39	51.5		25.0	50.0	50	ug/L	RJB
Xylenes, Total	01	1330-20-7	SW8260D	11/10/2023 16:39	11/10/2023 16:39	104	J	50.0	150	50	ug/L	RJB
Tetrahydrofuran	01	109-99-9	SW8260D	11/10/2023 16:39	11/10/2023 16:39	3320		500	500	50	ug/L	RJB
Surr: 1,2-Dichloroethane-d4 (Surr)	01	85.3 %	70-120	11/10/2023 16:39	11/10/2023 16:39							
Surr: 4-Bromofluorobenzene (Surr)	01	103 %	75-120	11/10/2023 16:39	11/10/2023 16:39							
Surr: Dibromofluoromethane (Surr)	01	88.5 %	70-130	11/10/2023 16:39	11/10/2023 16:39							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: EW-55

Laboratory Sample ID: 23K0408-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: Toluene-d8 (Surr)	01		102 %	70-130	11/10/2023 16:39	11/10/2023 16:39						
Surr: 1,2-Dichloroethane-d4 (Surr)	01RE1		95.4 %	70-120	11/13/2023 18:08	11/13/2023 18:08						
Surr: 4-Bromofluorobenzene (Surr)	01RE1		97.0 %	75-120	11/13/2023 18:08	11/13/2023 18:08						
Surr: Dibromofluoromethane (Surr)	01RE1		97.3 %	70-130	11/13/2023 18:08	11/13/2023 18:08						
Surr: Toluene-d8 (Surr)	01RE1		97.8 %	70-130	11/13/2023 18:08	11/13/2023 18:08						
Semivolatile Organic Compounds by GCMS												
Anthracene	01	120-12-7	SW8270E	11/10/2023 09:15	11/10/2023 22:15	BLOD		400	800	20	ug/L	BMS
Surr: 2,4,6-Tribromophenol (Surr)	01		102 %	5-136	11/10/2023 09:15	11/10/2023 22:15						
Surr: 2-Fluorobiphenyl (Surr)	01		%	9-117	11/10/2023 09:15	11/10/2023 22:15						DS
Surr: 2-Fluorophenol (Surr)	01		31.2 %	5-60	11/10/2023 09:15	11/10/2023 22:15						
Surr: Nitrobenzene-d5 (Surr)	01		682 %	5-151	11/10/2023 09:15	11/10/2023 22:15						DS
Surr: Phenol-d5 (Surr)	01		1.60 %	5-60	11/10/2023 09:15	11/10/2023 22:15						DS
Surr: p-Terphenyl-d14 (Surr)	01		64.0 %	5-141	11/10/2023 09:15	11/10/2023 22:15						
Wet Chemistry Analysis												
Ammonia as N	01RE2	7664-41-7	EPA350.1 R2.0	11/27/2023 15:36	11/27/2023 15:36	2070		146	200	2000	mg/L	LAM
BOD	01	E1640606	SM5210B-20 16	11/09/2023 13:49	11/09/2023 13:49	>32015		0.2	2.0	1	mg/L	LAM
BOD	01	E1640606	SM5210B-20 16	11/09/2023 13:49	11/09/2023 13:49	>32015		0.2	2.0	1	mg/L	LAM
Cyanide	01	57-12-5	SW9012B	11/17/2023 14:08	11/17/2023 14:08	0.16	CI	0.05	0.05	5	mg/L	AAL
COD	01	NA	SM5220D-20 11	11/17/2023 14:01	11/17/2023 14:01	57900		5000	5000	500	mg/L	MGC
Nitrate as N	01	14797-55-8	Calc.	11/21/2023 17:22	11/21/2023 17:22	BLOD		0.750	1.75	5	mg/L	AJM
Nitrate+Nitrite as N	01	E701177	SM4500-NO 3F-2016	11/21/2023 17:22	11/21/2023 17:22	BLOD		0.50	0.50	5	mg/L	MGC

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: EW-55

Laboratory Sample ID: 23K0408-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Nitrite as N	01	14797-65-0	SM4500-NO 2B-2011	11/09/2023 10:20	11/09/2023 10:20	BLOD		0.25	1.25	1	mg/L	AJM
Total Recoverable Phenolics	01	NA	SW9065	11/13/2023 08:48	11/13/2023 08:48	47.4		0.750	1.25	1	mg/L	AAL
TKN as N	01RE1	E17148461	EPA351.2 R2.0	11/20/2023 17:30	11/20/2023 17:30	2240		80.0	200	400	mg/L	MJRL

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: EW-59

Laboratory Sample ID: 23K0408-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	02	7440-22-4	SW6020B	11/13/2023 11:30	11/20/2023 11:36	BLOD		0.600	10.0	10	ug/L	AB
Arsenic	02	7440-38-2	SW6020B	11/13/2023 11:30	11/20/2023 11:36	350		3.0	3.0	10	ug/L	AB
Barium	02	7440-39-3	SW6020B	11/13/2023 11:30	11/20/2023 11:36	1960		10.0	50.0	10	ug/L	AB
Cadmium	02	7440-43-9	SW6020B	11/13/2023 11:30	11/20/2023 11:36	BLOD		1.00	3.00	10	ug/L	AB
Chromium	02	7440-47-3	SW6020B	11/13/2023 11:30	11/20/2023 11:36	246		4.00	10.0	10	ug/L	AB
Copper	02	7440-50-8	SW6020B	11/13/2023 11:30	11/20/2023 11:36	BLOD		3.00	3.00	10	ug/L	AB
Mercury	02	7439-97-6	SW7470A	11/13/2023 09:30	11/13/2023 15:04	BLOD		0.00400	0.00400	1	mg/L	SGT
Nickel	02	7440-02-0	SW6020B	11/13/2023 11:30	11/20/2023 11:36	59.44		10.00	10.00	10	ug/L	AB
Lead	02	7439-92-1	SW6020B	11/13/2023 11:30	11/20/2023 11:36	BLOD		3.0	3.0	10	ug/L	AB
Selenium	02	7782-49-2	SW6020B	11/13/2023 11:30	11/20/2023 11:36	BLOD		3.00	3.00	10	ug/L	AB
Zinc	02	7440-66-6	SW6020B	11/13/2023 11:30	11/20/2023 11:36	53.0		25.0	50.0	10	ug/L	AB

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: EW-59

Laboratory Sample ID: 23K0408-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
2-Butanone (MEK)	02	78-93-3	SW8260D	11/10/2023 17:03	11/10/2023 17:03	10600		150	500	50	ug/L	RJB
Acetone	02RE1	67-64-1	SW8260D	11/13/2023 17:44	11/13/2023 17:44	36800		3500	5000	500	ug/L	RJB
Benzene	02	71-43-2	SW8260D	11/10/2023 17:03	11/10/2023 17:03	982		20.0	50.0	50	ug/L	RJB
Ethylbenzene	02	100-41-4	SW8260D	11/10/2023 17:03	11/10/2023 17:03	76.5		20.0	50.0	50	ug/L	RJB
m+p-Xylenes	02	179601-23-1	SW8260D	11/10/2023 17:03	11/10/2023 17:03	89.0	J	30.0	100	50	ug/L	RJB
o-Xylene	02	95-47-6	SW8260D	11/10/2023 17:03	11/10/2023 17:03	42.5	J	20.0	50.0	50	ug/L	RJB
Toluene	02	108-88-3	SW8260D	11/10/2023 17:03	11/10/2023 17:03	114		25.0	50.0	50	ug/L	RJB
Xylenes, Total	02	1330-20-7	SW8260D	11/10/2023 17:03	11/10/2023 17:03	132	J	50.0	150	50	ug/L	RJB
Tetrahydrofuran	02	109-99-9	SW8260D	11/10/2023 17:03	11/10/2023 17:03	785		500	500	50	ug/L	RJB
Surr: 1,2-Dichloroethane-d4 (Surr)	02	81.7 %	70-120	11/10/2023 17:03	11/10/2023 17:03							
Surr: 4-Bromofluorobenzene (Surr)	02	104 %	75-120	11/10/2023 17:03	11/10/2023 17:03							
Surr: Dibromofluoromethane (Surr)	02	87.1 %	70-130	11/10/2023 17:03	11/10/2023 17:03							
Surr: Toluene-d8 (Surr)	02	102 %	70-130	11/10/2023 17:03	11/10/2023 17:03							
Surr: 1,2-Dichloroethane-d4 (Surr)	02RE1	97.6 %	70-120	11/13/2023 17:44	11/13/2023 17:44							
Surr: 4-Bromofluorobenzene (Surr)	02RE1	102 %	75-120	11/13/2023 17:44	11/13/2023 17:44							
Surr: Dibromofluoromethane (Surr)	02RE1	97.5 %	70-130	11/13/2023 17:44	11/13/2023 17:44							
Surr: Toluene-d8 (Surr)	02RE1	97.8 %	70-130	11/13/2023 17:44	11/13/2023 17:44							
Semivolatile Organic Compounds by GCMS												
Anthracene	02	120-12-7	SW8270E	11/10/2023 09:15	11/10/2023 22:51	BLOD		400	800	20	ug/L	BMS
Surr: 2,4,6-Tribromophenol (Surr)	02	%	5-136	11/10/2023 09:15	11/10/2023 22:51							DS
Surr: 2-Fluorobiphenyl (Surr)	02	%	9-117	11/10/2023 09:15	11/10/2023 22:51							DS
Surr: 2-Fluorophenol (Surr)	02	48.4 %	5-60	11/10/2023 09:15	11/10/2023 22:51							
Surr: Nitrobenzene-d5 (Surr)	02	72.8 %	5-151	11/10/2023 09:15	11/10/2023 22:51							
Surr: Phenol-d5 (Surr)	02	8.00 %	5-60	11/10/2023 09:15	11/10/2023 22:51							
Surr: p-Terphenyl-d14 (Surr)	02	26.4 %	5-141	11/10/2023 09:15	11/10/2023 22:51							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: EW-59

Laboratory Sample ID: 23K0408-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Ammonia as N	02	7664-41-7	EPA350.1 R2.0	11/21/2023 12:08	11/21/2023 12:08	2440		366	500	5000	mg/L	AAL
BOD	02	E1640606	SM5210B-20 16	11/09/2023 13:44	11/09/2023 13:44	29600		0.2	2.0	1	mg/L	LAM
Cyanide	02	57-12-5	SW9012B	11/17/2023 14:08	11/17/2023 14:08	0.23	CI	0.05	0.05	5	mg/L	AAL
COD	02	NA	SM5220D-20 11	11/17/2023 14:01	11/17/2023 14:01	43700		5000	5000	500	mg/L	MGC
Nitrate as N	02	14797-55-8	Calc.	11/21/2023 17:22	11/21/2023 17:22	BLOD		1.50	5.50	100	mg/L	AJM
Nitrate+Nitrite as N	02	E701177	SM4500-NO 3F-2016	11/21/2023 17:22	11/21/2023 17:22	BLOD		0.50	0.50	5	mg/L	MGC
Nitrite as N	02	14797-65-0	SM4500-NO 2B-2011	11/09/2023 14:35	11/09/2023 14:35	BLOD		1.00	5.00	100	mg/L	AJM
Total Recoverable Phenolics	02	NA	SW9065	11/13/2023 08:48	11/13/2023 08:48	46.9		1.50	2.50	1	mg/L	AAL
TKN as N	02	E17148461	EPA351.2 R2.0	11/20/2023 17:30	11/20/2023 17:30	2530		100	250	500	mg/L	MJRL

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: EW-62

Laboratory Sample ID: 23K0408-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	03	7440-22-4	SW6020B	11/13/2023 11:30	11/20/2023 11:39	BLOD		0.600	10.0	10	ug/L	AB
Arsenic	03	7440-38-2	SW6020B	11/13/2023 11:30	11/20/2023 11:39	780		3.0	3.0	10	ug/L	AB
Barium	03	7440-39-3	SW6020B	11/13/2023 11:30	11/20/2023 11:39	418		10.0	50.0	10	ug/L	AB
Cadmium	03	7440-43-9	SW6020B	11/13/2023 11:30	11/20/2023 11:39	BLOD		1.00	3.00	10	ug/L	AB
Chromium	03	7440-47-3	SW6020B	11/13/2023 11:30	11/20/2023 11:39	343		4.00	10.0	10	ug/L	AB
Copper	03	7440-50-8	SW6020B	11/13/2023 11:30	11/20/2023 11:39	3.41		3.00	3.00	10	ug/L	AB
Mercury	03	7439-97-6	SW7470A	11/13/2023 09:30	11/13/2023 15:07	BLOD		0.00020	0.00020	1	mg/L	SGT
Nickel	03	7440-02-0	SW6020B	11/13/2023 11:30	11/20/2023 11:39	149.3		10.00	10.00	10	ug/L	AB
Lead	03	7439-92-1	SW6020B	11/13/2023 11:30	11/20/2023 11:39	BLOD		3.0	3.0	10	ug/L	AB
Selenium	03	7782-49-2	SW6020B	11/13/2023 11:30	11/20/2023 11:39	BLOD		3.00	3.00	10	ug/L	AB
Zinc	03	7440-66-6	SW6020B	11/13/2023 11:30	11/20/2023 11:39	61.8		25.0	50.0	10	ug/L	AB
Volatile Organic Compounds by GCMS												
2-Butanone (MEK)	03RE1	78-93-3	SW8260D	11/13/2023 17:20	11/13/2023 17:20	17600		1500	5000	500	ug/L	RJB
Acetone	03RE1	67-64-1	SW8260D	11/13/2023 17:20	11/13/2023 17:20	32800		3500	5000	500	ug/L	RJB
Benzene	03	71-43-2	SW8260D	11/10/2023 16:16	11/10/2023 16:16	31.3		2.00	5.00	5	ug/L	RJB
Ethylbenzene	03	100-41-4	SW8260D	11/10/2023 16:16	11/10/2023 16:16	45.4		2.00	5.00	5	ug/L	RJB
m+p-Xylenes	03	179601-23-1	SW8260D	11/10/2023 16:16	11/10/2023 16:16	32.2		3.00	10.0	5	ug/L	RJB
o-Xylene	03	95-47-6	SW8260D	11/10/2023 16:16	11/10/2023 16:16	15.9		2.00	5.00	5	ug/L	RJB
Toluene	03	108-88-3	SW8260D	11/10/2023 16:16	11/10/2023 16:16	50.4		2.50	5.00	5	ug/L	RJB
Xylenes, Total	03	1330-20-7	SW8260D	11/10/2023 16:16	11/10/2023 16:16	48.0		5.00	15.0	5	ug/L	RJB
Tetrahydrofuran	03	109-99-9	SW8260D	11/10/2023 16:16	11/10/2023 16:16	325		50.0	50.0	5	ug/L	RJB
Surr: 1,2-Dichloroethane-d4 (Surr)	03	85.9 %	70-120	11/10/2023 16:16	11/10/2023 16:16							
Surr: 4-Bromofluorobenzene (Surr)	03	104 %	75-120	11/10/2023 16:16	11/10/2023 16:16							
Surr: Dibromofluoromethane (Surr)	03	85.0 %	70-130	11/10/2023 16:16	11/10/2023 16:16							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: EW-62

Laboratory Sample ID: 23K0408-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: Toluene-d8 (Surr)	03	102 %	70-130	11/10/2023 16:16	11/10/2023 16:16							
Surr: 1,2-Dichloroethane-d4 (Surr)	03RE1	96.9 %	70-120	11/13/2023 17:20	11/13/2023 17:20							
Surr: 4-Bromofluorobenzene (Surr)	03RE1	100 %	75-120	11/13/2023 17:20	11/13/2023 17:20							
Surr: Dibromofluoromethane (Surr)	03RE1	97.4 %	70-130	11/13/2023 17:20	11/13/2023 17:20							
Surr: Toluene-d8 (Surr)	03RE1	97.9 %	70-130	11/13/2023 17:20	11/13/2023 17:20							
Semivolatile Organic Compounds by GCMS												
Anthracene	03	120-12-7	SW8270E	11/10/2023 09:15	11/10/2023 23:26	BLOD		20.0	40.0	4	ug/L	BMS
Surr: 2,4,6-Tribromophenol (Surr)	03	67.5 %	5-136	11/10/2023 09:15	11/10/2023 23:26							
Surr: 2-Fluorobiphenyl (Surr)	03	30.6 %	9-117	11/10/2023 09:15	11/10/2023 23:26							
Surr: 2-Fluorophenol (Surr)	03	22.9 %	5-60	11/10/2023 09:15	11/10/2023 23:26							
Surr: Nitrobenzene-d5 (Surr)	03	63.1 %	5-151	11/10/2023 09:15	11/10/2023 23:26							
Surr: Phenol-d5 (Surr)	03	20.2 %	5-60	11/10/2023 09:15	11/10/2023 23:26							
Surr: p-Terphenyl-d14 (Surr)	03	17.4 %	5-141	11/10/2023 09:15	11/10/2023 23:26							
Wet Chemistry Analysis												
Ammonia as N	03RE1	7664-41-7	EPA350.1 R2.0	11/21/2023 12:08	11/21/2023 12:08	1170		183	250	2500	mg/L	AAL
BOD	03	E1640606	SM5210B-20 16	11/09/2023 13:52	11/09/2023 13:52	3640		0.2	2.0	1	mg/L	LAM
Cyanide	03	57-12-5	SW9012B	11/17/2023 14:08	11/17/2023 14:08	0.40		0.05	0.05	5	mg/L	AAL
COD	03	NA	SM5220D-20 11	11/17/2023 14:01	11/17/2023 14:01	5620		2000	2000	200	mg/L	MGC
Nitrate as N	03	14797-55-8	Calc.	11/21/2023 17:22	11/21/2023 17:22	BLOD		0.350	1.35	1	mg/L	AJM
Nitrate+Nitrite as N	03	E701177	SM4500-NO 3F-2016	11/21/2023 17:22	11/21/2023 17:22	BLOD		0.10	0.10	1	mg/L	MGC
Nitrite as N	03	14797-65-0	SM4500-NO 2B-2011	11/09/2023 14:35	11/09/2023 14:35	BLOD		0.25	1.25	1	mg/L	AJM

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: EW-62

Laboratory Sample ID: 23K0408-03

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Total Recoverable Phenolics	03	NA	SW9065	11/13/2023 08:48	11/13/2023 08:48	4.76		0.600	1.00	1	mg/L	AAL
TKN as N	03	E17148461	EPA351.2 R2.0	11/20/2023 17:30	11/20/2023 17:30	1120		100	250	500	mg/L	MJRL

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: EW-98

Laboratory Sample ID: 23K0408-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	04	7440-22-4	SW6020B	11/13/2023 11:30	11/20/2023 11:42	BLOD		0.600	10.0	10	ug/L	AB
Arsenic	04	7440-38-2	SW6020B	11/13/2023 11:30	11/20/2023 11:42	200		3.0	3.0	10	ug/L	AB
Barium	04	7440-39-3	SW6020B	11/13/2023 11:30	11/20/2023 11:42	2840		10.0	50.0	10	ug/L	AB
Cadmium	04	7440-43-9	SW6020B	11/13/2023 11:30	11/20/2023 11:42	BLOD		1.00	3.00	10	ug/L	AB
Chromium	04	7440-47-3	SW6020B	11/13/2023 11:30	11/20/2023 11:42	222		4.00	10.0	10	ug/L	AB
Copper	04	7440-50-8	SW6020B	11/13/2023 11:30	11/20/2023 11:42	BLOD		3.00	3.00	10	ug/L	AB
Mercury	04	7439-97-6	SW7470A	11/13/2023 09:30	11/13/2023 15:09	BLOD		0.00400	0.00400	1	mg/L	SGT
Nickel	04	7440-02-0	SW6020B	11/13/2023 11:30	11/20/2023 11:42	52.77		10.00	10.00	10	ug/L	AB
Lead	04	7439-92-1	SW6020B	11/13/2023 11:30	11/20/2023 11:42	BLOD		3.0	3.0	10	ug/L	AB
Selenium	04	7782-49-2	SW6020B	11/13/2023 11:30	11/20/2023 11:42	BLOD		3.00	3.00	10	ug/L	AB
Zinc	04	7440-66-6	SW6020B	11/13/2023 11:30	11/20/2023 11:42	31.3	J	25.0	50.0	10	ug/L	AB
Volatile Organic Compounds by GCMS												
2-Butanone (MEK)	04RE1	78-93-3	SW8260D	11/13/2023 16:57	11/13/2023 16:57	31200		1500	5000	500	ug/L	RJB
Acetone	04RE1	67-64-1	SW8260D	11/13/2023 16:57	11/13/2023 16:57	67800		3500	5000	500	ug/L	RJB
Benzene	04	71-43-2	SW8260D	11/10/2023 17:26	11/10/2023 17:26	1190		20.0	50.0	50	ug/L	RJB
Ethylbenzene	04	100-41-4	SW8260D	11/10/2023 17:26	11/10/2023 17:26	60.5		20.0	50.0	50	ug/L	RJB
m+p-Xylenes	04	179601-23-1	SW8260D	11/10/2023 17:26	11/10/2023 17:26	90.0	J	30.0	100	50	ug/L	RJB
o-Xylene	04	95-47-6	SW8260D	11/10/2023 17:26	11/10/2023 17:26	48.0	J	20.0	50.0	50	ug/L	RJB
Toluene	04	108-88-3	SW8260D	11/10/2023 17:26	11/10/2023 17:26	114		25.0	50.0	50	ug/L	RJB
Xylenes, Total	04	1330-20-7	SW8260D	11/10/2023 17:26	11/10/2023 17:26	138	J	50.0	150	50	ug/L	RJB
Tetrahydrofuran	04	109-99-9	SW8260D	11/10/2023 17:26	11/10/2023 17:26	4600		500	500	50	ug/L	RJB
Surr: 1,2-Dichloroethane-d4 (Surr)	04	85.0 %	70-120	11/10/2023 17:26	11/10/2023 17:26							
Surr: 4-Bromofluorobenzene (Surr)	04	104 %	75-120	11/10/2023 17:26	11/10/2023 17:26							
Surr: Dibromofluoromethane (Surr)	04	85.8 %	70-130	11/10/2023 17:26	11/10/2023 17:26							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: EW-98

Laboratory Sample ID: 23K0408-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
Surr: Toluene-d8 (Surr)	04	103 %	70-130	11/10/2023 17:26	11/10/2023 17:26							
Surr: 1,2-Dichloroethane-d4 (Surr)	04RE1	95.2 %	70-120	11/13/2023 16:57	11/13/2023 16:57							
Surr: 4-Bromofluorobenzene (Surr)	04RE1	100 %	75-120	11/13/2023 16:57	11/13/2023 16:57							
Surr: Dibromofluoromethane (Surr)	04RE1	95.6 %	70-130	11/13/2023 16:57	11/13/2023 16:57							
Surr: Toluene-d8 (Surr)	04RE1	99.5 %	70-130	11/13/2023 16:57	11/13/2023 16:57							
Semivolatile Organic Compounds by GCMS												
Anthracene	04	120-12-7	SW8270E	11/10/2023 09:15	11/11/2023 00:00	BLOD		100	200	20	ug/L	BMS
Surr: 2,4,6-Tribromophenol (Surr)	04	53.1 %	5-136	11/10/2023 09:15	11/11/2023 00:00							
Surr: 2-Fluorobiphenyl (Surr)	04	17.4 %	9-117	11/10/2023 09:15	11/11/2023 00:00							
Surr: 2-Fluorophenol (Surr)	04	23.4 %	5-60	11/10/2023 09:15	11/11/2023 00:00							
Surr: Nitrobenzene-d5 (Surr)	04	%	5-151	11/10/2023 09:15	11/11/2023 00:00							DS
Surr: Phenol-d5 (Surr)	04	0.300 %	5-60	11/10/2023 09:15	11/11/2023 00:00							DS
Surr: p-Terphenyl-d14 (Surr)	04	16.4 %	5-141	11/10/2023 09:15	11/11/2023 00:00							
Wet Chemistry Analysis												
Ammonia as N	04RE1	7664-41-7	EPA350.1 R2.0	11/21/2023 12:08	11/21/2023 12:08	2080		183	250	2500	mg/L	AAL
BOD	04	E1640606	SM5210B-20 16	11/10/2023 08:51	11/10/2023 08:51	21500		0.2	2.0	1	mg/L	LAM
Cyanide	04	57-12-5	SW9012B	11/21/2023 15:50	11/21/2023 15:50	0.17	CI	0.05	0.05	5	mg/L	MGC
COD	04	NA	SM5220D-20 11	11/17/2023 14:01	11/17/2023 14:01	37600		5000	5000	500	mg/L	MGC
Nitrate as N	04	14797-55-8	Calc.	11/21/2023 17:22	11/21/2023 17:22	BLOD		1.50	5.50	100	mg/L	AJM
Nitrate+Nitrite as N	04	E701177	SM4500-NO 3F-2016	11/21/2023 17:22	11/21/2023 17:22	BLOD		0.50	0.50	5	mg/L	MGC
Nitrite as N	04	14797-65-0	SM4500-NO 2B-2011	11/09/2023 14:35	11/09/2023 14:35	BLOD		1.00	5.00	100	mg/L	AJM

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: EW-98

Laboratory Sample ID: 23K0408-04

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Total Recoverable Phenolics	04	NA	SW9065	11/20/2023 17:45	11/20/2023 17:45	29.1		1.50	2.50	50	mg/L	AAL
TKN as N	04RE1	E17148461	EPA351.2 R2.0	11/20/2023 17:30	11/20/2023 17:30	2120		80.0	200	400	mg/L	MJRL

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Client Sample ID: Trip Blank

Laboratory Sample ID: 23K0408-05

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
2-Butanone (MEK)	05	78-93-3	SW8260D	11/10/2023 13:33	11/10/2023 13:33	BLOD		3.00	10.0	1	ug/L	RJB
Acetone	05	67-64-1	SW8260D	11/10/2023 13:33	11/10/2023 13:33	BLOD		7.00	10.0	1	ug/L	RJB
Benzene	05	71-43-2	SW8260D	11/10/2023 13:33	11/10/2023 13:33	BLOD		0.40	1.00	1	ug/L	RJB
Ethylbenzene	05	100-41-4	SW8260D	11/10/2023 13:33	11/10/2023 13:33	BLOD		0.40	1.00	1	ug/L	RJB
m+p-Xylenes	05	179601-23-1	SW8260D	11/10/2023 13:33	11/10/2023 13:33	BLOD		0.60	2.00	1	ug/L	RJB
o-Xylene	05	95-47-6	SW8260D	11/10/2023 13:33	11/10/2023 13:33	BLOD		0.40	1.00	1	ug/L	RJB
Toluene	05	108-88-3	SW8260D	11/10/2023 13:33	11/10/2023 13:33	5.46		0.50	1.00	1	ug/L	RJB
Xylenes, Total	05	1330-20-7	SW8260D	11/10/2023 13:33	11/10/2023 13:33	BLOD		1.00	3.00	1	ug/L	RJB
Tetrahydrofuran	05	109-99-9	SW8260D	11/10/2023 13:33	11/10/2023 13:33	BLOD		10.0	10.0	1	ug/L	RJB
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	05	84.9 %	70-120	11/10/2023 13:33	11/10/2023 13:33							
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	05	103 %	75-120	11/10/2023 13:33	11/10/2023 13:33							
<i>Surr: Dibromofluoromethane (Surr)</i>	05	87.3 %	70-130	11/10/2023 13:33	11/10/2023 13:33							
<i>Surr: Toluene-d8 (Surr)</i>	05	103 %	70-130	11/10/2023 13:33	11/10/2023 13:33							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0509 - SW7470A

Blank (BGK0509-BLK1)

Prepared & Analyzed: 11/13/2023

Mercury ND 0.00020 mg/L

LCS (BGK0509-BS1)

Prepared & Analyzed: 11/13/2023

Mercury 0.00240 0.00020 mg/L 0.00250 96.0 80-120

Matrix Spike (BGK0509-MS1)

Source: 23K0493-01

Prepared & Analyzed: 11/13/2023

Mercury 0.00251 0.00020 mg/L 0.00250 BLOD 100 80-120

Matrix Spike (BGK0509-MS2)

Source: 23K0519-01

Prepared & Analyzed: 11/13/2023

Mercury 0.00244 0.00020 mg/L 0.00250 BLOD 97.6 80-120

Matrix Spike Dup (BGK0509-MSD1)

Source: 23K0493-01

Prepared & Analyzed: 11/13/2023

Mercury 0.00241 0.00020 mg/L 0.00250 BLOD 96.4 80-120 4.07 20

Batch BGK0515 - EPA200.8 R5.4

Blank (BGK0515-BLK1)

Prepared: 11/13/2023 Analyzed: 11/15/2023

Arsenic ND 1.0 ug/L

Barium ND 5.00 ug/L

Cadmium ND 1.00 ug/L

Chromium ND 1.00 ug/L

Copper ND 1.00 ug/L

Lead ND 1.0 ug/L

Nickel ND 1.000 ug/L

Selenium ND 1.00 ug/L

Silver ND 1.00 ug/L

Zinc ND 5.00 ug/L

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0515 - EPA200.8 R5.4

LCS (BGK0515-BS1)

Prepared: 11/13/2023 Analyzed: 11/15/2023

Arsenic	48	1.0	ug/L	50.0		96.6	80-120			
Barium	50.3	5.00	ug/L	50.0		101	80-120			
Cadmium	50.1	1.00	ug/L	50.0		100	80-120			
Chromium	48.9	1.00	ug/L	50.0		97.9	80-120			
Copper	47.6	1.00	ug/L	50.0		95.2	80-120			
Lead	52	1.0	ug/L	50.0		104	80-120			
Nickel	47.27	1.000	ug/L	50.0		94.5	80-120			
Selenium	49.7	1.00	ug/L	50.0		99.4	80-120			
Silver	9.87	1.00	ug/L	10.0		98.7	80-120			
Zinc	49.1	5.00	ug/L	50.0		98.1	80-120			

Matrix Spike (BGK0515-MS2)

Source: 23K0499-03

Prepared: 11/13/2023 Analyzed: 11/15/2023

Arsenic	49	1.0	ug/L	50.0	BLOD	98.2	75-125			
Barium	80.7	5.00	ug/L	50.0	29.5	102	75-125			
Cadmium	50.2	1.00	ug/L	50.0	BLOD	100	75-125			
Chromium	50.9	1.00	ug/L	50.0	1.40	99.0	75-125			
Copper	47.4	1.00	ug/L	50.0	0.469	93.9	75-125			
Lead	50	1.0	ug/L	50.0	BLOD	99.8	75-125			
Nickel	48.50	1.000	ug/L	50.0	BLOD	97.0	75-125			
Selenium	50.7	1.00	ug/L	50.0	BLOD	101	75-125			
Silver	9.94	1.00	ug/L	10.0	0.158	97.9	75-125			
Zinc	50.5	5.00	ug/L	50.0	BLOD	101	75-125			

Matrix Spike Dup (BGK0515-MSD2)

Source: 23K0499-03

Prepared: 11/13/2023 Analyzed: 11/15/2023

Arsenic	49	1.0	ug/L	50.0	BLOD	98.8	75-125	0.643	20	
Barium	81.2	5.00	ug/L	50.0	29.5	103	75-125	0.578	20	

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0515 - EPA200.8 R5.4

Matrix Spike Dup (BGK0515-MSD2)	Source: 23K0499-03			Prepared: 11/13/2023 Analyzed: 11/15/2023						
Cadmium	49.7	1.00	ug/L	50.0	BLOD	99.4	75-125	1.05	20	
Chromium	50.6	1.00	ug/L	50.0	1.40	98.3	75-125	0.717	20	
Copper	48.2	1.00	ug/L	50.0	0.469	95.5	75-125	1.66	20	
Lead	50	1.0	ug/L	50.0	BLOD	101	75-125	0.905	20	
Nickel	48.44	1.000	ug/L	50.0	BLOD	96.9	75-125	0.113	20	
Selenium	49.8	1.00	ug/L	50.0	BLOD	99.7	75-125	1.79	20	
Silver	10.1	1.00	ug/L	10.0	0.158	98.9	75-125	1.08	20	
Zinc	50.6	5.00	ug/L	50.0	BLOD	101	75-125	0.165	20	

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0476 - SW5030B-MS										
Blank (BGK0476-BLK1)				Prepared & Analyzed: 11/10/2023						
2-Butanone (MEK)	ND	10.0	ug/L							
Acetone	ND	10.0	ug/L							
Benzene	ND	1.00	ug/L							
Ethylbenzene	ND	1.00	ug/L							
m+p-Xylenes	ND	2.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
Xylenes, Total	ND	3.00	ug/L							
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	43.1		ug/L	50.0		86.1	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	51.7		ug/L	50.0		103	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	44.1		ug/L	50.0		88.3	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	52.4		ug/L	50.0		105	70-130			
LCS (BGK0476-BS1)				Prepared & Analyzed: 11/10/2023						
1,1,1,2-Tetrachloroethane	55.0	0.4	ug/L	50.0		110	80-130			
1,1,1-Trichloroethane	53.3	1	ug/L	50.0		107	65-130			
1,1,2,2-Tetrachloroethane	40.3	0.4	ug/L	50.0		80.6	65-130			
1,1,2-Trichloroethane	51.4	1	ug/L	50.0		103	75-125			
1,1-Dichloroethane	42.5	1	ug/L	50.0		84.9	70-135			
1,1-Dichloroethylene	50.2	1	ug/L	50.0		100	70-130			
1,1-Dichloropropene	47.2	1	ug/L	50.0		94.4	75-135			
1,2,3-Trichlorobenzene	54.2	1	ug/L	50.0		108	55-140			
1,2,3-Trichloropropane	40.1	1	ug/L	50.0		80.2	75-125			
1,2,4-Trichlorobenzene	56.5	1	ug/L	50.0		113	65-135			
1,2,4-Trimethylbenzene	53.3	1	ug/L	50.0		107	75-130			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0476 - SW5030B-MS

LCS (BGK0476-BS1)

Prepared & Analyzed: 11/10/2023

1,2-Dibromo-3-chloropropane (DBCP)	43.6	1	ug/L	50.0		87.1	50-130			
1,2-Dibromoethane (EDB)	45.7	1	ug/L	50.0		91.4	80-120			
1,2-Dichlorobenzene	49.7	0.5	ug/L	50.0		99.5	70-120			
1,2-Dichloroethane	49.1	1	ug/L	50.0		98.2	70-130			
1,2-Dichloropropane	44.2	0.5	ug/L	50.0		88.3	75-125			
1,3,5-Trimethylbenzene	52.1	1	ug/L	50.0		104	75-125			
1,3-Dichlorobenzene	52.0	1	ug/L	50.0		104	75-125			
1,3-Dichloropropane	50.2	1	ug/L	50.0		100	75-125			
1,4-Dichlorobenzene	50.5	1	ug/L	50.0		101	75-125			
2,2-Dichloropropane	51.2	1	ug/L	50.0		102	70-135			
2-Butanone (MEK)	32.3	10	ug/L	50.0		64.7	30-150			
2-Chlorotoluene	53.1	1	ug/L	50.0		106	75-125			
2-Hexanone (MBK)	38.1	5	ug/L	50.0		76.1	55-130			
4-Chlorotoluene	54.2	1	ug/L	50.0		108	75-130			
4-Isopropyltoluene	53.3	1	ug/L	50.0		107	75-130			
4-Methyl-2-pentanone (MIBK)	43.6	5	ug/L	50.0		87.2	60-135			
Acetone	38.8	10	ug/L	50.0		77.6	40-140			
Benzene	51.9	1	ug/L	50.0		104	80-120			
Bromobenzene	54.2	1	ug/L	50.0		108	75-125			
Bromochloromethane	49.5	1	ug/L	50.0		99.1	65-130			
Bromodichloromethane	55.8	0.5	ug/L	50.0		112	75-120			
Bromoform	56.0	1	ug/L	50.0		112	70-130			
Bromomethane	41.9	1	ug/L	50.0		83.7	30-145			
Carbon disulfide	40.9	10	ug/L	50.0		81.8	35-160			
Carbon tetrachloride	61.9	1	ug/L	50.0		124	65-140			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0476 - SW5030B-MS

LCS (BGK0476-BS1)

Prepared & Analyzed: 11/10/2023

Chlorobenzene	52.3	1	ug/L	50.0		105	80-120			
Chloroethane	43.5	1	ug/L	50.0		86.9	60-135			
Chloroform	47.4	0.5	ug/L	50.0		94.8	65-135			
Chloromethane	41.4	1	ug/L	50.0		82.8	40-125			
cis-1,2-Dichloroethylene	47.5	1	ug/L	50.0		95.0	70-125			
cis-1,3-Dichloropropene	51.4	1	ug/L	50.0		103	70-130			
Dibromochloromethane	60.3	0.5	ug/L	50.0		121	60-135			
Dibromomethane	51.6	1	ug/L	50.0		103	75-125			
Dichlorodifluoromethane	55.9	1	ug/L	50.0		112	30-155			
Ethylbenzene	53.5	1	ug/L	50.0		107	75-125			
Hexachlorobutadiene	55.5	0.8	ug/L	50.0		111	50-140			
Isopropylbenzene	49.2	1	ug/L	50.0		98.4	75-125			
m+p-Xylenes	107	2	ug/L	100		107	75-130			
Methylene chloride	51.5	4	ug/L	50.0		103	55-140			
Methyl-t-butyl ether (MTBE)	47.1	1	ug/L	50.0		94.2	65-125			
Naphthalene	49.5	1	ug/L	50.0		98.9	55-140			
n-Butylbenzene	47.6	1	ug/L	50.0		95.3	70-135			
n-Propylbenzene	55.7	1	ug/L	50.0		111	70-130			
o-Xylene	52.9	1	ug/L	50.0		106	80-120			
sec-Butylbenzene	52.2	1	ug/L	50.0		104	70-125			
Styrene	51.8	1	ug/L	50.0		104	65-135			
tert-Butylbenzene	52.3	1	ug/L	50.0		105	70-130			
Tetrachloroethylene (PCE)	58.9	1	ug/L	50.0		118	45-150			
Toluene	57.9	1	ug/L	50.0		116	75-120			
trans-1,2-Dichloroethylene	47.4	1	ug/L	50.0		94.7	60-140			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0476 - SW5030B-MS

LCS (BGK0476-BS1)

Prepared & Analyzed: 11/10/2023

trans-1,3-Dichloropropene	59.5	1	ug/L	50.0		119	55-140			
Trichloroethylene	55.4	1	ug/L	50.0		111	70-125			
Trichlorofluoromethane	61.8	1	ug/L	50.0		124	60-145			
Vinyl chloride	42.3	0.5	ug/L	50.0		84.5	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	42.2		ug/L	50.0		84.4	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	47.2		ug/L	50.0		94.5	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	42.8		ug/L	50.0		85.7	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	51.7		ug/L	50.0		103	70-130			

Matrix Spike (BGK0476-MS1)

Source: 23K0394-01

Prepared & Analyzed: 11/10/2023

1,1,1,2-Tetrachloroethane	53.2	0.4	ug/L	50.0	BLOD	106	80-130			
1,1,1-Trichloroethane	51.8	1	ug/L	50.0	BLOD	104	65-130			
1,1,2,2-Tetrachloroethane	39.3	0.4	ug/L	50.0	BLOD	78.6	65-130			
1,1,2-Trichloroethane	49.0	1	ug/L	50.0	BLOD	98.1	75-125			
1,1-Dichloroethane	40.8	1	ug/L	50.0	BLOD	81.7	70-135			
1,1-Dichloroethylene	47.8	1	ug/L	50.0	BLOD	95.5	50-145			
1,1-Dichloropropene	46.0	1	ug/L	50.0	BLOD	91.9	75-135			
1,2,3-Trichlorobenzene	53.3	1	ug/L	50.0	BLOD	107	55-140			
1,2,3-Trichloropropane	38.0	1	ug/L	50.0	BLOD	76.1	75-125			
1,2,4-Trichlorobenzene	54.5	1	ug/L	50.0	BLOD	109	65-135			
1,2,4-Trimethylbenzene	51.1	1	ug/L	50.0	BLOD	102	75-130			
1,2-Dibromo-3-chloropropane (DBCP)	42.8	1	ug/L	50.0	BLOD	85.7	50-130			
1,2-Dibromoethane (EDB)	44.9	1	ug/L	50.0	BLOD	89.7	80-120			
1,2-Dichlorobenzene	48.2	0.5	ug/L	50.0	BLOD	96.3	70-120			
1,2-Dichloroethane	47.8	1	ug/L	50.0	BLOD	95.6	70-130			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0476 - SW5030B-MS

Matrix Spike (BGK0476-MS1)

Source: 23K0394-01

Prepared & Analyzed: 11/10/2023

1,2-Dichloropropane	43.0	0.5	ug/L	50.0	BLOD	85.9	75-125			
1,3,5-Trimethylbenzene	50.2	1	ug/L	50.0	BLOD	100	75-124			
1,3-Dichlorobenzene	51.3	1	ug/L	50.0	BLOD	103	75-125			
1,3-Dichloropropane	48.1	1	ug/L	50.0	BLOD	96.2	75-125			
1,4-Dichlorobenzene	48.6	1	ug/L	50.0	BLOD	97.2	75-125			
2,2-Dichloropropane	49.1	1	ug/L	50.0	BLOD	98.2	70-135			
2-Butanone (MEK)	35.6	10	ug/L	50.0	BLOD	71.2	30-150			
2-Chlorotoluene	51.8	1	ug/L	50.0	BLOD	104	75-125			
2-Hexanone (MBK)	36.5	5	ug/L	50.0	BLOD	73.0	55-130			
4-Chlorotoluene	52.4	1	ug/L	50.0	BLOD	105	75-130			
4-Isopropyltoluene	51.2	1	ug/L	50.0	BLOD	102	75-130			
4-Methyl-2-pentanone (MIBK)	42.8	5	ug/L	50.0	BLOD	85.6	60-135			
Acetone	39.6	10	ug/L	50.0	BLOD	79.2	40-140			
Benzene	49.4	1	ug/L	50.0	BLOD	98.7	80-120			
Bromobenzene	53.0	1	ug/L	50.0	BLOD	106	75-125			
Bromochloromethane	47.4	1	ug/L	50.0	BLOD	94.7	65-130			
Bromodichloromethane	53.2	0.5	ug/L	50.0	BLOD	106	75-136			
Bromoform	54.9	1	ug/L	50.0	BLOD	110	70-130			
Bromomethane	39.1	1	ug/L	50.0	BLOD	78.1	30-145			
Carbon disulfide	37.1	10	ug/L	50.0	BLOD	74.2	35-160			
Carbon tetrachloride	58.6	1	ug/L	50.0	BLOD	117	65-140			
Chlorobenzene	50.6	1	ug/L	50.0	BLOD	101	80-120			
Chloroethane	41.1	1	ug/L	50.0	BLOD	82.2	60-135			
Chloroform	45.8	0.5	ug/L	50.0	BLOD	91.5	65-135			
Chloromethane	38.7	1	ug/L	50.0	BLOD	77.5	40-125			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0476 - SW5030B-MS

Matrix Spike (BGK0476-MS1)

Source: 23K0394-01

Prepared & Analyzed: 11/10/2023

cis-1,2-Dichloroethylene	45.6	1	ug/L	50.0	BLOD	91.3	70-125			
cis-1,3-Dichloropropene	49.9	1	ug/L	50.0	BLOD	99.9	47-136			
Dibromochloromethane	59.5	0.5	ug/L	50.0	BLOD	119	60-135			
Dibromomethane	50.0	1	ug/L	50.0	BLOD	100	75-125			
Dichlorodifluoromethane	51.5	1	ug/L	50.0	BLOD	103	30-155			
Ethylbenzene	51.2	1	ug/L	50.0	BLOD	102	75-125			
Hexachlorobutadiene	54.2	0.8	ug/L	50.0	BLOD	108	50-140			
Isopropylbenzene	47.6	1	ug/L	50.0	BLOD	95.2	75-125			
m+p-Xylenes	103	2	ug/L	100	BLOD	103	75-130			
Methylene chloride	44.0	4	ug/L	50.0	BLOD	88.1	55-140			
Methyl-t-butyl ether (MTBE)	46.0	1	ug/L	50.0	BLOD	92.0	65-125			
Naphthalene	48.5	1	ug/L	50.0	29.2	38.7	55-140			M
n-Butylbenzene	46.1	1	ug/L	50.0	4.14	83.9	70-135			
n-Propylbenzene	54.1	1	ug/L	50.0	2.29	104	70-130			
o-Xylene	51.3	1	ug/L	50.0	BLOD	103	80-120			
sec-Butylbenzene	50.2	1	ug/L	50.0	2.05	96.4	70-125			
Styrene	50.2	1	ug/L	50.0	BLOD	100	65-135			
tert-Butylbenzene	50.4	1	ug/L	50.0	BLOD	101	70-130			
Tetrachloroethylene (PCE)	52.7	1	ug/L	50.0	BLOD	105	51-231			
Toluene	55.8	1	ug/L	50.0	BLOD	112	75-120			
trans-1,2-Dichloroethylene	45.8	1	ug/L	50.0	BLOD	91.5	60-140			
trans-1,3-Dichloropropene	57.4	1	ug/L	50.0	BLOD	115	55-140			
Trichloroethylene	52.7	1	ug/L	50.0	BLOD	105	70-125			
Trichlorofluoromethane	58.3	1	ug/L	50.0	BLOD	117	60-145			
Vinyl chloride	40.3	0.5	ug/L	50.0	BLOD	80.6	50-145			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0476 - SW5030B-MS

Matrix Spike (BGK0476-MS1)

Source: 23K0394-01

Prepared & Analyzed: 11/10/2023

<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	42.3		ug/L	50.0		84.5	70-120		
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	47.0		ug/L	50.0		94.0	75-120		
<i>Surr: Dibromofluoromethane (Surr)</i>	42.6		ug/L	50.0		85.2	70-130		
<i>Surr: Toluene-d8 (Surr)</i>	51.5		ug/L	50.0		103	70-130		

Matrix Spike Dup (BGK0476-MSD1)

Source: 23K0394-01

Prepared & Analyzed: 11/10/2023

1,1,1,2-Tetrachloroethane	53.8	0.4	ug/L	50.0	BLOD	108	80-130	1.25	30
1,1,1-Trichloroethane	52.7	1	ug/L	50.0	BLOD	105	65-130	1.64	30
1,1,2,2-Tetrachloroethane	40.4	0.4	ug/L	50.0	BLOD	80.7	65-130	2.64	30
1,1,2-Trichloroethane	50.8	1	ug/L	50.0	BLOD	102	75-125	3.62	30
1,1-Dichloroethane	41.7	1	ug/L	50.0	BLOD	83.5	70-135	2.18	30
1,1-Dichloroethylene	49.1	1	ug/L	50.0	BLOD	98.2	50-145	2.73	30
1,1-Dichloropropene	47.0	1	ug/L	50.0	BLOD	94.0	75-135	2.30	30
1,2,3-Trichlorobenzene	53.6	1	ug/L	50.0	BLOD	107	55-140	0.449	30
1,2,3-Trichloropropane	40.0	1	ug/L	50.0	BLOD	80.1	75-125	5.15	30
1,2,4-Trichlorobenzene	55.1	1	ug/L	50.0	BLOD	110	65-135	1.20	30
1,2,4-Trimethylbenzene	50.5	1	ug/L	50.0	BLOD	101	75-130	1.26	30
1,2-Dibromo-3-chloropropane (DBCP)	44.0	1	ug/L	50.0	BLOD	87.9	50-130	2.58	30
1,2-Dibromoethane (EDB)	45.4	1	ug/L	50.0	BLOD	90.9	80-120	1.31	30
1,2-Dichlorobenzene	48.4	0.5	ug/L	50.0	BLOD	96.8	70-120	0.497	30
1,2-Dichloroethane	48.9	1	ug/L	50.0	BLOD	97.9	70-130	2.34	30
1,2-Dichloropropane	43.0	0.5	ug/L	50.0	BLOD	86.1	75-125	0.140	30
1,3,5-Trimethylbenzene	50.5	1	ug/L	50.0	BLOD	101	75-124	0.735	30
1,3-Dichlorobenzene	50.6	1	ug/L	50.0	BLOD	101	75-125	1.39	30
1,3-Dichloropropane	49.6	1	ug/L	50.0	BLOD	99.2	75-125	3.01	30

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0476 - SW5030B-MS

Matrix Spike Dup (BGK0476-MSD1)

Source: 23K0394-01

Prepared & Analyzed: 11/10/2023

1,4-Dichlorobenzene	49.2	1	ug/L	50.0	BLOD	98.4	75-125	1.21	30	
2,2-Dichloropropane	50.2	1	ug/L	50.0	BLOD	100	70-135	2.22	30	
2-Butanone (MEK)	38.0	10	ug/L	50.0	BLOD	75.9	30-150	6.50	30	
2-Chlorotoluene	52.0	1	ug/L	50.0	BLOD	104	75-125	0.366	30	
2-Hexanone (MBK)	37.0	5	ug/L	50.0	BLOD	74.0	55-130	1.25	30	
4-Chlorotoluene	52.7	1	ug/L	50.0	BLOD	105	75-130	0.628	30	
4-Isopropyltoluene	51.3	1	ug/L	50.0	BLOD	103	75-130	0.156	30	
4-Methyl-2-pentanone (MIBK)	41.9	5	ug/L	50.0	BLOD	83.8	60-135	2.17	30	
Acetone	45.1	10	ug/L	50.0	BLOD	90.2	40-140		30	
Benzene	50.2	1	ug/L	50.0	BLOD	100	80-120	1.73	30	
Bromobenzene	53.2	1	ug/L	50.0	BLOD	106	75-125	0.264	30	
Bromochloromethane	49.1	1	ug/L	50.0	BLOD	98.1	65-130	3.55	30	
Bromodichloromethane	53.4	0.5	ug/L	50.0	BLOD	107	75-136	0.412	30	
Bromoform	55.6	1	ug/L	50.0	BLOD	111	70-130	1.18	30	
Bromomethane	39.6	1	ug/L	50.0	BLOD	79.3	30-145	1.42	30	
Carbon disulfide	29.0	10	ug/L	50.0	BLOD	58.1	35-160	24.3	30	
Carbon tetrachloride	59.2	1	ug/L	50.0	BLOD	118	65-140	1.04	30	
Chlorobenzene	51.1	1	ug/L	50.0	BLOD	102	80-120	0.983	30	
Chloroethane	40.9	1	ug/L	50.0	BLOD	81.8	60-135	0.488	30	
Chloroform	46.8	0.5	ug/L	50.0	BLOD	93.6	65-135	2.29	30	
Chloromethane	39.2	1	ug/L	50.0	BLOD	78.4	40-125	1.21	30	
cis-1,2-Dichloroethylene	46.9	1	ug/L	50.0	BLOD	93.9	70-125	2.79	30	
cis-1,3-Dichloropropene	50.3	1	ug/L	50.0	BLOD	101	47-136	0.738	30	
Dibromochloromethane	61.1	0.5	ug/L	50.0	BLOD	122	60-135	2.57	30	
Dibromomethane	50.9	1	ug/L	50.0	BLOD	102	75-125	1.70	30	

Certificate of Analysis

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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0476 - SW5030B-MS

Matrix Spike Dup (BGK0476-MSD1)	Source: 23K0394-01			Prepared & Analyzed: 11/10/2023						
Dichlorodifluoromethane	56.0	1	ug/L	50.0	BLOD	112	30-155	8.36	30	
Ethylbenzene	52.2	1	ug/L	50.0	BLOD	104	75-125	1.99	30	
Hexachlorobutadiene	52.8	0.8	ug/L	50.0	BLOD	106	50-140	2.52	30	
Isopropylbenzene	48.3	1	ug/L	50.0	BLOD	96.5	75-125	1.36	30	
m+p-Xylenes	104	2	ug/L	100	BLOD	104	75-130	1.51	30	
Methylene chloride	44.5	4	ug/L	50.0	BLOD	89.1	55-140	1.15	30	
Methyl-t-butyl ether (MTBE)	46.6	1	ug/L	50.0	BLOD	93.2	65-125	1.30	30	
Naphthalene	48.5	1	ug/L	50.0	29.2	38.6	55-140	0.0825	30	M
n-Butylbenzene	45.5	1	ug/L	50.0	4.14	82.7	70-135	1.38	30	
n-Propylbenzene	53.5	1	ug/L	50.0	2.29	102	70-130	1.13	30	
o-Xylene	51.8	1	ug/L	50.0	BLOD	104	80-120	0.854	30	
sec-Butylbenzene	50.6	1	ug/L	50.0	2.05	97.1	70-125	0.674	30	
Styrene	51.4	1	ug/L	50.0	BLOD	103	65-135	2.22	30	
tert-Butylbenzene	50.3	1	ug/L	50.0	BLOD	101	70-130	0.139	30	
Tetrachloroethylene (PCE)	53.5	1	ug/L	50.0	BLOD	107	51-231	1.43	30	
Toluene	56.5	1	ug/L	50.0	BLOD	113	75-120	1.09	30	
trans-1,2-Dichloroethylene	46.4	1	ug/L	50.0	BLOD	92.8	60-140	1.35	30	
trans-1,3-Dichloropropene	57.9	1	ug/L	50.0	BLOD	116	55-140	0.885	30	
Trichloroethylene	54.0	1	ug/L	50.0	BLOD	108	70-125	2.38	30	
Trichlorofluoromethane	61.3	1	ug/L	50.0	BLOD	123	60-145	4.98	30	
Vinyl chloride	48.9	0.5	ug/L	50.0	BLOD	97.7	50-145	19.2	30	
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>42.5</i>		<i>ug/L</i>	<i>50.0</i>		<i>85.0</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>46.8</i>		<i>ug/L</i>	<i>50.0</i>		<i>93.7</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>43.1</i>		<i>ug/L</i>	<i>50.0</i>		<i>86.3</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>51.4</i>		<i>ug/L</i>	<i>50.0</i>		<i>103</i>	<i>70-130</i>			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0476 - SW5030B-MS

Matrix Spike Dup (BGK0476-MSD1) Source: 23K0394-01 Prepared & Analyzed: 11/10/2023

Batch BGK0533 - SW5030B-MS

Blank (BGK0533-BLK1) Prepared & Analyzed: 11/13/2023

2-Butanone (MEK)	ND	10.0	ug/L							
Acetone	ND	10.0	ug/L							
Benzene	ND	1.00	ug/L							
Ethylbenzene	ND	1.00	ug/L							
m+p-Xylenes	ND	2.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
Xylenes, Total	ND	3.00	ug/L							
<hr/>										
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>45.0</i>		<i>ug/L</i>	<i>50.0</i>		<i>89.9</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>48.6</i>		<i>ug/L</i>	<i>50.0</i>		<i>97.3</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>45.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>91.4</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.7</i>		<i>ug/L</i>	<i>50.0</i>		<i>99.5</i>	<i>70-130</i>			

LCS (BGK0533-BS1) Prepared & Analyzed: 11/13/2023

1,1,1,2-Tetrachloroethane	51.5	0.4	ug/L	50.0		103	80-130			
1,1,1-Trichloroethane	48.0	1	ug/L	50.0		96.0	65-130			
1,1,2,2-Tetrachloroethane	51.1	0.4	ug/L	50.0		102	65-130			
1,1,2-Trichloroethane	50.6	1	ug/L	50.0		101	75-125			
1,1-Dichloroethane	47.1	1	ug/L	50.0		94.2	70-135			
1,1-Dichloroethylene	44.5	1	ug/L	50.0		89.0	70-130			
1,1-Dichloropropene	50.1	1	ug/L	50.0		100	75-135			
1,2,3-Trichlorobenzene	54.8	1	ug/L	50.0		110	55-140			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

LCS (BGK0533-BS1)

Prepared & Analyzed: 11/13/2023

1,2,3-Trichloropropane	51.0	1	ug/L	50.0		102	75-125			
1,2,4-Trichlorobenzene	55.8	1	ug/L	50.0		112	65-135			
1,2,4-Trimethylbenzene	52.7	1	ug/L	50.0		105	75-130			
1,2-Dibromo-3-chloropropane (DBCP)	50.8	1	ug/L	50.0		102	50-130			
1,2-Dibromoethane (EDB)	49.4	1	ug/L	50.0		98.8	80-120			
1,2-Dichlorobenzene	52.3	0.5	ug/L	50.0		105	70-120			
1,2-Dichloroethane	44.4	1	ug/L	50.0		88.9	70-130			
1,2-Dichloropropane	48.7	0.5	ug/L	50.0		97.3	75-125			
1,3,5-Trimethylbenzene	50.4	1	ug/L	50.0		101	75-125			
1,3-Dichlorobenzene	52.3	1	ug/L	50.0		105	75-125			
1,3-Dichloropropane	48.0	1	ug/L	50.0		95.9	75-125			
1,4-Dichlorobenzene	50.4	1	ug/L	50.0		101	75-125			
2,2-Dichloropropane	51.1	1	ug/L	50.0		102	70-135			
2-Butanone (MEK)	54.7	10	ug/L	50.0		109	30-150			
2-Chlorotoluene	52.2	1	ug/L	50.0		104	75-125			
2-Hexanone (MBK)	54.9	5	ug/L	50.0		110	55-130			
4-Chlorotoluene	50.4	1	ug/L	50.0		101	75-130			
4-Isopropyltoluene	55.3	1	ug/L	50.0		111	75-130			
4-Methyl-2-pentanone (MIBK)	53.6	5	ug/L	50.0		107	60-135			
Acetone	45.1	10	ug/L	50.0		90.3	40-140			
Benzene	47.1	1	ug/L	50.0		94.1	80-120			
Bromobenzene	51.0	1	ug/L	50.0		102	75-125			
Bromochloromethane	43.6	1	ug/L	50.0		87.2	65-130			
Bromodichloromethane	51.1	0.5	ug/L	50.0		102	75-120			
Bromoform	50.7	1	ug/L	50.0		101	70-130			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

LCS (BGK0533-BS1)

Prepared & Analyzed: 11/13/2023

Bromomethane	31.7	1	ug/L	50.0		63.5	30-145			
Carbon disulfide	44.6	10	ug/L	50.0		89.2	35-160			
Carbon tetrachloride	56.0	1	ug/L	50.0		112	65-140			
Chlorobenzene	51.8	1	ug/L	50.0		104	80-120			
Chloroethane	42.5	1	ug/L	50.0		85.0	60-135			
Chloroform	45.8	0.5	ug/L	50.0		91.5	65-135			
Chloromethane	37.8	1	ug/L	50.0		75.6	40-125			
cis-1,2-Dichloroethylene	44.8	1	ug/L	50.0		89.6	70-125			
cis-1,3-Dichloropropene	49.2	1	ug/L	50.0		98.5	70-130			
Dibromochloromethane	51.4	0.5	ug/L	50.0		103	60-135			
Dibromomethane	48.2	1	ug/L	50.0		96.5	75-125			
Dichlorodifluoromethane	44.6	1	ug/L	50.0		89.3	30-155			
Ethylbenzene	52.5	1	ug/L	50.0		105	75-125			
Hexachlorobutadiene	59.6	0.8	ug/L	50.0		119	50-140			
Isopropylbenzene	50.9	1	ug/L	50.0		102	75-125			
m+p-Xylenes	106	2	ug/L	100		106	75-130			
Methylene chloride	46.9	4	ug/L	50.0		93.8	55-140			
Methyl-t-butyl ether (MTBE)	45.0	1	ug/L	50.0		90.0	65-125			
Naphthalene	53.8	1	ug/L	50.0		108	55-140			
n-Butylbenzene	56.4	1	ug/L	50.0		113	70-135			
n-Propylbenzene	52.9	1	ug/L	50.0		106	70-130			
o-Xylene	52.9	1	ug/L	50.0		106	80-120			
sec-Butylbenzene	59.2	1	ug/L	50.0		118	70-125			
Styrene	50.4	1	ug/L	50.0		101	65-135			
tert-Butylbenzene	55.0	1	ug/L	50.0		110	70-130			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

LCS (BGK0533-BS1)

Prepared & Analyzed: 11/13/2023

Tetrachloroethylene (PCE)	58.0	1	ug/L	50.0		116	45-150			
Toluene	51.4	1	ug/L	50.0		103	75-120			
trans-1,2-Dichloroethylene	44.2	1	ug/L	50.0		88.3	60-140			
trans-1,3-Dichloropropene	52.8	1	ug/L	50.0		106	55-140			
Trichloroethylene	51.2	1	ug/L	50.0		102	70-125			
Trichlorofluoromethane	54.4	1	ug/L	50.0		109	60-145			
Vinyl chloride	41.7	0.5	ug/L	50.0		83.4	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	<i>43.1</i>		ug/L	<i>50.0</i>		<i>86.2</i>	<i>70-120</i>			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	<i>49.8</i>		ug/L	<i>50.0</i>		<i>99.6</i>	<i>75-120</i>			
<i>Surr: Dibromofluoromethane (Surr)</i>	<i>45.6</i>		ug/L	<i>50.0</i>		<i>91.2</i>	<i>70-130</i>			
<i>Surr: Toluene-d8 (Surr)</i>	<i>49.0</i>		ug/L	<i>50.0</i>		<i>98.0</i>	<i>70-130</i>			

Duplicate (BGK0533-DUP1)

Source: 23K0563-02

Prepared & Analyzed: 11/13/2023

1,1,1,2-Tetrachloroethane	ND	8.00	ug/L		BLOD			NA	30	
1,1,1-Trichloroethane	ND	20.0	ug/L		BLOD			NA	30	
1,1,2,2-Tetrachloroethane	ND	8.00	ug/L		BLOD			NA	30	
1,1,2-Trichloroethane	ND	20.0	ug/L		BLOD			NA	30	
1,1-Dichloroethane	ND	20.0	ug/L		BLOD			NA	30	
1,1-Dichloroethylene	ND	20.0	ug/L		BLOD			NA	30	
1,1-Dichloropropene	ND	20.0	ug/L		BLOD			NA	30	
1,2,3-Trichlorobenzene	ND	20.0	ug/L		BLOD			NA	30	
1,2,3-Trichloropropane	ND	20.0	ug/L		BLOD			NA	30	
1,2,4-Trichlorobenzene	ND	20.0	ug/L		BLOD			NA	30	
1,2,4-Trimethylbenzene	ND	20.0	ug/L		BLOD			NA	30	
1,2-Dibromo-3-chloropropane (DBCP)	ND	20.0	ug/L		BLOD			NA	30	

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

Duplicate (BGK0533-DUP1)	Source: 23K0563-02			Prepared & Analyzed: 11/13/2023						
1,2-Dibromoethane (EDB)	ND	20.0	ug/L		BLOD			NA	30	
1,2-Dichlorobenzene	ND	10.0	ug/L		BLOD			NA	30	
1,2-Dichloroethane	ND	20.0	ug/L		BLOD			NA	30	
1,2-Dichloropropane	ND	10.0	ug/L		BLOD			NA	30	
1,3,5-Trimethylbenzene	ND	20.0	ug/L		BLOD			NA	30	
1,3-Dichlorobenzene	ND	20.0	ug/L		BLOD			NA	30	
1,3-Dichloropropane	ND	20.0	ug/L		BLOD			NA	30	
1,4-Dichlorobenzene	ND	20.0	ug/L		BLOD			NA	30	
2,2-Dichloropropane	ND	20.0	ug/L		BLOD			NA	30	
2-Butanone (MEK)	ND	200	ug/L		BLOD			NA	30	
2-Chlorotoluene	ND	20.0	ug/L		BLOD			NA	30	
2-Hexanone (MBK)	ND	100	ug/L		BLOD			NA	30	
4-Chlorotoluene	ND	20.0	ug/L		BLOD			NA	30	
4-Isopropyltoluene	ND	20.0	ug/L		BLOD			NA	30	
4-Methyl-2-pentanone (MIBK)	ND	100	ug/L		BLOD			NA	30	
Acetone	25400	200	ug/L		25100			1.15	30	
Benzene	ND	20.0	ug/L		BLOD			NA	30	
Bromobenzene	ND	20.0	ug/L		BLOD			NA	30	
Bromochloromethane	ND	20.0	ug/L		BLOD			NA	30	
Bromodichloromethane	ND	10.0	ug/L		BLOD			NA	30	
Bromoform	ND	20.0	ug/L		BLOD			NA	30	
Bromomethane	ND	20.0	ug/L		BLOD			NA	30	
Carbon disulfide	ND	200	ug/L		BLOD			NA	30	
Carbon tetrachloride	ND	20.0	ug/L		BLOD			NA	30	
Chlorobenzene	ND	20.0	ug/L		BLOD			NA	30	

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

Duplicate (BGK0533-DUP1)

Source: 23K0563-02

Prepared & Analyzed: 11/13/2023

Chloroethane	ND	20.0	ug/L		BLOD			NA	30	
Chloroform	ND	10.0	ug/L		BLOD			NA	30	
Chloromethane	ND	20.0	ug/L		BLOD			NA	30	
cis-1,2-Dichloroethylene	ND	20.0	ug/L		BLOD			NA	30	
cis-1,3-Dichloropropene	ND	20.0	ug/L		BLOD			NA	30	
Dibromochloromethane	ND	10.0	ug/L		BLOD			NA	30	
Dibromomethane	ND	20.0	ug/L		BLOD			NA	30	
Dichlorodifluoromethane	ND	20.0	ug/L		BLOD			NA	30	
Di-isopropyl ether (DIPE)	ND	100	ug/L		BLOD			NA	30	
Ethylbenzene	ND	20.0	ug/L		BLOD			NA	30	
Hexachlorobutadiene	ND	16.0	ug/L		BLOD			NA	30	
Iodomethane	ND	200	ug/L		BLOD			NA	30	
Isopropylbenzene	ND	20.0	ug/L		BLOD			NA	30	
m+p-Xylenes	ND	40.0	ug/L		BLOD			NA	30	
Methylene chloride	ND	80.0	ug/L		BLOD			NA	30	
Methyl-t-butyl ether (MTBE)	ND	20.0	ug/L		BLOD			NA	30	
Naphthalene	ND	20.0	ug/L		BLOD			NA	30	
n-Butylbenzene	ND	20.0	ug/L		BLOD			NA	30	
n-Propylbenzene	ND	20.0	ug/L		BLOD			NA	30	
o-Xylene	ND	20.0	ug/L		BLOD			NA	30	
sec-Butylbenzene	ND	20.0	ug/L		BLOD			NA	30	
Styrene	ND	20.0	ug/L		BLOD			NA	30	
tert-Butylbenzene	ND	20.0	ug/L		BLOD			NA	30	
Tetrachloroethylene (PCE)	ND	20.0	ug/L		BLOD			NA	30	
Toluene	ND	20.0	ug/L		BLOD			NA	30	

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

Duplicate (BGK0533-DUP1)	Source: 23K0563-02			Prepared & Analyzed: 11/13/2023						
trans-1,2-Dichloroethylene	ND	20.0	ug/L		BLOD			NA	30	
trans-1,3-Dichloropropene	ND	20.0	ug/L		BLOD			NA	30	
Trichloroethylene	ND	20.0	ug/L		BLOD			NA	30	
Trichlorofluoromethane	ND	20.0	ug/L		BLOD			NA	30	
Vinyl acetate	ND	200	ug/L		BLOD			NA	30	
Vinyl chloride	ND	10.0	ug/L		BLOD			NA	30	
Xylenes, Total	ND	60.0	ug/L		BLOD			NA	30	
Tetrahydrofuran	ND	200	ug/L		BLOD			NA	30	

<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	49.7		ug/L	50.0		99.3	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	49.3		ug/L	50.0		98.6	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	50.2		ug/L	50.0		100	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	49.3		ug/L	50.0		98.6	70-130			

Matrix Spike (BGK0533-MS1)	Source: 23K0563-01			Prepared & Analyzed: 11/13/2023						
1,1,1,2-Tetrachloroethane	51.4	0.4	ug/L	50.0	BLOD	103	80-130			
1,1,1-Trichloroethane	49.0	1	ug/L	50.0	BLOD	98.0	65-130			
1,1,2,2-Tetrachloroethane	51.3	0.4	ug/L	50.0	BLOD	103	65-130			
1,1,2-Trichloroethane	52.3	1	ug/L	50.0	BLOD	105	75-125			
1,1-Dichloroethane	47.7	1	ug/L	50.0	BLOD	95.5	70-135			
1,1-Dichloroethylene	44.2	1	ug/L	50.0	BLOD	88.4	50-145			
1,1-Dichloropropene	50.8	1	ug/L	50.0	BLOD	102	75-135			
1,2,3-Trichlorobenzene	54.9	1	ug/L	50.0	BLOD	110	55-140			
1,2,3-Trichloropropane	50.6	1	ug/L	50.0	BLOD	101	75-125			
1,2,4-Trichlorobenzene	55.3	1	ug/L	50.0	BLOD	111	65-135			
1,2,4-Trimethylbenzene	52.8	1	ug/L	50.0	BLOD	106	75-130			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

Matrix Spike (BGK0533-MS1)

Source: 23K0563-01

Prepared & Analyzed: 11/13/2023

1,2-Dibromo-3-chloropropane (DBCP)	51.5	1	ug/L	50.0	BLOD	103	50-130			
1,2-Dibromoethane (EDB)	50.4	1	ug/L	50.0	BLOD	101	80-120			
1,2-Dichlorobenzene	51.8	0.5	ug/L	50.0	BLOD	104	70-120			
1,2-Dichloroethane	44.2	1	ug/L	50.0	BLOD	88.4	70-130			
1,2-Dichloropropane	50.0	0.5	ug/L	50.0	BLOD	100	75-125			
1,3,5-Trimethylbenzene	51.2	1	ug/L	50.0	BLOD	102	75-124			
1,3-Dichlorobenzene	51.4	1	ug/L	50.0	BLOD	103	75-125			
1,3-Dichloropropane	49.2	1	ug/L	50.0	BLOD	98.4	75-125			
1,4-Dichlorobenzene	50.2	1	ug/L	50.0	BLOD	100	75-125			
2,2-Dichloropropane	51.0	1	ug/L	50.0	BLOD	102	70-135			
2-Butanone (MEK)	48.8	10	ug/L	50.0	BLOD	97.5	30-150			
2-Chlorotoluene	50.8	1	ug/L	50.0	BLOD	102	75-125			
2-Hexanone (MBK)	49.6	5	ug/L	50.0	BLOD	99.1	55-130			
4-Chlorotoluene	50.7	1	ug/L	50.0	BLOD	101	75-130			
4-Isopropyltoluene	55.2	1	ug/L	50.0	BLOD	110	75-130			
4-Methyl-2-pentanone (MIBK)	50.9	5	ug/L	50.0	BLOD	102	60-135			
Acetone	2390	10	ug/L	50.0	50800	-96800	40-140			M
Benzene	47.9	1	ug/L	50.0	BLOD	95.9	80-120			
Bromobenzene	52.6	1	ug/L	50.0	BLOD	105	75-125			
Bromochloromethane	44.0	1	ug/L	50.0	BLOD	87.9	65-130			
Bromodichloromethane	53.2	0.5	ug/L	50.0	BLOD	106	75-136			
Bromoform	50.2	1	ug/L	50.0	BLOD	100	70-130			
Bromomethane	33.7	1	ug/L	50.0	BLOD	67.4	30-145			
Carbon disulfide	40.9	10	ug/L	50.0	BLOD	81.7	35-160			
Carbon tetrachloride	57.4	1	ug/L	50.0	BLOD	115	65-140			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

Matrix Spike (BGK0533-MS1)

Source: 23K0563-01

Prepared & Analyzed: 11/13/2023

Chlorobenzene	52.4	1	ug/L	50.0	BLOD	105	80-120			
Chloroethane	44.1	1	ug/L	50.0	BLOD	88.2	60-135			
Chloroform	46.4	0.5	ug/L	50.0	BLOD	92.8	65-135			
Chloromethane	38.0	1	ug/L	50.0	BLOD	76.1	40-125			
cis-1,2-Dichloroethylene	45.6	1	ug/L	50.0	BLOD	91.2	70-125			
cis-1,3-Dichloropropene	51.2	1	ug/L	50.0	BLOD	102	47-136			
Dibromochloromethane	52.9	0.5	ug/L	50.0	BLOD	106	60-135			
Dibromomethane	48.7	1	ug/L	50.0	BLOD	97.5	75-125			
Dichlorodifluoromethane	45.5	1	ug/L	50.0	BLOD	91.0	30-155			
Ethylbenzene	54.1	1	ug/L	50.0	BLOD	108	75-125			
Hexachlorobutadiene	60.8	0.8	ug/L	50.0	BLOD	122	50-140			
Isopropylbenzene	53.3	1	ug/L	50.0	BLOD	107	75-125			
m+p-Xylenes	107	2	ug/L	100	BLOD	107	75-130			
Methylene chloride	45.5	4	ug/L	50.0	17.6	55.7	55-140			
Methyl-t-butyl ether (MTBE)	44.0	1	ug/L	50.0	BLOD	87.9	65-125			
Naphthalene	55.6	1	ug/L	50.0	BLOD	111	55-140			
n-Butylbenzene	56.4	1	ug/L	50.0	BLOD	113	70-135			
n-Propylbenzene	53.2	1	ug/L	50.0	BLOD	106	70-130			
o-Xylene	53.3	1	ug/L	50.0	BLOD	107	80-120			
sec-Butylbenzene	59.1	1	ug/L	50.0	BLOD	118	70-125			
Styrene	50.2	1	ug/L	50.0	BLOD	100	65-135			
tert-Butylbenzene	54.6	1	ug/L	50.0	BLOD	109	70-130			
Tetrachloroethylene (PCE)	59.4	1	ug/L	50.0	BLOD	119	51-231			
Toluene	53.2	1	ug/L	50.0	BLOD	106	75-120			
trans-1,2-Dichloroethylene	45.2	1	ug/L	50.0	BLOD	90.5	60-140			

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

Matrix Spike (BGK0533-MS1)	Source: 23K0563-01			Prepared & Analyzed: 11/13/2023						
trans-1,3-Dichloropropene	54.4	1	ug/L	50.0	BLOD	109	55-140			
Trichloroethylene	52.8	1	ug/L	50.0	BLOD	106	70-125			
Trichlorofluoromethane	54.9	1	ug/L	50.0	BLOD	110	60-145			
Vinyl chloride	42.5	0.5	ug/L	50.0	BLOD	85.0	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	42.6		ug/L	50.0		85.1	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	50.4		ug/L	50.0		101	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	45.6		ug/L	50.0		91.2	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	49.2		ug/L	50.0		98.3	70-130			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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Date Issued: 11/30/2023 3:48:14PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0460 - SW3510C/EPA600-MS

Blank (BGK0460-BLK1)

Prepared & Analyzed: 11/10/2023

Anthracene	ND	10.0	ug/L							
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	75.6		ug/L	100		75.6	5-136			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	45.2		ug/L	50.0		90.4	9-117			
<i>Surr: 2-Fluorophenol (Surr)</i>	46.1		ug/L	100		46.1	5-60			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	39.1		ug/L	50.0		78.1	5-151			
<i>Surr: Phenol-d5 (Surr)</i>	34.7		ug/L	100		34.7	5-60			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	40.2		ug/L	50.0		80.5	5-141			

LCS (BGK0460-BS1)

Prepared & Analyzed: 11/10/2023

1,2,4-Trichlorobenzene	27.1	10.0	ug/L	50.0		54.2	57-130			L
1,2-Dichlorobenzene	28.0	10.0	ug/L	50.0		56.0	22-115			
1,3-Dichlorobenzene	26.6	10.0	ug/L	50.0		53.2	22-112			
1,4-Dichlorobenzene	27.6	10.0	ug/L	50.0		55.1	13-112			
2,4,6-Trichlorophenol	35.6	10.0	ug/L	50.0		71.2	52-129			
2,4-Dichlorophenol	40.0	10.0	ug/L	50.0		80.1	53-122			
2,4-Dimethylphenol	42.9	5.00	ug/L	50.0		85.8	42-120			
2,4-Dinitrophenol	29.4	50.0	ug/L	50.0		58.7	48-127			
2,4-Dinitrotoluene	42.0	10.0	ug/L	50.0		84.1	10-173			
2,6-Dinitrotoluene	42.0	10.0	ug/L	50.0		84.1	68-137			
2-Chloronaphthalene	34.0	10.0	ug/L	50.0		67.9	65-120			
2-Chlorophenol	31.8	10.0	ug/L	50.0		63.7	36-120			
2-Nitrophenol	41.2	10.0	ug/L	50.0		82.4	45-167			
3,3'-Dichlorobenzidine	51.3	10.0	ug/L	50.0		103	10-213			
4,6-Dinitro-2-methylphenol	39.0	50.0	ug/L	50.0		78.0	53-130			
4-Bromophenyl phenyl ether	38.8	10.0	ug/L	50.0		77.5	65-120			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0460 - SW3510C/EPA600-MS

LCS (BGK0460-BS1)

Prepared & Analyzed: 11/10/2023

4-Chlorophenyl phenyl ether	41.6	10.0	ug/L	50.0		83.2	38-145			
4-Nitrophenol	15.8	50.0	ug/L	50.0		31.7	13-129			
Acenaphthene	35.1	10.0	ug/L	50.0		70.2	60-132			
Acenaphthylene	43.0	10.0	ug/L	50.0		85.9	54-126			
Acetophenone	37.9	20.0	ug/L	50.0		75.8	0-200			
Anthracene	45.5	10.0	ug/L	50.0		91.0	43-120			
Benzo (a) anthracene	47.3	10.0	ug/L	50.0		94.7	42-133			
Benzo (a) pyrene	50.9	10.0	ug/L	50.0		102	32-148			
Benzo (b) fluoranthene	47.1	10.0	ug/L	50.0		94.2	42-140			
Benzo (g,h,i) perylene	43.0	10.0	ug/L	50.0		86.0	10-195			
Benzo (k) fluoranthene	51.1	10.0	ug/L	50.0		102	25-146			
bis (2-Chloroethoxy) methane	41.3	10.0	ug/L	50.0		82.6	49-165			
bis (2-Chloroethyl) ether	43.8	10.0	ug/L	50.0		87.6	43-126			
2,2'-Oxybis (1-chloropropane)	37.5	10.0	ug/L	50.0		75.1	63-139			
bis (2-Ethylhexyl) phthalate	52.9	10.0	ug/L	50.0		106	29-137			
Butyl benzyl phthalate	52.5	10.0	ug/L	50.0		105	10-140			
Chrysene	47.3	10.0	ug/L	50.0		94.6	44-140			
Dibenz (a,h) anthracene	46.0	10.0	ug/L	50.0		92.0	10-200			
Diethyl phthalate	41.4	10.0	ug/L	50.0		82.8	10-120			
Dimethyl phthalate	39.2	10.0	ug/L	50.0		78.3	10-120			
Di-n-butyl phthalate	53.2	10.0	ug/L	50.0		106	10-120			
Di-n-octyl phthalate	60.4	10.0	ug/L	50.0		121	19-132			
Fluoranthene	51.6	10.0	ug/L	50.0		103	43-121			
Fluorene	46.0	10.0	ug/L	50.0		92.1	70-120			
Hexachlorobenzene	28.9	1.00	ug/L	50.0		57.9	10-142			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0460 - SW3510C/EPA600-MS

LCS (BGK0460-BS1)

Prepared & Analyzed: 11/10/2023

Hexachlorobutadiene	29.5	10.0	ug/L	50.0		58.9	38-120			
Hexachlorocyclopentadiene	20.9	10.0	ug/L	50.0		41.9	10-76			
Hexachloroethane	28.4	10.0	ug/L	50.0		56.7	55-120			
Indeno (1,2,3-cd) pyrene	43.8	10.0	ug/L	50.0		87.7	10-151			
Isophorone	29.5	10.0	ug/L	50.0		59.1	47-180			
Naphthalene	30.8	5.00	ug/L	50.0		61.6	36-120			
Nitrobenzene	36.6	10.0	ug/L	50.0		73.2	54-158			
n-Nitrosodimethylamine	31.9	10.0	ug/L	50.0		63.7	10-85			
n-Nitrosodi-n-propylamine	38.4	10.0	ug/L	50.0		76.8	14-198			
n-Nitrosodiphenylamine	33.9	10.0	ug/L	50.0		67.8	12-97			
p-Chloro-m-cresol	39.7	10.0	ug/L	50.0		79.4	10-142			
Pentachlorophenol	40.6	20.0	ug/L	50.0		81.3	38-152			
Phenanthrene	53.7	10.0	ug/L	50.0		107	65-120			
Phenol	19.6	10.0	ug/L	50.5		38.9	17-120			
Pyrene	52.4	10.0	ug/L	50.0		105	70-120			
Pyridine	34.2	10.0	ug/L	50.0		68.3	10-103			
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>82.7</i>		ug/L	<i>100</i>		<i>82.7</i>	<i>5-136</i>			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	<i>42.0</i>		ug/L	<i>50.0</i>		<i>84.0</i>	<i>9-117</i>			
<i>Surr: 2-Fluorophenol (Surr)</i>	<i>47.5</i>		ug/L	<i>100</i>		<i>47.5</i>	<i>5-60</i>			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	<i>41.5</i>		ug/L	<i>50.0</i>		<i>83.0</i>	<i>5-151</i>			
<i>Surr: Phenol-d5 (Surr)</i>	<i>36.4</i>		ug/L	<i>100</i>		<i>36.4</i>	<i>5-60</i>			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	<i>38.0</i>		ug/L	<i>50.0</i>		<i>76.0</i>	<i>5-141</i>			

Certificate of Analysis

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0379 - No Prep Wet Chem										
Blank (BGK0379-BLK1)				Prepared & Analyzed: 11/09/2023						
Nitrite as N	ND	0.05	mg/L							
LCS (BGK0379-BS1)				Prepared & Analyzed: 11/09/2023						
Nitrite as N	0.11	0.05	mg/L	0.100		109	80-120			
Matrix Spike (BGK0379-MS1)				Source: 23K0382-03 Prepared & Analyzed: 11/09/2023						
Nitrite as N	1.86	0.50	mg/L	1.00	0.96	90.0	80-120			
Matrix Spike Dup (BGK0379-MSD1)				Source: 23K0382-03 Prepared & Analyzed: 11/09/2023						
Nitrite as N	1.86	0.50	mg/L	1.00	0.96	90.0	80-120	0.00	20	
Batch BGK0389 - No Prep Wet Chem										
Blank (BGK0389-BLK1)				Prepared & Analyzed: 11/09/2023						
BOD	ND	2.0	mg/L							
LCS (BGK0389-BS1)				Prepared & Analyzed: 11/09/2023						
BOD	185	2	mg/L	198		93.4	84.6-115.4			
Duplicate (BGK0389-DUP1)				Source: 23K0327-07 Prepared & Analyzed: 11/09/2023						
BOD	ND	2.0	mg/L		BLOD			NA	20	
Batch BGK0444 - No Prep Wet Chem										
Blank (BGK0444-BLK1)				Prepared & Analyzed: 11/10/2023						
BOD	ND	2.0	mg/L							

Certificate of Analysis

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0444 - No Prep Wet Chem										
LCS (BGK0444-BS1)				Prepared & Analyzed: 11/10/2023						
BOD	182	2	mg/L	198		91.9	84.6-115.4			
Duplicate (BGK0444-DUP1)				Source: 23K0350-01 Prepared & Analyzed: 11/10/2023						
BOD	ND	2.0	mg/L		BLOD			NA	20	
Batch BGK0504 - No Prep Wet Chem										
Blank (BGK0504-BLK1)				Prepared & Analyzed: 11/13/2023						
Total Recoverable Phenolics	ND	0.050	mg/L							
LCS (BGK0504-BS1)				Prepared & Analyzed: 11/13/2023						
Total Recoverable Phenolics	0.42	0.050	mg/L	0.505		83.6	80-120			
Matrix Spike (BGK0504-MS1)				Source: 23J1488-01 Prepared & Analyzed: 11/13/2023						
Total Recoverable Phenolics	0.50	0.050	mg/L	0.500	BLOD	101	70-130			
Matrix Spike Dup (BGK0504-MSD1)				Source: 23J1488-01 Prepared & Analyzed: 11/13/2023						
Total Recoverable Phenolics	0.44	0.050	mg/L	0.500	BLOD	87.6	70-130	14.0	20	
Batch BGK0789 - No Prep Wet Chem										
Blank (BGK0789-BLK1)				Prepared & Analyzed: 11/17/2023						
COD	ND	10.0	mg/L							
LCS (BGK0789-BS1)				Prepared & Analyzed: 11/17/2023						
COD	46.8	10.0	mg/L	50.0		93.6	88-119			

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0789 - No Prep Wet Chem										
Matrix Spike (BGK0789-MS1)		Source: 23K0722-01			Prepared & Analyzed: 11/17/2023					
COD	48.4	10.0	mg/L	50.0	BLOD	96.8	72.4-130			
Matrix Spike Dup (BGK0789-MSD1)		Source: 23K0722-01			Prepared & Analyzed: 11/17/2023					
COD	48.4	10.0	mg/L	50.0	BLOD	96.8	72.4-130	0.00	20	
Batch BGK0803 - No Prep Wet Chem										
Blank (BGK0803-BLK1)		Prepared & Analyzed: 11/17/2023								
Cyanide	ND	0.01	mg/L							
LCS (BGK0803-BS1)		Prepared & Analyzed: 11/17/2023								
Cyanide	0.22	0.01	mg/L	0.250		86.5	80-120			
Matrix Spike (BGK0803-MS1)		Source: 23K0790-01			Prepared & Analyzed: 11/17/2023					
Cyanide	0.24	0.01	mg/L	0.250	BLOD	97.9	80-120			
Matrix Spike Dup (BGK0803-MSD1)		Source: 23K0790-01			Prepared & Analyzed: 11/17/2023					
Cyanide	0.25	0.01	mg/L	0.250	BLOD	98.5	80-120	0.652	20	
Batch BGK0863 - No Prep Wet Chem										
Blank (BGK0863-BLK1)		Prepared & Analyzed: 11/20/2023								
Total Recoverable Phenolics	ND	0.050	mg/L							
LCS (BGK0863-BS1)		Prepared & Analyzed: 11/20/2023								
Total Recoverable Phenolics	0.42	0.050	mg/L	0.505		82.8	80-120			

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0863 - No Prep Wet Chem										
Matrix Spike (BGK0863-MS1)		Source: 23K0493-06			Prepared & Analyzed: 11/20/2023					
Total Recoverable Phenolics	0.44	0.050	mg/L	0.500	BLOD	87.2	70-130			
Matrix Spike Dup (BGK0863-MSD1)		Source: 23K0493-06			Prepared & Analyzed: 11/20/2023					
Total Recoverable Phenolics	0.44	0.050	mg/L	0.500	BLOD	87.6	70-130	0.458	20	
Batch BGK0884 - No Prep Wet Chem										
Blank (BGK0884-BLK1)		Prepared & Analyzed: 11/20/2023								
TKN as N	ND	0.50	mg/L							
LCS (BGK0884-BS1)		Prepared & Analyzed: 11/20/2023								
TKN as N	5.06	0.50	mg/L	5.00		101	90-110			
Matrix Spike (BGK0884-MS1)		Source: 23K0815-04			Prepared & Analyzed: 11/20/2023					
TKN as N	5.69	0.50	mg/L	5.00	0.87	96.4	90-110			
Matrix Spike (BGK0884-MS2)		Source: 23K0815-06			Prepared & Analyzed: 11/20/2023					
TKN as N	5.69	0.50	mg/L	5.00	0.72	99.4	90-110			
Matrix Spike Dup (BGK0884-MSD1)		Source: 23K0815-04			Prepared & Analyzed: 11/20/2023					
TKN as N	5.85	0.50	mg/L	5.00	0.87	99.6	90-110	2.77	20	
Matrix Spike Dup (BGK0884-MSD2)		Source: 23K0815-06			Prepared & Analyzed: 11/20/2023					
TKN as N	5.65	0.50	mg/L	5.00	0.72	98.8	90-110	0.600	20	
Batch BGK0910 - No Prep Wet Chem										
Blank (BGK0910-BLK1)		Prepared & Analyzed: 11/21/2023								
Ammonia as N	ND	0.10	mg/L							

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0910 - No Prep Wet Chem										
LCS (BGK0910-BS1)				Prepared & Analyzed: 11/21/2023						
Ammonia as N	1.10	0.1	mg/L	1.00		110	90-110			
Matrix Spike (BGK0910-MS1)				Source: 23K0722-03 Prepared & Analyzed: 11/21/2023						
Ammonia as N	1.23	0.10	mg/L	1.00	0.17	105	89.3-131			
Matrix Spike (BGK0910-MS2)				Source: 23K0414-01 Prepared & Analyzed: 11/21/2023						
Ammonia as N	1.08	0.10	mg/L	1.00	BLOD	108	89.3-131			
Matrix Spike Dup (BGK0910-MSD1)				Source: 23K0722-03 Prepared & Analyzed: 11/21/2023						
Ammonia as N	1.22	0.10	mg/L	1.00	0.17	105	89.3-131	0.490	20	
Matrix Spike Dup (BGK0910-MSD2)				Source: 23K0414-01 Prepared & Analyzed: 11/21/2023						
Ammonia as N	1.06	0.10	mg/L	1.00	BLOD	106	89.3-131	2.62	20	
Batch BGK0937 - No Prep Wet Chem										
Blank (BGK0937-BLK1)				Prepared & Analyzed: 11/21/2023						
Cyanide	ND	0.01	mg/L							
LCS (BGK0937-BS1)				Prepared & Analyzed: 11/21/2023						
Cyanide	0.23	0.01	mg/L	0.250		91.7	80-120			
Matrix Spike (BGK0937-MS1)				Source: 23K0905-03 Prepared & Analyzed: 11/21/2023						
Cyanide	0.26	0.01	mg/L	0.250	BLOD	103	80-120			Cl
Matrix Spike (BGK0937-MS2)				Source: 23K0905-04 Prepared & Analyzed: 11/21/2023						
Cyanide	0.26	0.01	mg/L	0.250	BLOD	105	80-120			Cl

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0937 - No Prep Wet Chem										
Matrix Spike Dup (BGK0937-MSD1)		Source: 23K0905-03			Prepared & Analyzed: 11/21/2023					
Cyanide	0.26	0.01	mg/L	0.250	BLOD	105	80-120	2.00	20	Cl
Matrix Spike Dup (BGK0937-MSD2)		Source: 23K0905-04			Prepared & Analyzed: 11/21/2023					
Cyanide	0.26	0.01	mg/L	0.250	BLOD	103	80-120	1.84	20	Cl
Batch BGK0951 - No Prep Wet Chem										
Blank (BGK0951-BLK1)		Prepared & Analyzed: 11/21/2023								
Nitrate+Nitrite as N	ND	0.10	mg/L							
LCS (BGK0951-BS1)		Prepared & Analyzed: 11/21/2023								
Nitrate+Nitrite as N	0.98	0.1	mg/L	1.00	98.4		90-110			
Matrix Spike (BGK0951-MS1)		Source: 23K0757-01			Prepared & Analyzed: 11/21/2023					
Nitrate+Nitrite as N	0.86	0.1	mg/L	1.00	BLOD	85.7	90-120	M		
Matrix Spike (BGK0951-MS2)		Source: 23K0414-08			Prepared & Analyzed: 11/21/2023					
Nitrate+Nitrite as N	1.15	0.1	mg/L	1.00	0.27	87.1	90-120	M		
Matrix Spike Dup (BGK0951-MSD1)		Source: 23K0757-01			Prepared & Analyzed: 11/21/2023					
Nitrate+Nitrite as N	0.88	0.1	mg/L	1.00	BLOD	87.9	90-120	2.57	20	M
Matrix Spike Dup (BGK0951-MSD2)		Source: 23K0414-08			Prepared & Analyzed: 11/21/2023					
Nitrate+Nitrite as N	1.14	0.1	mg/L	1.00	0.27	86.2	90-120	0.718	20	M
Batch BGK1054 - No Prep Wet Chem										
Blank (BGK1054-BLK1)		Prepared & Analyzed: 11/27/2023								
Ammonia as N	ND	0.10	mg/L							

Certificate of Analysis

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 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK1054 - No Prep Wet Chem										
LCS (BGK1054-BS1)				Prepared & Analyzed: 11/27/2023						
Ammonia as N	1.02	0.1	mg/L	1.00		102	90-110			
Matrix Spike (BGK1054-MS1)				Source: 23K1216-01 Prepared & Analyzed: 11/27/2023						
Ammonia as N	1.43	0.1	mg/L	1.00	0.36	106	89.3-131			
Matrix Spike (BGK1054-MS2)				Source: 23K0978-05 Prepared & Analyzed: 11/27/2023						
Ammonia as N	1.11	0.1	mg/L	1.00	BLOD	106	89.3-131			
Matrix Spike Dup (BGK1054-MSD1)				Source: 23K1216-01 Prepared & Analyzed: 11/27/2023						
Ammonia as N	1.41	0.1	mg/L	1.00	0.36	104	89.3-131	1.41	20	
Matrix Spike Dup (BGK1054-MSD2)				Source: 23K0978-05 Prepared & Analyzed: 11/27/2023						
Ammonia as N	1.11	0.1	mg/L	1.00	BLOD	106	89.3-131	0.361	20	

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
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Analytical Summary

23K0408-01	Subcontract
23K0408-02	Subcontract
23K0408-03	Subcontract
23K0408-04	Subcontract

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
23K0408-01	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0778	AK30288
23K0408-02	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0778	AK30288
23K0408-03	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0778	AK30288
23K0408-04	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0778	AK30288

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
23K0408-01	1.00 mL / 25.0 mL	SM4500-NO2B-2011	BGK0379	SGK0362	AJ30297
23K0408-02	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0379	SGK0362	AJ30297
23K0408-03	1.00 mL / 25.0 mL	SM4500-NO2B-2011	BGK0379	SGK0362	AJ30297
23K0408-04	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0379	SGK0362	AJ30297
23K0408-01	300 mL / 300 mL	SM5210B-2016	BGK0389	SGK0566	
23K0408-02	300 mL / 300 mL	SM5210B-2016	BGK0389	SGK0566	
23K0408-03	300 mL / 300 mL	SM5210B-2016	BGK0389	SGK0566	
23K0408-04	300 mL / 300 mL	SM5210B-2016	BGK0444	SGK0616	
23K0408-01	0.200 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
23K0408-02	0.100 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
23K0408-03	0.250 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
23K0408-01	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
23K0408-02	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
23K0408-03	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
23K0408-04	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
23K0408-01	6.00 mL / 6.00 mL	SW9012B	BGK0803	SGK0742	AK30283
23K0408-02	6.00 mL / 6.00 mL	SW9012B	BGK0803	SGK0742	AK30283
23K0408-03	6.00 mL / 6.00 mL	SW9012B	BGK0803	SGK0742	AK30283
23K0408-04	5.00 mL / 10.0 mL	SW9065	BGK0863	SGK0788	AK30292
23K0408-01	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0884	SGK0851	AK30301
23K0408-01RE1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0884	SGK0851	AK30301
23K0408-02	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0884	SGK0851	AK30301
23K0408-03	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0884	SGK0851	AK30301
23K0408-04	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0884	SGK0851	AK30301
23K0408-04RE1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0884	SGK0851	AK30301
23K0408-02	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0910	SGK0840	AK30300
23K0408-03	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0910	SGK0840	AK30300
23K0408-03RE1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0910	SGK0840	AK30300
23K0408-04	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0910	SGK0840	AK30300
23K0408-04RE1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0910	SGK0840	AK30300
23K0408-04	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
23K0408-01	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0951	SGK0873	AK30304
23K0408-02	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0951	SGK0873	AK30304
23K0408-03	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0951	SGK0873	AK30304
23K0408-04	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0951	SGK0873	AK30304
23K0408-01	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1054	SGK0965	AK30318
23K0408-01RE1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1054	SGK0965	AK30318
23K0408-01RE2	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1054	SGK0965	AK30318

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3510C/EPA600-MS	

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method: SW3510C/EPA600-MS		
23K0408-01	500 mL / 2.00 mL	SW8270E	BGK0460	SGK0476	AK30208
23K0408-02	500 mL / 2.00 mL	SW8270E	BGK0460	SGK0476	AK30208
23K0408-03	500 mL / 0.500 mL	SW8270E	BGK0460	SGK0476	AK30208
23K0408-04	500 mL / 0.500 mL	SW8270E	BGK0460	SGK0476	AK30208
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
23K0408-01	5.00 mL / 5.00 mL	SW8260D	BGK0476	SGK0460	AK30209
23K0408-02	5.00 mL / 5.00 mL	SW8260D	BGK0476	SGK0460	AK30209
23K0408-03	5.00 mL / 5.00 mL	SW8260D	BGK0476	SGK0460	AK30209
23K0408-04	5.00 mL / 5.00 mL	SW8260D	BGK0476	SGK0460	AK30209
23K0408-05	5.00 mL / 5.00 mL	SW8260D	BGK0476	SGK0460	AK30209
23K0408-01RE1	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373
23K0408-02RE1	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373
23K0408-03RE1	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373
23K0408-04RE1	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
23K0408-01	1.00 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
23K0408-02	1.00 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
23K0408-03	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
23K0408-04	1.00 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
BGK0515-BLK1	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0595	AK30259
BGK0515-BS1	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0595	AK30259
BGK0515-MS1		SW6020B	BGK0515		
BGK0515-MS2	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0595	AK30259
BGK0515-MSD1		SW6020B	BGK0515		
BGK0515-MSD2	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0595	AK30259

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BGK0379-BLK1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0379	SGK0362	AJ30297
BGK0379-BS1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0379	SGK0362	AJ30297
BGK0379-MRL1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0379	SGK0362	AJ30297
BGK0379-MS1	2.50 mL / 25.0 mL	SM4500-NO2B-2011	BGK0379	SGK0362	AJ30297
BGK0379-MSD1	2.50 mL / 25.0 mL	SM4500-NO2B-2011	BGK0379	SGK0362	AJ30297
BGK0389-BLK1	300 mL / 300 mL	SM5210B-2016	BGK0389	SGK0566	
BGK0389-BS1	300 mL / 300 mL	SM5210B-2016	BGK0389	SGK0566	
BGK0389-DUP1	300 mL / 300 mL	SM5210B-2016	BGK0389	SGK0566	
BGK0444-BLK1	300 mL / 300 mL	SM5210B-2016	BGK0444	SGK0616	
BGK0444-BS1	300 mL / 300 mL	SM5210B-2016	BGK0444	SGK0616	
BGK0444-DUP1	300 mL / 300 mL	SM5210B-2016	BGK0444	SGK0616	
BGK0504-BLK1	5.00 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
BGK0504-BS1	5.00 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
BGK0504-MRL1	5.00 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239

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Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BGK0504-MS1	5.00 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
BGK0504-MSD1	5.00 mL / 10.0 mL	SW9065	BGK0504	SGK0470	AK30239
BGK0789-BLK1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0789-BS1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0789-MRL1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0789-MS1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0789-MSD1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0803-BLK1	6.00 mL / 6.00 mL	SW9012B	BGK0803	SGK0742	AK30283
BGK0803-BS1	6.00 mL / 6.00 mL	SW9012B	BGK0803	SGK0742	AK30283
BGK0803-MRL1	6.00 mL / 6.00 mL	SW9012B	BGK0803	SGK0742	AK30283
BGK0803-MS1	6.00 mL / 6.00 mL	SW9012B	BGK0803	SGK0742	AK30283
BGK0803-MSD1	6.00 mL / 6.00 mL	SW9012B	BGK0803	SGK0742	AK30283
BGK0863-BLK1	5.00 mL / 10.0 mL	SW9065	BGK0863	SGK0788	AK30292
BGK0863-BS1	5.00 mL / 10.0 mL	SW9065	BGK0863	SGK0788	AK30292
BGK0863-MRL1	5.00 mL / 10.0 mL	SW9065	BGK0863	SGK0788	AK30292
BGK0863-MS1	5.00 mL / 10.0 mL	SW9065	BGK0863	SGK0788	AK30292
BGK0863-MSD1	5.00 mL / 10.0 mL	SW9065	BGK0863	SGK0788	AK30292
BGK0884-BLK1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0884	SGK0851	AK30301
BGK0884-BS1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0884	SGK0851	AK30301
BGK0884-MS1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0884	SGK0851	AK30301
BGK0884-MS2	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0884	SGK0851	AK30301
BGK0884-MSD1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0884	SGK0851	AK30301
BGK0884-MSD2	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0884	SGK0851	AK30301
BGK0910-BLK1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0910	SGK0840	AK30300
BGK0910-BS1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0910	SGK0840	AK30300
BGK0910-MRL1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0910	SGK0840	AK30300
BGK0910-MS1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0910	SGK0840	AK30300
BGK0910-MS2	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0910	SGK0840	AK30300
BGK0910-MSD1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0910	SGK0840	AK30300

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BGK0910-MSD2	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK0910	SGK0840	AK30300
BGK0937-BLK1	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0937-BS1	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0937-MRL1	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0937-MS1	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0937-MS2	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0937-MSD1	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0937-MSD2	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0951-BLK1	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0951	SGK0873	AK30304
BGK0951-BS1	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0951	SGK0873	AK30304
BGK0951-MRL1	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK0951	SGK0873	AK30304
BGK0951-MS1	20.0 mL / 20.0 mL	SM4500-NO3F-2016	BGK0951	SGK0873	AK30304
BGK0951-MS2	20.0 mL / 20.0 mL	SM4500-NO3F-2016	BGK0951	SGK0873	AK30304
BGK0951-MSD1	20.0 mL / 20.0 mL	SM4500-NO3F-2016	BGK0951	SGK0873	AK30304
BGK0951-MSD2	20.0 mL / 20.0 mL	SM4500-NO3F-2016	BGK0951	SGK0873	AK30304
BGK1054-BLK1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1054	SGK0965	AK30318
BGK1054-BS1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1054	SGK0965	AK30318
BGK1054-MRL1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1054	SGK0965	AK30318
BGK1054-MS1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1054	SGK0965	AK30318
BGK1054-MS2	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1054	SGK0965	AK30318
BGK1054-MSD1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1054	SGK0965	AK30318
BGK1054-MSD2	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1054	SGK0965	AK30318

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method:	SW3510C/EPA600-MS	
BGK0460-BLK1	1000 mL / 1.00 mL	SW8270E	BGK0460	SGK0476	AK30208
BGK0460-BS1	1000 mL / 1.00 mL	SW8270E	BGK0460	SGK0476	AK30208
BGK0460-BS2	1000 mL / 1.00 mL	SW8270E	BGK0460	SGK0476	AK30208

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Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
BGK0476-BLK1	5.00 mL / 5.00 mL	SW8260D	BGK0476	SGK0460	AK30209
BGK0476-BLK2	5.00 mL / 5.00 mL	SW8260D	BGK0476	SGK0460	AK30209
BGK0476-BS1	5.00 mL / 5.00 mL	SW8260D	BGK0476	SGK0460	AK30209
BGK0476-BS2	5.00 mL / 5.00 mL	SW8260D	BGK0476	SGK0460	AK30209
BGK0476-MS1	5.00 mL / 5.00 mL	SW8260D	BGK0476	SGK0460	AK30209
BGK0476-MSD1	5.00 mL / 5.00 mL	SW8260D	BGK0476	SGK0460	AK30209
BGK0533-BLK1	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373
BGK0533-BS1	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373
BGK0533-DUP1	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373
BGK0533-MS1	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
BGK0509-BLK1	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
BGK0509-BS1	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
BGK0509-MS1	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
BGK0509-MS2	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
BGK0509-MSD1	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
BGK0509-MSD2	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243

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Certified Analyses included in this Report

Analyte	Certifications
<i>EPA350.1 R2.0 in Non-Potable Water</i>	
Ammonia as N	VELAP,NCDEQ,PADEP,WVDEP
<i>EPA351.2 R2.0 in Non-Potable Water</i>	
TKN as N	VELAP,NCDEQ,WVDEP
<i>SM4500-NO2B-2011 in Non-Potable Water</i>	
Nitrite as N	VELAP,WVDEP,NCDEQ
<i>SM4500-NO3F-2016 in Non-Potable Water</i>	
Nitrate+Nitrite as N	VELAP,WVDEP
<i>SM5210B-2016 in Non-Potable Water</i>	
BOD	VELAP,NCDEQ,WVDEP
<i>SM5220D-2011 in Non-Potable Water</i>	
COD	VELAP,NCDEQ,PADEP,WVDEP
<i>SW6020B in Non-Potable Water</i>	
Arsenic	VELAP,WVDEP
Barium	VELAP,WVDEP
Cadmium	VELAP,WVDEP
Chromium	VELAP,WVDEP
Copper	VELAP,WVDEP
Lead	VELAP,WVDEP
Nickel	VELAP,WVDEP
Selenium	VELAP,WVDEP
Silver	VELAP,WVDEP
Zinc	VELAP,WVDEP
<i>SW7470A in Non-Potable Water</i>	
Mercury	VELAP,NCDEQ,WVDEP

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Certified Analyses included in this Report

Analyte	Certifications
SW8260D in Non-Potable Water	
2-Butanone (MEK)	VELAP,NCDEQ,PADEP,WVDEP
Acetone	VELAP,NCDEQ,PADEP,WVDEP
Benzene	VELAP,NCDEQ,PADEP,WVDEP
Ethylbenzene	VELAP,NCDEQ,PADEP,WVDEP
m+p-Xylenes	VELAP,NCDEQ,PADEP,WVDEP
o-Xylene	VELAP,NCDEQ,PADEP,WVDEP
Toluene	VELAP,NCDEQ,PADEP,WVDEP
Xylenes, Total	VELAP,NCDEQ,PADEP,WVDEP
Tetrahydrofuran	VELAP,PADEP
SW8270E in Non-Potable Water	
Anthracene	VELAP,PADEP,NCDEQ,WVDEP
SW9012B in Non-Potable Water	
Cyanide	VELAP,WVDEP
SW9065 in Non-Potable Water	
Total Recoverable Phenolics	VELAP,WVDEP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Code	Description	Laboratory ID	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2023
NC	North Carolina DENR	495	12/31/2023
NCDEQ	North Carolina DEQ	495	12/31/2023
NCDOH	North Carolina Department of Health	51714	07/31/2024
NYDOH	New York DOH Drinking Water	12069	04/01/2024
PADEP	NELAP-Pennsylvania Certificate #009	68-03503	10/31/2024
SCDHEC	South Carolina Dept of Health and Environmental Control Certificate 93016001	93016	06/14/2024
TXCEQ	Texas Comm on Environmental Quality #T104704576-23-1	T104704576	05/31/2024
VELAP	NELAP-Virginia Certificate #12617	460021	06/14/2024
WVDEP	West Virginia DEP	350	11/30/2024

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: 2023 City of Bristol Landfill
Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Qualifiers and Definitions

CI	Residual Chlorine or other oxidizing agent was detected in the container used to analyze this sample.
DS	Surrogate concentration reflects a dilution factor.
J	The reported result is an estimated value.
L	LCS recovery is outside of established acceptance limits
M	Matrix spike recovery is outside established acceptance limits
S	Surrogate recovery was outside acceptance criteria
RPD	Relative Percent Difference
Qual	Qualifiers
-RE	Denotes sample was re-analyzed
LOD	Limit of Detection
BLOD	Below Limit of Detection
LOQ	Limit of Quantitation
DF	Dilution Factor
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.
PCBs, Total	Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.



1941 REYMET ROAD
RICHMOND, VIRGINIA 23237
(804) 358-8295 PHONE
(804)358-8297 FAX

CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers		INVOICE TO: SAME	PROJECT NAME/Quote #:
CONTACT: Jennifer Robb		INVOICE CONTACT:	SITE NAME: 2023 City of Bristol Landfill
ADDRESS: 296 Victory Road		INVOICE ADDRESS:	PROJECT NUMBER: 02218208.15 Task 1
Winchester, VA 22602		INVOICE PHONE #:	P.O. #:
PHONE #: 703-471-6150	EMAIL: jrobb@scsengineers.com	Pretreatment Program:	
Is sample for compliance reporting? YES NO	Regulatory State: V A	Is sample from a chlorinated supply? YES NO	PWS I.D. #:
SAMPLER NAME (PRINT): A. Minnick		SAMPLER SIGNATURE:	Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other _____

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)													COMMENTS	
											Ammonia - EPA 350.1	BOD - SM22 5210B-2011	COD - SM22 5220D-2011	Cyanide - 9012B	Nitrate SM22 450-NO3F-2011 (report separately from Nitrite)	Nitrite SM22 450-NO3F-2011	SVOC (Anthracene) 8270	Total Metals (As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn) 6010	TKN - EPA 351.2 R2.0	Mercury - 7470	Total Recoverable Phenolics - 9065	V. Fatty Acids (See List) 8015	VOCs (See List) 8260		
1) EW-55	X					110823	740		GW	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	Note VOC 8260 no HCl PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)
2) EW-59	X					110823	800		GW	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
3) EW-62	X					110823	825		GW	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
4) EW-90	X					110823	900		GW	13	X	X	X	X	X	X	X	X	X	X	X	X	X	X	
5)									GW																
6)									GW																
7)									GW																
8)									GW																
9)									GW																
10) Trip Blank	X					092223	1215		DI	2															

RELINQUISHED:	DATE / TIME: 11/8/23/1200	RECEIVED: LCW	DATE / TIME:	QC Data Package	LAB USE ONLY Therm ID: 338	COOLER TEMP 2.7 °C
RELINQUISHED: LCW	DATE / TIME:	RECEIVED:	DATE / TIME: 11/9/23 0800	Level III <input type="checkbox"/>	Custody Seals used and intact?(Y/N)	Received on ice?(Y/N)
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level IV <input type="checkbox"/>	SCS-W 23K0408	
				City of Bristol Semi-Annual		
				Recd: 11/09/2023 Due: 11/27/2023		

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Sample Preservation Log

Order ID: 23K0468

Date Performed: 11-9-23

Analyst Performing Check: RCJ

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/608/508) PCB DW only			SVOC (525/8270/525)			CrVI ***		Pes/PCB (508) / SVOC(525)		COD		Phenolics				
		pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	Received Res. Cl	final + or -	Received Res. Cl	final + or -	Received pH	Final pH	pH as Received	Final pH	Received	Other	Received	Other	Received	Other					
		< 2	Other	> 12	Other	> 9	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other			< 2	Other	< 2	Other	< 2	Other	< 2	Other					
01	A	5	<2																															
01	B							5	<2	5	<2			5	<2												5	<2						
01	D			7	<2																													
01	F																													5	<2			
01	G																																	
02	A	5	<2																															
02	B							6	<2	6	<2			6	<2												6	<2						
02	D			9	>2																													
02	F																													5	<2			
02	G																																	
03	A	7	<2																															
03	B							7	<2	7	<2			7	<2												7	<2						
03	D			9	>2																													
03	F																																	
03	G																																	

NaOH ID: 2H00468 HNO3 ID: 3K02234
 H2SO4 ID: 3K02567 Na2S2O3 ID: _____
 HCL ID: _____ Na2SO3 ID: _____

CrVI preserved date/time: _____ Analyst Initials: _____
 *pH must be adjusted between 9.3 - 9.7
 Ammonia Buffer Sol'n ID: _____
 5N NaOH ID: _____

Page 65 of 83

Metals were received with pH = 5, 7, 6.
 NO3 was added at 1557 on 09 NOV 2023
 by RCJ in the Log-In room to bring pH=
 <2.

**W.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR136 for waste water.



Sample Preservation Log

Order ID 23K0408

Date Performed: 11-9-23

Analyst Performing Check: RCJ

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/608/508) PCB DW only		SVOC (525/827/1625)		CrVI **		Pest/PCB (508) / SVOC(525)		COD		Phenolics							
		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		pH as Received		Received Res. Cl		Received Res. Cl		Received pH		pH as Received		pH as Received		pH as Received					
		< 2	Other	Final pH	> 12	Other	Final pH	> 9	Other	Final pH	< 2	Other	Final pH	< 2	Other	Final pH	< 2	Other	Final pH	+	-	final + or -	+	-	final + or -	Received pH	Final pH	< 2	Other	Final pH	< 2	Other	Final pH		
04	A	6	< 2																																
04	B								5	< 2		5	< 2																	5	< 2				
04	D					9	> 12																												
04	F																																		
04	G																																		

NaOH ID: 2H00468

HNO3 ID: 3K02234

CrVI preserved date/time: _____ Analyst Initials: _____

H2SO4 ID: 3K02567

Na2S2O3 ID: _____

* pH must be adjusted between 9.3 - 9.7

HCL ID: _____

Na2SO3 ID: _____

Ammonia Buffer Sol'n ID: _____

5N NaOH ID: _____

Metals were received with pH = 5, 7, 6.
 NO3 was added at 1557 on 09 NOV 2023
 by RCJ in the Log-In room to bring pH=
 <2.

**Wa.Va only certifies DISS CrVI and not T CrVI as an approved analyte under 40CFR136 for waste water.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: 2023 City of Bristol Landfill
Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

Laboratory Order ID: 23K0408

Sample Conditions Checklist

Samples Received at:	2.70°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	No
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?	Yes
Are all volatile organic and TOX containers free of headspace?	Yes
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.	Yes
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis. In addition, field parameters are always received outside holding time and will be marked accordingly.	No

*Metals (excepting Hg) were logged by 6020 per project history, which differs from the chain of custody (6010).

*H2SO4-preserved containers for all samples were received with a pH greater than 2, and H2SO4 was added to bring the pH to less than 2.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: 2023 City of Bristol Landfill
Submitted To: Jennifer Robb

Date Issued: 11/30/2023 3:48:14PM

*NaOH-preserved containers for all samples were received with a pH less than 12,
and NaOH was added to bring the pH to greater than 12.
Jennifer Robb notified via email. MRS 11/10/23 0926



November 30, 2023

Virginia Thrasher
Enthalpy
1941 Reymet Road
Richmond, VA 23237

RE: Project: 23K0408
Pace Project No.: 20296583

Dear Virginia Thrasher:

Enclosed are the analytical results for sample(s) received by the laboratory on November 10, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Baton Rouge

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh
ruth.welsh@pacelabs.com
(225) 678-1833
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

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CERTIFICATIONS

Project: 23K0408
Pace Project No.: 20296583

Pace Analytical Services Baton Rouge

7979 Innovation Park Drive Ste A, Baton Rouge, LA
70820-7402

Louisiana Dept of Environmental Quality (NELAC/LELAP):
01979

Florida Dept of Health (NELAC/FELAP): E87854

DoD ELAP (A2LA) #: 6429.01

Alabama DEM #: 41900

Alaska DEC-DW #: LA00024

Alaska DEC CS-LAP #: 21-001

Arkansas DEQ #: 88-0655

California ELAP #: 3063

Georgia DPD #: C050

Hawaii DOH State Laboratories Division

Illinois EPA #: 200048

Kansas DoHE #: E-10354

Kentucky DEP UST Branch #: 123054

Louisiana DOH #: LA036

Minnesota DOH #: 2233799

Mississippi State Dept of Health

Montana Department of Environmental Quality

Nebraska DHHS #: NE-OS-35.21

Nevada DCNR DEP #: LA00024

New York DOH #: 12149

North Carolina DEQ - WW & GW #: 618

North Dakota DEQ #: R195

Ohio EPA #: 87782

Oklahoma Dept of Environmental Quality #: 9403

Oregon ELAP #: 4168

Pennsylvania Dept of Environmental Protection #: 68-
05973

South Carolina DHEC #: 73006001

Texas CEQ #: T104704178-23-15

Utah DOH #: LA00024

Virginia DCLS #: 6460215

Washington Dept of Ecology #: C929

Wisconsin DNR #: 399139510

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 23K0408
Pace Project No.: 20296583

Lab ID	Sample ID	Matrix	Date Collected	Date Received
20296583001	23K0408-01: EW-55	Water	11/08/23 07:50	11/10/23 09:45
20296583002	23K0408-02: EW-59	Water	11/08/23 08:00	11/10/23 09:45
20296583003	23K0408-03: EW-62	Water	11/08/23 08:25	11/10/23 09:45
20296583004	23K0408-04: EW-98	Water	11/08/23 09:00	11/10/23 09:45

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SAMPLE ANALYTE COUNT

Project: 23K0408
Pace Project No.: 20296583

Lab ID	Sample ID	Method	Analysts	Analytes Reported
20296583001	23K0408-01: EW-55	Pace ENV-SOP-BTRO-0042	LHM	10
20296583002	23K0408-02: EW-59	Pace ENV-SOP-BTRO-0042	LHM	10
20296583003	23K0408-03: EW-62	Pace ENV-SOP-BTRO-0042	LHM	10
20296583004	23K0408-04: EW-98	Pace ENV-SOP-BTRO-0042	LHM	10

PASI-BR = Pace Analytical Services - Baton Rouge

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 23K0408
Pace Project No.: 20296583

Method: Pace ENV-SOP-BTRO-0042
Description: BR AM23G Low Level VFA
Client: BR-Enthalpy
Date: November 30, 2023

General Information:

4 samples were analyzed for Pace ENV-SOP-BTRO-0042 by Pace Analytical Services Baton Rouge. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (Including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 308769

D3: Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

- 23K0408-03: EW-62 (Lab ID: 20296583003)
 - Lactic Acid

D4: Sample was diluted due to the presence of high levels of target analytes.

- 23K0408-01: EW-55 (Lab ID: 20296583001)
 - Lactic Acid
- 23K0408-02: EW-59 (Lab ID: 20296583002)
 - Lactic Acid
- 23K0408-04: EW-98 (Lab ID: 20296583004)
 - Lactic Acid

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 23K0408
Pace Project No.: 20296583

Method: Pace ENV-SOP-BTRO-0042
Description: BR AM23G Low Level VFA
Client: BR-Enthalpy
Date: November 30, 2023

Analyte Comments:

QC Batch: 308769

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- 23K0408-01: EW-55 (Lab ID: 20296583001)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- 23K0408-02: EW-59 (Lab ID: 20296583002)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- 23K0408-03: EW-62 (Lab ID: 20296583003)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- 23K0408-04: EW-98 (Lab ID: 20296583004)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- BLANK (Lab ID: 1478225)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- LCS (Lab ID: 1478226)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 23K0408
 Pace Project No.: 20296583

Sample: 23K0408-01: EW-55 Lab ID: 20296583001 Collected: 11/08/23 07:50 Received: 11/10/23 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
BR AM23G Low Level VFA		Analytical Method: Pace ENV-SOP-BTRO-0042 Pace Analytical Services - Baton Rouge						
Lactic Acid	1800	mg/L	250	500		11/22/23 02:50	50-21-5	D4
Propionic Acid	2310	mg/L	250	500		11/22/23 02:50	79-09-4	
Formic acid	2570	mg/L	250	500		11/22/23 02:50	64-18-6	
Butyric Acid	1760	mg/L	250	500		11/22/23 02:50	107-92-6	
Pyruvic Acid	ND	mg/L	250	500		11/22/23 02:50	127-17-3	
i-Pentanoic Acid	254	mg/L	250	500		11/22/23 02:50	503-74-2	N2
Pentanoic Acid	ND	mg/L	250	500		11/22/23 02:50	109-52-4	N2
i-Hexanoic Acid	ND	mg/L	250	500		11/22/23 02:50	646-07-1	N2
Hexanoic Acid	ND	mg/L	250	500		11/22/23 02:50	142-62-1	N2
Acetic Acid	6650	mg/L	500	1000		11/27/23 12:23	64-19-7	

Sample: 23K0408-02: EW-59 Lab ID: 20296583002 Collected: 11/08/23 08:00 Received: 11/10/23 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
BR AM23G Low Level VFA		Analytical Method: Pace ENV-SOP-BTRO-0042 Pace Analytical Services - Baton Rouge						
Lactic Acid	969	mg/L	250	500		11/22/23 03:14	50-21-5	D4
Propionic Acid	2080	mg/L	250	500		11/22/23 03:14	79-09-4	
Formic acid	755	mg/L	250	500		11/22/23 03:14	64-18-6	
Butyric Acid	1370	mg/L	250	500		11/22/23 03:14	107-92-6	
Pyruvic Acid	ND	mg/L	250	500		11/22/23 03:14	127-17-3	
i-Pentanoic Acid	284	mg/L	250	500		11/22/23 03:14	503-74-2	N2
Pentanoic Acid	ND	mg/L	250	500		11/22/23 03:14	109-52-4	N2
i-Hexanoic Acid	ND	mg/L	250	500		11/22/23 03:14	646-07-1	N2
Hexanoic Acid	ND	mg/L	250	500		11/22/23 03:14	142-62-1	N2
Acetic Acid	5350	mg/L	500	1000		11/27/23 12:48	64-19-7	

Sample: 23K0408-03: EW-62 Lab ID: 20296583003 Collected: 11/08/23 08:25 Received: 11/10/23 09:45 Matrix: Water

Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual
BR AM23G Low Level VFA		Analytical Method: Pace ENV-SOP-BTRO-0042 Pace Analytical Services - Baton Rouge						
Pentanoic Acid	ND	mg/L	250	500		11/22/23 03:39	109-52-4	N2
Acetic Acid	ND	mg/L	250	500		11/22/23 03:39	64-19-7	
Butyric Acid	ND	mg/L	250	500		11/22/23 03:39	107-92-6	
Formic acid	ND	mg/L	250	500		11/22/23 03:39	64-18-6	
Hexanoic Acid	ND	mg/L	250	500		11/22/23 03:39	142-62-1	N2
i-Hexanoic Acid	ND	mg/L	250	500		11/22/23 03:39	646-07-1	N2
Lactic Acid	ND	mg/L	250	500		11/22/23 03:39	50-21-5	D3
i-Pentanoic Acid	ND	mg/L	250	500		11/22/23 03:39	503-74-2	N2
Propionic Acid	387	mg/L	250	500		11/22/23 03:39	79-09-4	

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 23K0408
 Pace Project No.: 20296583

Sample: 23K0408-03: EW-62		Lab ID: 20296583003	Collected: 11/08/23 08:25	Received: 11/10/23 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

BR AM23G Low Level VFA
 Analytical Method: Pace ENV-SOP-BTRO-0042
 Pace Analytical Services - Baton Rouge

Pyruvic Acid	ND	mg/L	250	500		11/22/23 03:39	127-17-3	
--------------	----	------	-----	-----	--	----------------	----------	--

Sample: 23K0408-04: EW-98		Lab ID: 20296583004	Collected: 11/08/23 09:00	Received: 11/10/23 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

BR AM23G Low Level VFA
 Analytical Method: Pace ENV-SOP-BTRO-0042
 Pace Analytical Services - Baton Rouge

Pentanoic Acid	ND	mg/L	250	500		11/22/23 04:04	109-52-4	N2
Acetic Acid	4160	mg/L	250	500		11/22/23 04:04	64-19-7	
Butyric Acid	740	mg/L	250	500		11/22/23 04:04	107-92-6	
Formic acid	674	mg/L	250	500		11/22/23 04:04	64-18-6	
Hexanoic Acid	ND	mg/L	250	500		11/22/23 04:04	142-62-1	N2
i-Hexanoic Acid	ND	mg/L	250	500		11/22/23 04:04	646-07-1	N2
Lactic Acid	324	mg/L	250	500		11/22/23 04:04	50-21-5	D4
i-Pentanoic Acid	ND	mg/L	250	500		11/22/23 04:04	503-74-2	N2
Propionic Acid	1420	mg/L	250	500		11/22/23 04:04	79-09-4	
Pyruvic Acid	ND	mg/L	250	500		11/22/23 04:04	127-17-3	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 23K0408
 Pace Project No.: 20296583

QC Batch: 308769 Analysis Method: Pace ENV-SOP-BTRO-0042
 QC Batch Method: Pace ENV-SOP-BTRO-0042 Analysis Description: BR AM23G Low Level VFA
 Laboratory: Pace Analytical Services - Baton Rouge

Associated Lab Samples: 20296583001, 20296583002, 20296583003, 20296583004

METHOD BLANK: 1478225 Matrix: Water
 Associated Lab Samples: 20296583001, 20296583002, 20296583003, 20296583004

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetic Acid	mg/L	ND	0.50	11/21/23 17:47	
Butyric Acid	mg/L	ND	0.50	11/21/23 17:47	
Formic acid	mg/L	ND	0.50	11/21/23 17:47	
Hexanoic Acid	mg/L	ND	0.50	11/21/23 17:47	N2
i-Hexanoic Acid	mg/L	ND	0.50	11/21/23 17:47	N2
i-Pentanoic Acid	mg/L	ND	0.50	11/21/23 17:47	N2
Lactic Acid	mg/L	ND	0.50	11/21/23 17:47	
Pentanoic Acid	mg/L	ND	0.50	11/21/23 17:47	N2
Propionic Acid	mg/L	ND	0.50	11/21/23 17:47	
Pyruvic Acid	mg/L	ND	0.50	11/21/23 17:47	

LABORATORY CONTROL SAMPLE: 1478226

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetic Acid	mg/L	2	2.1	107	70-130	
Butyric Acid	mg/L	2	1.9	96	70-130	
Formic acid	mg/L	2	2.0	100	70-130	
Hexanoic Acid	mg/L	2	1.2	62	39-114	N2
i-Hexanoic Acid	mg/L	2	1.7	85	39-114	N2
i-Pentanoic Acid	mg/L	2	1.7	83	59-121	N2
Lactic Acid	mg/L	2	2.2	111	70-130	
Pentanoic Acid	mg/L	2	1.7	83	59-121	N2
Propionic Acid	mg/L	2	2.1	103	70-130	
Pyruvic Acid	mg/L	2	2.1	103	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 23K0408
 Pace Project No.: 20296583

QC Batch: 309097 Analysis Method: Pace ENV-SOP-BTRO-0042
 QC Batch Method: Pace ENV-SOP-BTRO-0042 Analysis Description: BR AM23G Low Level VFA
 Laboratory: Pace Analytical Services - Baton Rouge
 Associated Lab Samples: 20296583001, 20296583002

METHOD BLANK: 1479762 Matrix: Water
 Associated Lab Samples: 20296583001, 20296583002

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetic Acid	mg/L	ND	0.50	11/27/23 11:09	

LABORATORY CONTROL SAMPLE: 1479763

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetic Acid	mg/L	2	2.2	108	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 23K0408
Pace Project No.: 20296583

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

ANALYTE QUALIFIERS

D3 Sample was diluted due to the presence of high levels of non-target analytes or other matrix interference.

D4 Sample was diluted due to the presence of high levels of target analytes.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 23K0408
Pace Project No.: 20296583

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
20296583001	23K0408-01: EW-55	Pace ENV-SOP-BTRO-0042	308769		
20296583001	23K0408-01: EW-55	Pace ENV-SOP-BTRO-0042	309097		
20296583002	23K0408-02: EW-59	Pace ENV-SOP-BTRO-0042	308769		
20296583002	23K0408-02: EW-59	Pace ENV-SOP-BTRO-0042	309097		
20296583003	23K0408-03: EW-62	Pace ENV-SOP-BTRO-0042	308769		
20296583004	23K0408-04: EW-98	Pace ENV-SOP-BTRO-0042	308769		

REPORT OF LABORATORY ANALYSIS

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CHAIN OF CUSTODY

COMPANY NAME: Enthalpy				INVOICE TO: Enthalpy				PROJECT NAME/Quote #: 23K0408									
CONTACT: Dan Elliott				INVOICE CONTACT:				SITE NAME: 23K0408									
ADDRESS: 1941 Reymet Rd Richmond VA 23237				INVOICE ADDRESS: 1941 Reymet Rd Richmond VA 23237				PROJECT NUMBER: 23K0408									
PHONE #: (804) 358-8295			INVOICE PHONE #: (804) 358-8295			P.O. #: PO to be emailed											
FAX #:		EMAIL:		Pretreatment Program:													
Is sample for compliance reporting? YES NO				Is sample from a chlorinated supply? YES NO				PWS I.D. #:									
SAMPLER NAME (PRINT):				SAMPLER SIGNATURE:				Turn Around Time:									
Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other _____										COMMENTS							
CLIENT SAMPLE I.D.											ANALYSIS / (PRESERVATIVE)				Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)		
											Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date		Composite Start Time	Grab Date or Composite Stop Date
1) 23K0408-01: EW-55	x				11/08/23	0750			GW	3	X						1
2) 23K0408-02: EW-59	X				11/08/23	0800			GW	3	X						2
3) 23K0408-03: EW-62	X				11/08/23	0825			GW	3	X						3
4) 23K0408-04: EW-98	X				11/08/23	0900			GW	3	X						4
5)																	
6)																	
7)																	
8)																	
9)																	
10)																	
RELINQUISHED:	DATE / TIME		RECEIVED:	DATE / TIME		QC Data Package		LAB USE ONLY		COOLER TEMP _____ °C							
<i>ASAM</i>	11/9/23 1546		<i>Fed Ex Express</i>	11/9/23 1546		Level I <input type="checkbox"/>											
RELINQUISHED:	DATE / TIME		RECEIVED:	DATE / TIME		Level II <input type="checkbox"/>											
			<i>Doane McAene</i>	11-9-23		Level III <input type="checkbox"/>											
RELINQUISHED:	DATE / TIME		RECEIVED:	DATE / TIME		Level IV <input type="checkbox"/>											



Sample Condition Upon Receipt
Workorder

WO#: 20296583

PM: RW

Due Date: 11/28/23

CLIENT: BR-Enthalpy

7979 Innovation Park Dr. Baton Rouge, LA 70806

Cooler Inspected by/date: DTM/11/10/23

Means of receipt: <input type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were custody seals present on the cooler?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	If custody seals were present, were they intact and unbroken?
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles IR Gun ID: <u>FL43</u> IR Gun Correction Factor: <u>-0</u> °C	
Cooler #1 Cooler Temp °C: <u>5.0</u> (Actual/True)	Samples on ice pH Strip Lot #
Cooler #2 Cooler Temp °C: _____ (Actual/True)	<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Cooler #3 Cooler Temp °C: _____ (Actual/True)	Method of coolant:
Cooler #4 Cooler Temp °C: _____ (Actual/True)	<input checked="" type="checkbox"/> Wet <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None
Tracking #: <u>7740 5787 7600</u>	
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Is a temperature blank present?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Was a chain of custody (COC) received?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	Was the line and profile number listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Were all coolers received at or below 6.0°C? If no, notify Project Manager notified via email.
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were proper custody procedures (relinquished/received) followed?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	Is the sampler name and signature on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were sample IDs listed on the COC and all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Was collection date & time listed on the COC and all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Did all container label information (ID, date, time) agree with the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were all samples received within 1/2 the holding time or 48 hours, whichever comes first?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were all samples containers accounted for? (No missing / excess)
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Were VOA, 8015C (GRO/VPH), and RSK-175 samples free of bubbles > "pea size" (1/4" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Trip blank present?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Filtered volume received for dissolved tests? <i>If no, list affected sample(s) in comments below.</i>
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Were all metals/nutrient samples received at a pH of < 2? If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added, record lots. Dispenser/pipette lot #: _____
<input type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9? HNO ₃ _____ H ₂ SO ₄ _____ NaOH _____ Date: _____ Time: _____
Comments:	



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

Certificate of Analysis

Final Report

Laboratory Order ID 23K0491

Client Name: SCS Engineers-Winchester
296 Victory Road
Winchester, VA 22602

Date Received: November 10, 2023 8:00
Date Issued: November 29, 2023 14:55
Project Number: 02218208.15 Task 2
Purchase Order:

Submitted To: Jennifer Robb

Client Site I.D.: 2023 City of Bristol Landfill

Enclosed are the results of analyses for samples received by the laboratory on 11/10/2023 08:00. 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.

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Analysis Detects Report

Client Name: SCS Engineers-Winchester
 Client Site ID: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Laboratory Sample ID: 23K0491-01

Client Sample ID: EW-52

Parameter	Samp ID	Reference Method	Sample Results	Qual	LOD	LOQ	Dil. Factor	Units
Arsenic	01	SW6020B	330		3.0	3.0	10	ug/L
Barium	01	SW6020B	810		10.0	50.0	10	ug/L
Chromium	01	SW6020B	1040		4.00	10.0	10	ug/L
Copper	01	SW6020B	3.52		3.00	3.00	10	ug/L
Lead	01	SW6020B	130		3.0	3.0	10	ug/L
Mercury	01	SW7470A	0.00576		0.00400	0.00400	1	mg/L
Nickel	01	SW6020B	422.7		10.00	10.00	10	ug/L
Selenium	01	SW6020B	4.25		3.00	3.00	10	ug/L
Zinc	01RE1	SW6020B	30400		250	500	100	ug/L
2-Butanone (MEK)	01	SW8260D	25700		750	2500	250	ug/L
Acetone	01	SW8260D	64700		1750	2500	250	ug/L
Benzene	01	SW8260D	870		100	250	250	ug/L
Tetrahydrofuran	01	SW8260D	4620		2500	2500	250	ug/L
Ammonia as N	01	EPA350.1 R2.0	2490		146	200	2000	mg/L
BOD	01	SM5210B-2016	>30400		0.2	2.0	1	mg/L
COD	01	SM5220D-2011	77100		10000	10000	1000	mg/L
Cyanide	01	SW9012B	0.11	CI	0.05	0.05	5	mg/L
TKN as N	01	EPA351.2 R2.0	3290		100	250	500	mg/L
Total Recoverable Phenolics	01	SW9065	38.8		0.750	1.25	25	mg/L

Note that this report is not the "Certificate of Analysis". This report only lists the target analytes that displayed concentrations that exceeded the detection limit specified for that analyte. For a complete listing of all analytes requested and the results of the analysis see the "Certificate of Analysis".

Certificate of AnalysisClient Name: SCS Engineers-Winchester
Client Site I.D.: 2023 City of Bristol Landfill
Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

ANALYTICAL REPORT FOR SAMPLES

Sample ID	Laboratory ID	Matrix	Date Sampled	Date Received
EW-52	23K0491-01	Ground Water	11/09/2023 07:40	11/10/2023 08:00
Trip Blank	23K0491-02	Ground Water	09/20/2023 13:35	11/10/2023 08:00

Analysis for Volatile Fatty Acids was subcontracted to Pace Gulf Coast. The subcontracted results are attached at the end of this Certificate of Analysis.

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Client Sample ID: EW-52

Laboratory Sample ID: 23K0491-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Metals (Total) by EPA 6000/7000 Series Methods												
Silver	01	7440-22-4	SW6020B	11/13/2023 11:30	11/20/2023 11:45	BLOD		0.600	10.0	10	ug/L	AB
Arsenic	01	7440-38-2	SW6020B	11/13/2023 11:30	11/20/2023 11:45	330		3.0	3.0	10	ug/L	AB
Barium	01	7440-39-3	SW6020B	11/13/2023 11:30	11/20/2023 11:45	810		10.0	50.0	10	ug/L	AB
Cadmium	01	7440-43-9	SW6020B	11/13/2023 11:30	11/20/2023 11:45	BLOD		1.00	3.00	10	ug/L	AB
Chromium	01	7440-47-3	SW6020B	11/13/2023 11:30	11/20/2023 11:45	1040		4.00	10.0	10	ug/L	AB
Copper	01	7440-50-8	SW6020B	11/13/2023 11:30	11/20/2023 11:45	3.52		3.00	3.00	10	ug/L	AB
Mercury	01	7439-97-6	SW7470A	11/13/2023 09:30	11/13/2023 15:12	0.00576		0.00400	0.00400	1	mg/L	SGT
Nickel	01	7440-02-0	SW6020B	11/13/2023 11:30	11/20/2023 11:45	422.7		10.00	10.00	10	ug/L	AB
Lead	01	7439-92-1	SW6020B	11/13/2023 11:30	11/20/2023 11:45	130		3.0	3.0	10	ug/L	AB
Selenium	01	7782-49-2	SW6020B	11/13/2023 11:30	11/20/2023 11:45	4.25		3.00	3.00	10	ug/L	AB
Zinc	01RE1	7440-66-6	SW6020B	11/13/2023 11:30	11/21/2023 12:15	30400		250	500	100	ug/L	AB
Volatile Organic Compounds by GCMS												
2-Butanone (MEK)	01	78-93-3	SW8260D	11/13/2023 16:33	11/13/2023 16:33	25700		750	2500	250	ug/L	RJB
Acetone	01	67-64-1	SW8260D	11/13/2023 16:33	11/13/2023 16:33	64700		1750	2500	250	ug/L	RJB
Benzene	01	71-43-2	SW8260D	11/13/2023 16:33	11/13/2023 16:33	870		100	250	250	ug/L	RJB
Ethylbenzene	01	100-41-4	SW8260D	11/13/2023 16:33	11/13/2023 16:33	BLOD		100	250	250	ug/L	RJB
m+p-Xylenes	01	179601-23-1	SW8260D	11/13/2023 16:33	11/13/2023 16:33	BLOD		150	500	250	ug/L	RJB
o-Xylene	01	95-47-6	SW8260D	11/13/2023 16:33	11/13/2023 16:33	BLOD		100	250	250	ug/L	RJB
Toluene	01	108-88-3	SW8260D	11/13/2023 16:33	11/13/2023 16:33	BLOD		125	250	250	ug/L	RJB
Xylenes, Total	01	1330-20-7	SW8260D	11/13/2023 16:33	11/13/2023 16:33	BLOD		250	750	250	ug/L	RJB
Tetrahydrofuran	01	109-99-9	SW8260D	11/13/2023 16:33	11/13/2023 16:33	4620		2500	2500	250	ug/L	RJB
Surr: 1,2-Dichloroethane-d4 (Surr)	01	98.4 %	70-120	11/13/2023 16:33	11/13/2023 16:33							
Surr: 4-Bromofluorobenzene (Surr)	01	99.6 %	75-120	11/13/2023 16:33	11/13/2023 16:33							
Surr: Dibromofluoromethane (Surr)	01	97.5 %	70-130	11/13/2023 16:33	11/13/2023 16:33							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Client Sample ID: EW-52

Laboratory Sample ID: 23K0491-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
<i>Surr: Toluene-d8 (Surr)</i>	01	96.0 %	70-130	11/13/2023 16:33	11/13/2023 16:33							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Client Sample ID: EW-52

Laboratory Sample ID: 23K0491-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Semivolatle Organic Compounds by GCMS												
Anthracene	01	120-12-7	SW8270E	11/14/2023 09:00	11/15/2023 18:30	BLOD		1000	2000	50	ug/L	ZDR
Surr: 2,4,6-Tribromophenol (Surr)	01		% 5-136	11/14/2023 09:00	11/15/2023 18:30							DS
Surr: 2-Fluorobiphenyl (Surr)	01		% 9-117	11/14/2023 09:00	11/15/2023 18:30							DS
Surr: 2-Fluorophenol (Surr)	01	33.0	% 5-60	11/14/2023 09:00	11/15/2023 18:30							
Surr: Nitrobenzene-d5 (Surr)	01	112	% 5-151	11/14/2023 09:00	11/15/2023 18:30							
Surr: Phenol-d5 (Surr)	01	5.00	% 5-60	11/14/2023 09:00	11/15/2023 18:30							
Surr: p-Terphenyl-d14 (Surr)	01	2.00	% 5-141	11/14/2023 09:00	11/15/2023 18:30							DS

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Client Sample ID: EW-52

Laboratory Sample ID: 23K0491-01

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Wet Chemistry Analysis												
Ammonia as N	01	7664-41-7	EPA350.1 R2.0	11/22/2023 16:43	11/22/2023 16:43	2490		146	200	2000	mg/L	MGC
BOD	01	E1640606	SM5210B-2016	11/10/2023 11:01	11/10/2023 11:01	>30400		0.2	2.0	1	mg/L	LAM
BOD	01	E1640606	SM5210B-2016	11/10/2023 11:01	11/10/2023 11:01	>30400		0.2	2.0	1	mg/L	LAM
Cyanide	01	57-12-5	SW9012B	11/21/2023 15:50	11/21/2023 15:50	0.11	CI	0.05	0.05	5	mg/L	MGC
COD	01	NA	SM5220D-2011	11/17/2023 14:01	11/17/2023 14:01	77100		10000	10000	1000	mg/L	MGC
Nitrate as N	01	14797-55-8	Calc.	11/22/2023 13:31	11/22/2023 13:31	BLOD		1.10	5.10	100	mg/L	AJM
Nitrate+Nitrite as N	01	E701177	SM4500-NO3F-2016	11/22/2023 13:31	11/22/2023 13:31	BLOD		0.10	0.10	5	mg/L	MKS
Nitrite as N	01	14797-65-0	SM4500-NO2B-2011	11/10/2023 16:11	11/10/2023 16:11	BLOD		1.00	5.00	100	mg/L	AJM
Total Recoverable Phenolics	01	NA	SW9065	11/20/2023 17:45	11/20/2023 17:45	38.8		0.750	1.25	25	mg/L	AAL
TKN as N	01	E17148461	EPA351.2 R2.0	11/21/2023 17:57	11/21/2023 17:57	3290		100	250	500	mg/L	MGC

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Client Sample ID: Trip Blank

Laboratory Sample ID: 23K0491-02

Parameter	Samp ID	CAS	Reference Method	Sample Prep Date/Time	Analyzed Date/Time	Sample Results	Qual	LOD	LOQ	DF	Units	Analyst
Volatile Organic Compounds by GCMS												
2-Butanone (MEK)	02	78-93-3	SW8260D	11/13/2023 12:40	11/13/2023 12:40	BLOD		3.00	10.0	1	ug/L	RJB
Acetone	02	67-64-1	SW8260D	11/13/2023 12:40	11/13/2023 12:40	BLOD		7.00	10.0	1	ug/L	RJB
Benzene	02	71-43-2	SW8260D	11/13/2023 12:40	11/13/2023 12:40	BLOD		0.40	1.00	1	ug/L	RJB
Ethylbenzene	02	100-41-4	SW8260D	11/13/2023 12:40	11/13/2023 12:40	BLOD		0.40	1.00	1	ug/L	RJB
m+p-Xylenes	02	179601-23-1	SW8260D	11/13/2023 12:40	11/13/2023 12:40	BLOD		0.60	2.00	1	ug/L	RJB
o-Xylene	02	95-47-6	SW8260D	11/13/2023 12:40	11/13/2023 12:40	BLOD		0.40	1.00	1	ug/L	RJB
Toluene	02	108-88-3	SW8260D	11/13/2023 12:40	11/13/2023 12:40	BLOD		0.50	1.00	1	ug/L	RJB
Xylenes, Total	02	1330-20-7	SW8260D	11/13/2023 12:40	11/13/2023 12:40	BLOD		1.00	3.00	1	ug/L	RJB
Tetrahydrofuran	02	109-99-9	SW8260D	11/13/2023 12:40	11/13/2023 12:40	BLOD		10.0	10.0	1	ug/L	RJB
Surr: 1,2-Dichloroethane-d4 (Surr)	02	96.5 %	70-120	11/13/2023 12:40	11/13/2023 12:40							
Surr: 4-Bromofluorobenzene (Surr)	02	98.5 %	75-120	11/13/2023 12:40	11/13/2023 12:40							
Surr: Dibromofluoromethane (Surr)	02	97.9 %	70-130	11/13/2023 12:40	11/13/2023 12:40							
Surr: Toluene-d8 (Surr)	02	98.0 %	70-130	11/13/2023 12:40	11/13/2023 12:40							

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0509 - SW7470A										
Blank (BGK0509-BLK1)				Prepared & Analyzed: 11/13/2023						
Mercury	ND	0.00020	mg/L							
LCS (BGK0509-BS1)				Prepared & Analyzed: 11/13/2023						
Mercury	0.00240	0.00020	mg/L	0.00250		96.0	80-120			
Matrix Spike (BGK0509-MS1)				Source: 23K0493-01		Prepared & Analyzed: 11/13/2023				
Mercury	0.00251	0.00020	mg/L	0.00250	BLOD	100	80-120			
Matrix Spike (BGK0509-MS2)				Source: 23K0519-01		Prepared & Analyzed: 11/13/2023				
Mercury	0.00244	0.00020	mg/L	0.00250	BLOD	97.6	80-120			
Matrix Spike Dup (BGK0509-MSD1)				Source: 23K0493-01		Prepared & Analyzed: 11/13/2023				
Mercury	0.00241	0.00020	mg/L	0.00250	BLOD	96.4	80-120	4.07	20	
Batch BGK0515 - EPA200.8 R5.4										
Blank (BGK0515-BLK1)				Prepared: 11/13/2023 Analyzed: 11/15/2023						
Arsenic	ND	1.0	ug/L							
Barium	ND	5.00	ug/L							
Cadmium	ND	1.00	ug/L							
Chromium	ND	1.00	ug/L							
Copper	ND	1.00	ug/L							
Lead	ND	1.0	ug/L							
Nickel	ND	1.000	ug/L							
Selenium	ND	1.00	ug/L							
Silver	ND	1.00	ug/L							
Zinc	ND	5.00	ug/L							

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0515 - EPA200.8 R5.4

LCS (BGK0515-BS1)

Prepared: 11/13/2023 Analyzed: 11/15/2023

Arsenic	48	1.0	ug/L	50.0		96.6	80-120			
Barium	50.3	5.00	ug/L	50.0		101	80-120			
Cadmium	50.1	1.00	ug/L	50.0		100	80-120			
Chromium	48.9	1.00	ug/L	50.0		97.9	80-120			
Copper	47.6	1.00	ug/L	50.0		95.2	80-120			
Lead	52	1.0	ug/L	50.0		104	80-120			
Nickel	47.27	1.000	ug/L	50.0		94.5	80-120			
Selenium	49.7	1.00	ug/L	50.0		99.4	80-120			
Silver	9.87	1.00	ug/L	10.0		98.7	80-120			
Zinc	49.1	5.00	ug/L	50.0		98.1	80-120			

Matrix Spike (BGK0515-MS2)

Source: 23K0499-03

Prepared: 11/13/2023 Analyzed: 11/15/2023

Arsenic	49	1.0	ug/L	50.0	BLOD	98.2	75-125			
Barium	80.7	5.00	ug/L	50.0	29.5	102	75-125			
Cadmium	50.2	1.00	ug/L	50.0	BLOD	100	75-125			
Chromium	50.9	1.00	ug/L	50.0	1.40	99.0	75-125			
Copper	47.4	1.00	ug/L	50.0	0.469	93.9	75-125			
Lead	50	1.0	ug/L	50.0	BLOD	99.8	75-125			
Nickel	48.50	1.000	ug/L	50.0	BLOD	97.0	75-125			
Selenium	50.7	1.00	ug/L	50.0	BLOD	101	75-125			
Silver	9.94	1.00	ug/L	10.0	0.158	97.9	75-125			
Zinc	50.5	5.00	ug/L	50.0	BLOD	101	75-125			

Matrix Spike Dup (BGK0515-MSD2)

Source: 23K0499-03

Prepared: 11/13/2023 Analyzed: 11/15/2023

Arsenic	49	1.0	ug/L	50.0	BLOD	98.8	75-125	0.643	20	
Barium	81.2	5.00	ug/L	50.0	29.5	103	75-125	0.578	20	

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Metals (Total) by EPA 6000/7000 Series Methods - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0515 - EPA200.8 R5.4

Matrix Spike Dup (BGK0515-MSD2)	Source: 23K0499-03			Prepared: 11/13/2023 Analyzed: 11/15/2023						
Cadmium	49.7	1.00	ug/L	50.0	BLOD	99.4	75-125	1.05	20	
Chromium	50.6	1.00	ug/L	50.0	1.40	98.3	75-125	0.717	20	
Copper	48.2	1.00	ug/L	50.0	0.469	95.5	75-125	1.66	20	
Lead	50	1.0	ug/L	50.0	BLOD	101	75-125	0.905	20	
Nickel	48.44	1.000	ug/L	50.0	BLOD	96.9	75-125	0.113	20	
Selenium	49.8	1.00	ug/L	50.0	BLOD	99.7	75-125	1.79	20	
Silver	10.1	1.00	ug/L	10.0	0.158	98.9	75-125	1.08	20	
Zinc	50.6	5.00	ug/L	50.0	BLOD	101	75-125	0.165	20	

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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Date Issued: 11/29/2023 2:55:20PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

Blank (BGK0533-BLK1)

Prepared & Analyzed: 11/13/2023

2-Butanone (MEK)	ND	10.0	ug/L							
Acetone	ND	10.0	ug/L							
Benzene	ND	1.00	ug/L							
Ethylbenzene	ND	1.00	ug/L							
m+p-Xylenes	ND	2.00	ug/L							
o-Xylene	ND	1.00	ug/L							
Toluene	ND	1.00	ug/L							
Xylenes, Total	ND	3.00	ug/L							
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	45.0		ug/L	50.0		89.9	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	48.6		ug/L	50.0		97.3	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	45.7		ug/L	50.0		91.4	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	49.7		ug/L	50.0		99.5	70-130			

LCS (BGK0533-BS1)

Prepared & Analyzed: 11/13/2023

1,1,1,2-Tetrachloroethane	51.5	0.4	ug/L	50.0		103	80-130			
1,1,1-Trichloroethane	48.0	1	ug/L	50.0		96.0	65-130			
1,1,2,2-Tetrachloroethane	51.1	0.4	ug/L	50.0		102	65-130			
1,1,2-Trichloroethane	50.6	1	ug/L	50.0		101	75-125			
1,1-Dichloroethane	47.1	1	ug/L	50.0		94.2	70-135			
1,1-Dichloroethylene	44.5	1	ug/L	50.0		89.0	70-130			
1,1-Dichloropropene	50.1	1	ug/L	50.0		100	75-135			
1,2,3-Trichlorobenzene	54.8	1	ug/L	50.0		110	55-140			
1,2,3-Trichloropropane	51.0	1	ug/L	50.0		102	75-125			
1,2,4-Trichlorobenzene	55.8	1	ug/L	50.0		112	65-135			
1,2,4-Trimethylbenzene	52.7	1	ug/L	50.0		105	75-130			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

LCS (BGK0533-BS1)

Prepared & Analyzed: 11/13/2023

1,2-Dibromo-3-chloropropane (DBCP)	50.8	1	ug/L	50.0		102	50-130			
1,2-Dibromoethane (EDB)	49.4	1	ug/L	50.0		98.8	80-120			
1,2-Dichlorobenzene	52.3	0.5	ug/L	50.0		105	70-120			
1,2-Dichloroethane	44.4	1	ug/L	50.0		88.9	70-130			
1,2-Dichloropropane	48.7	0.5	ug/L	50.0		97.3	75-125			
1,3,5-Trimethylbenzene	50.4	1	ug/L	50.0		101	75-125			
1,3-Dichlorobenzene	52.3	1	ug/L	50.0		105	75-125			
1,3-Dichloropropane	48.0	1	ug/L	50.0		95.9	75-125			
1,4-Dichlorobenzene	50.4	1	ug/L	50.0		101	75-125			
2,2-Dichloropropane	51.1	1	ug/L	50.0		102	70-135			
2-Butanone (MEK)	54.7	10	ug/L	50.0		109	30-150			
2-Chlorotoluene	52.2	1	ug/L	50.0		104	75-125			
2-Hexanone (MBK)	54.9	5	ug/L	50.0		110	55-130			
4-Chlorotoluene	50.4	1	ug/L	50.0		101	75-130			
4-Isopropyltoluene	55.3	1	ug/L	50.0		111	75-130			
4-Methyl-2-pentanone (MIBK)	53.6	5	ug/L	50.0		107	60-135			
Acetone	45.1	10	ug/L	50.0		90.3	40-140			
Benzene	47.1	1	ug/L	50.0		94.1	80-120			
Bromobenzene	51.0	1	ug/L	50.0		102	75-125			
Bromochloromethane	43.6	1	ug/L	50.0		87.2	65-130			
Bromodichloromethane	51.1	0.5	ug/L	50.0		102	75-120			
Bromoform	50.7	1	ug/L	50.0		101	70-130			
Bromomethane	31.7	1	ug/L	50.0		63.5	30-145			
Carbon disulfide	44.6	10	ug/L	50.0		89.2	35-160			
Carbon tetrachloride	56.0	1	ug/L	50.0		112	65-140			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

LCS (BGK0533-BS1)

Prepared & Analyzed: 11/13/2023

Chlorobenzene	51.8	1	ug/L	50.0		104	80-120			
Chloroethane	42.5	1	ug/L	50.0		85.0	60-135			
Chloroform	45.8	0.5	ug/L	50.0		91.5	65-135			
Chloromethane	37.8	1	ug/L	50.0		75.6	40-125			
cis-1,2-Dichloroethylene	44.8	1	ug/L	50.0		89.6	70-125			
cis-1,3-Dichloropropene	49.2	1	ug/L	50.0		98.5	70-130			
Dibromochloromethane	51.4	0.5	ug/L	50.0		103	60-135			
Dibromomethane	48.2	1	ug/L	50.0		96.5	75-125			
Dichlorodifluoromethane	44.6	1	ug/L	50.0		89.3	30-155			
Ethylbenzene	52.5	1	ug/L	50.0		105	75-125			
Hexachlorobutadiene	59.6	0.8	ug/L	50.0		119	50-140			
Isopropylbenzene	50.9	1	ug/L	50.0		102	75-125			
m+p-Xylenes	106	2	ug/L	100		106	75-130			
Methylene chloride	46.9	4	ug/L	50.0		93.8	55-140			
Methyl-t-butyl ether (MTBE)	45.0	1	ug/L	50.0		90.0	65-125			
Naphthalene	53.8	1	ug/L	50.0		108	55-140			
n-Butylbenzene	56.4	1	ug/L	50.0		113	70-135			
n-Propylbenzene	52.9	1	ug/L	50.0		106	70-130			
o-Xylene	52.9	1	ug/L	50.0		106	80-120			
sec-Butylbenzene	59.2	1	ug/L	50.0		118	70-125			
Styrene	50.4	1	ug/L	50.0		101	65-135			
tert-Butylbenzene	55.0	1	ug/L	50.0		110	70-130			
Tetrachloroethylene (PCE)	58.0	1	ug/L	50.0		116	45-150			
Toluene	51.4	1	ug/L	50.0		103	75-120			
trans-1,2-Dichloroethylene	44.2	1	ug/L	50.0		88.3	60-140			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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Date Issued: 11/29/2023 2:55:20PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

LCS (BGK0533-BS1)

Prepared & Analyzed: 11/13/2023

trans-1,3-Dichloropropene	52.8	1	ug/L	50.0		106	55-140			
Trichloroethylene	51.2	1	ug/L	50.0		102	70-125			
Trichlorofluoromethane	54.4	1	ug/L	50.0		109	60-145			
Vinyl chloride	41.7	0.5	ug/L	50.0		83.4	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	43.1		ug/L	50.0		86.2	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	49.8		ug/L	50.0		99.6	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	45.6		ug/L	50.0		91.2	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	49.0		ug/L	50.0		98.0	70-130			

Duplicate (BGK0533-DUP1)

Source: 23K0563-02

Prepared & Analyzed: 11/13/2023

1,1,1,2-Tetrachloroethane	ND	8.00	ug/L		BLOD			NA	30	
1,1,1-Trichloroethane	ND	20.0	ug/L		BLOD			NA	30	
1,1,2,2-Tetrachloroethane	ND	8.00	ug/L		BLOD			NA	30	
1,1,2-Trichloroethane	ND	20.0	ug/L		BLOD			NA	30	
1,1-Dichloroethane	ND	20.0	ug/L		BLOD			NA	30	
1,1-Dichloroethylene	ND	20.0	ug/L		BLOD			NA	30	
1,1-Dichloropropene	ND	20.0	ug/L		BLOD			NA	30	
1,2,3-Trichlorobenzene	ND	20.0	ug/L		BLOD			NA	30	
1,2,3-Trichloropropane	ND	20.0	ug/L		BLOD			NA	30	
1,2,4-Trichlorobenzene	ND	20.0	ug/L		BLOD			NA	30	
1,2,4-Trimethylbenzene	ND	20.0	ug/L		BLOD			NA	30	
1,2-Dibromo-3-chloropropane (DBCP)	ND	20.0	ug/L		BLOD			NA	30	
1,2-Dibromoethane (EDB)	ND	20.0	ug/L		BLOD			NA	30	
1,2-Dichlorobenzene	ND	10.0	ug/L		BLOD			NA	30	
1,2-Dichloroethane	ND	20.0	ug/L		BLOD			NA	30	

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

Duplicate (BGK0533-DUP1)

Source: 23K0563-02

Prepared & Analyzed: 11/13/2023

1,2-Dichloropropane	ND	10.0	ug/L		BLOD			NA	30	
1,3,5-Trimethylbenzene	ND	20.0	ug/L		BLOD			NA	30	
1,3-Dichlorobenzene	ND	20.0	ug/L		BLOD			NA	30	
1,3-Dichloropropane	ND	20.0	ug/L		BLOD			NA	30	
1,4-Dichlorobenzene	ND	20.0	ug/L		BLOD			NA	30	
2,2-Dichloropropane	ND	20.0	ug/L		BLOD			NA	30	
2-Butanone (MEK)	ND	200	ug/L		BLOD			NA	30	
2-Chlorotoluene	ND	20.0	ug/L		BLOD			NA	30	
2-Hexanone (MBK)	ND	100	ug/L		BLOD			NA	30	
4-Chlorotoluene	ND	20.0	ug/L		BLOD			NA	30	
4-Isopropyltoluene	ND	20.0	ug/L		BLOD			NA	30	
4-Methyl-2-pentanone (MIBK)	ND	100	ug/L		BLOD			NA	30	
Acetone	25400	200	ug/L		25100			1.15	30	
Benzene	ND	20.0	ug/L		BLOD			NA	30	
Bromobenzene	ND	20.0	ug/L		BLOD			NA	30	
Bromochloromethane	ND	20.0	ug/L		BLOD			NA	30	
Bromodichloromethane	ND	10.0	ug/L		BLOD			NA	30	
Bromoform	ND	20.0	ug/L		BLOD			NA	30	
Bromomethane	ND	20.0	ug/L		BLOD			NA	30	
Carbon disulfide	ND	200	ug/L		BLOD			NA	30	
Carbon tetrachloride	ND	20.0	ug/L		BLOD			NA	30	
Chlorobenzene	ND	20.0	ug/L		BLOD			NA	30	
Chloroethane	ND	20.0	ug/L		BLOD			NA	30	
Chloroform	ND	10.0	ug/L		BLOD			NA	30	
Chloromethane	ND	20.0	ug/L		BLOD			NA	30	

Certificate of Analysis

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 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

Duplicate (BGK0533-DUP1)

Source: 23K0563-02

Prepared & Analyzed: 11/13/2023

cis-1,2-Dichloroethylene	ND	20.0	ug/L		BLOD			NA	30	
cis-1,3-Dichloropropene	ND	20.0	ug/L		BLOD			NA	30	
Dibromochloromethane	ND	10.0	ug/L		BLOD			NA	30	
Dibromomethane	ND	20.0	ug/L		BLOD			NA	30	
Dichlorodifluoromethane	ND	20.0	ug/L		BLOD			NA	30	
Di-isopropyl ether (DIPE)	ND	100	ug/L		BLOD			NA	30	
Ethylbenzene	ND	20.0	ug/L		BLOD			NA	30	
Hexachlorobutadiene	ND	16.0	ug/L		BLOD			NA	30	
Iodomethane	ND	200	ug/L		BLOD			NA	30	
Isopropylbenzene	ND	20.0	ug/L		BLOD			NA	30	
m+p-Xylenes	ND	40.0	ug/L		BLOD			NA	30	
Methylene chloride	ND	80.0	ug/L		BLOD			NA	30	
Methyl-t-butyl ether (MTBE)	ND	20.0	ug/L		BLOD			NA	30	
Naphthalene	ND	20.0	ug/L		BLOD			NA	30	
n-Butylbenzene	ND	20.0	ug/L		BLOD			NA	30	
n-Propylbenzene	ND	20.0	ug/L		BLOD			NA	30	
o-Xylene	ND	20.0	ug/L		BLOD			NA	30	
sec-Butylbenzene	ND	20.0	ug/L		BLOD			NA	30	
Styrene	ND	20.0	ug/L		BLOD			NA	30	
tert-Butylbenzene	ND	20.0	ug/L		BLOD			NA	30	
Tetrachloroethylene (PCE)	ND	20.0	ug/L		BLOD			NA	30	
Toluene	ND	20.0	ug/L		BLOD			NA	30	
trans-1,2-Dichloroethylene	ND	20.0	ug/L		BLOD			NA	30	
trans-1,3-Dichloropropene	ND	20.0	ug/L		BLOD			NA	30	
Trichloroethylene	ND	20.0	ug/L		BLOD			NA	30	

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
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Volatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

Duplicate (BGK0533-DUP1)

Source: 23K0563-02

Prepared & Analyzed: 11/13/2023

Trichlorofluoromethane	ND	20.0	ug/L		BLOD			NA	30	
Vinyl acetate	ND	200	ug/L		BLOD			NA	30	
Vinyl chloride	ND	10.0	ug/L		BLOD			NA	30	
Xylenes, Total	ND	60.0	ug/L		BLOD			NA	30	
Tetrahydrofuran	ND	200	ug/L		BLOD			NA	30	
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	49.7		ug/L	50.0		99.3	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	49.3		ug/L	50.0		98.6	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	50.2		ug/L	50.0		100	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	49.3		ug/L	50.0		98.6	70-130			

Matrix Spike (BGK0533-MS1)

Source: 23K0563-01

Prepared & Analyzed: 11/13/2023

1,1,1,2-Tetrachloroethane	51.4	0.4	ug/L	50.0	BLOD	103	80-130			
1,1,1-Trichloroethane	49.0	1	ug/L	50.0	BLOD	98.0	65-130			
1,1,2,2-Tetrachloroethane	51.3	0.4	ug/L	50.0	BLOD	103	65-130			
1,1,2-Trichloroethane	52.3	1	ug/L	50.0	BLOD	105	75-125			
1,1-Dichloroethane	47.7	1	ug/L	50.0	BLOD	95.5	70-135			
1,1-Dichloroethylene	44.2	1	ug/L	50.0	BLOD	88.4	50-145			
1,1-Dichloropropene	50.8	1	ug/L	50.0	BLOD	102	75-135			
1,2,3-Trichlorobenzene	54.9	1	ug/L	50.0	BLOD	110	55-140			
1,2,3-Trichloropropane	50.6	1	ug/L	50.0	BLOD	101	75-125			
1,2,4-Trichlorobenzene	55.3	1	ug/L	50.0	BLOD	111	65-135			
1,2,4-Trimethylbenzene	52.8	1	ug/L	50.0	BLOD	106	75-130			
1,2-Dibromo-3-chloropropane (DBCP)	51.5	1	ug/L	50.0	BLOD	103	50-130			
1,2-Dibromoethane (EDB)	50.4	1	ug/L	50.0	BLOD	101	80-120			
1,2-Dichlorobenzene	51.8	0.5	ug/L	50.0	BLOD	104	70-120			

Certificate of Analysis

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

Matrix Spike (BGK0533-MS1)

Source: 23K0563-01

Prepared & Analyzed: 11/13/2023

1,2-Dichloroethane	44.2	1	ug/L	50.0	BLOD	88.4	70-130			
1,2-Dichloropropane	50.0	0.5	ug/L	50.0	BLOD	100	75-125			
1,3,5-Trimethylbenzene	51.2	1	ug/L	50.0	BLOD	102	75-124			
1,3-Dichlorobenzene	51.4	1	ug/L	50.0	BLOD	103	75-125			
1,3-Dichloropropane	49.2	1	ug/L	50.0	BLOD	98.4	75-125			
1,4-Dichlorobenzene	50.2	1	ug/L	50.0	BLOD	100	75-125			
2,2-Dichloropropane	51.0	1	ug/L	50.0	BLOD	102	70-135			
2-Butanone (MEK)	48.8	10	ug/L	50.0	BLOD	97.5	30-150			
2-Chlorotoluene	50.8	1	ug/L	50.0	BLOD	102	75-125			
2-Hexanone (MBK)	49.6	5	ug/L	50.0	BLOD	99.1	55-130			
4-Chlorotoluene	50.7	1	ug/L	50.0	BLOD	101	75-130			
4-Isopropyltoluene	55.2	1	ug/L	50.0	BLOD	110	75-130			
4-Methyl-2-pentanone (MIBK)	50.9	5	ug/L	50.0	BLOD	102	60-135			
Acetone	2390	10	ug/L	50.0	50800	-96800	40-140			M
Benzene	47.9	1	ug/L	50.0	BLOD	95.9	80-120			
Bromobenzene	52.6	1	ug/L	50.0	BLOD	105	75-125			
Bromochloromethane	44.0	1	ug/L	50.0	BLOD	87.9	65-130			
Bromodichloromethane	53.2	0.5	ug/L	50.0	BLOD	106	75-136			
Bromoform	50.2	1	ug/L	50.0	BLOD	100	70-130			
Bromomethane	33.7	1	ug/L	50.0	BLOD	67.4	30-145			
Carbon disulfide	40.9	10	ug/L	50.0	BLOD	81.7	35-160			
Carbon tetrachloride	57.4	1	ug/L	50.0	BLOD	115	65-140			
Chlorobenzene	52.4	1	ug/L	50.0	BLOD	105	80-120			
Chloroethane	44.1	1	ug/L	50.0	BLOD	88.2	60-135			
Chloroform	46.4	0.5	ug/L	50.0	BLOD	92.8	65-135			

Certificate of Analysis

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Enthalpy Analytical

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Batch BGK0533 - SW5030B-MS

Matrix Spike (BGK0533-MS1)

Source: 23K0563-01

Prepared & Analyzed: 11/13/2023

Chloromethane	38.0	1	ug/L	50.0	BLOD	76.1	40-125			
cis-1,2-Dichloroethylene	45.6	1	ug/L	50.0	BLOD	91.2	70-125			
cis-1,3-Dichloropropene	51.2	1	ug/L	50.0	BLOD	102	47-136			
Dibromochloromethane	52.9	0.5	ug/L	50.0	BLOD	106	60-135			
Dibromomethane	48.7	1	ug/L	50.0	BLOD	97.5	75-125			
Dichlorodifluoromethane	45.5	1	ug/L	50.0	BLOD	91.0	30-155			
Ethylbenzene	54.1	1	ug/L	50.0	BLOD	108	75-125			
Hexachlorobutadiene	60.8	0.8	ug/L	50.0	BLOD	122	50-140			
Isopropylbenzene	53.3	1	ug/L	50.0	BLOD	107	75-125			
m+p-Xylenes	107	2	ug/L	100	BLOD	107	75-130			
Methylene chloride	45.5	4	ug/L	50.0	17.6	55.7	55-140			
Methyl-t-butyl ether (MTBE)	44.0	1	ug/L	50.0	BLOD	87.9	65-125			
Naphthalene	55.6	1	ug/L	50.0	BLOD	111	55-140			
n-Butylbenzene	56.4	1	ug/L	50.0	BLOD	113	70-135			
n-Propylbenzene	53.2	1	ug/L	50.0	BLOD	106	70-130			
o-Xylene	53.3	1	ug/L	50.0	BLOD	107	80-120			
sec-Butylbenzene	59.1	1	ug/L	50.0	BLOD	118	70-125			
Styrene	50.2	1	ug/L	50.0	BLOD	100	65-135			
tert-Butylbenzene	54.6	1	ug/L	50.0	BLOD	109	70-130			
Tetrachloroethylene (PCE)	59.4	1	ug/L	50.0	BLOD	119	51-231			
Toluene	53.2	1	ug/L	50.0	BLOD	106	75-120			
trans-1,2-Dichloroethylene	45.2	1	ug/L	50.0	BLOD	90.5	60-140			
trans-1,3-Dichloropropene	54.4	1	ug/L	50.0	BLOD	109	55-140			
Trichloroethylene	52.8	1	ug/L	50.0	BLOD	106	70-125			
Trichlorofluoromethane	54.9	1	ug/L	50.0	BLOD	110	60-145			

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0533 - SW5030B-MS

Matrix Spike (BGK0533-MS1)	Source: 23K0563-01		Prepared & Analyzed: 11/13/2023							
Vinyl chloride	42.5	0.5	ug/L	50.0	BLOD	85.0	50-145			
<i>Surr: 1,2-Dichloroethane-d4 (Surr)</i>	42.6		ug/L	50.0		85.1	70-120			
<i>Surr: 4-Bromofluorobenzene (Surr)</i>	50.4		ug/L	50.0		101	75-120			
<i>Surr: Dibromofluoromethane (Surr)</i>	45.6		ug/L	50.0		91.2	70-130			
<i>Surr: Toluene-d8 (Surr)</i>	49.2		ug/L	50.0		98.3	70-130			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0567 - SW3510C/EPA600-MS

Blank (BGK0567-BLK1)

Prepared & Analyzed: 11/14/2023

Anthracene	ND	10.0	ug/L							
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	54.8		ug/L	100		54.8	5-136			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	35.9		ug/L	50.0		71.9	9-117			
<i>Surr: 2-Fluorophenol (Surr)</i>	40.4		ug/L	100		40.4	5-60			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	31.1		ug/L	50.0		62.2	5-151			
<i>Surr: Phenol-d5 (Surr)</i>	27.1		ug/L	100		27.1	5-60			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	33.3		ug/L	50.0		66.5	5-141			

LCS (BGK0567-BS1)

Prepared & Analyzed: 11/14/2023

1,2,4-Trichlorobenzene	33.9	10.0	ug/L	50.0		67.7	57-130			
1,2-Dichlorobenzene	34.5	10.0	ug/L	50.0		69.0	22-115			
1,3-Dichlorobenzene	33.7	10.0	ug/L	50.0		67.5	22-112			
1,4-Dichlorobenzene	34.2	10.0	ug/L	50.0		68.4	13-112			
2,4,6-Trichlorophenol	30.5	10.0	ug/L	50.0		60.9	52-129			
2,4-Dichlorophenol	36.8	10.0	ug/L	50.0		73.7	53-122			
2,4-Dimethylphenol	38.2	5.00	ug/L	50.0		76.3	42-120			
2,4-Dinitrophenol	22.3	50.0	ug/L	50.0		44.7	48-127			L
2,4-Dinitrotoluene	39.4	10.0	ug/L	50.0		78.7	10-173			
2,6-Dinitrotoluene	39.4	10.0	ug/L	50.0		78.7	68-137			
2-Chloronaphthalene	36.1	10.0	ug/L	50.0		72.3	65-120			
2-Chlorophenol	28.6	10.0	ug/L	50.0		57.1	36-120			
2-Nitrophenol	39.4	10.0	ug/L	50.0		78.9	45-167			
3,3'-Dichlorobenzidine	50.3	10.0	ug/L	50.0		101	10-213			
4,6-Dinitro-2-methylphenol	32.0	50.0	ug/L	50.0		63.9	53-130			
4-Bromophenyl phenyl ether	34.9	10.0	ug/L	50.0		69.7	65-120			

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Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0567 - SW3510C/EPA600-MS

LCS (BGK0567-BS1)

Prepared & Analyzed: 11/14/2023

4-Chlorophenyl phenyl ether	38.4	10.0	ug/L	50.0		76.8	38-145			
4-Nitrophenol	10.4	50.0	ug/L	50.0		20.8	13-129			
Acenaphthene	35.8	10.0	ug/L	50.0		71.6	60-132			
Acenaphthylene	43.5	10.0	ug/L	50.0		87.0	54-126			
Acetophenone	34.3	20.0	ug/L	50.0		68.5	0-200			
Anthracene	41.9	10.0	ug/L	50.0		83.8	43-120			
Benzo (a) anthracene	42.4	10.0	ug/L	50.0		84.8	42-133			
Benzo (a) pyrene	45.2	10.0	ug/L	50.0		90.5	32-148			
Benzo (b) fluoranthene	41.3	10.0	ug/L	50.0		82.6	42-140			
Benzo (g,h,i) perylene	44.6	10.0	ug/L	50.0		89.2	10-195			
Benzo (k) fluoranthene	43.4	10.0	ug/L	50.0		86.9	25-146			
bis (2-Chloroethoxy) methane	38.4	10.0	ug/L	50.0		76.9	49-165			
bis (2-Chloroethyl) ether	42.2	10.0	ug/L	50.0		84.3	43-126			
2,2'-Oxybis (1-chloropropane)	39.5	10.0	ug/L	50.0		79.0	63-139			
bis (2-Ethylhexyl) phthalate	50.8	10.0	ug/L	50.0		102	29-137			
Butyl benzyl phthalate	48.1	10.0	ug/L	50.0		96.2	10-140			
Chrysene	45.7	10.0	ug/L	50.0		91.5	44-140			
Dibenz (a,h) anthracene	44.3	10.0	ug/L	50.0		88.6	10-200			
Diethyl phthalate	37.0	10.0	ug/L	50.0		74.1	10-120			
Dimethyl phthalate	36.2	10.0	ug/L	50.0		72.5	10-120			
Di-n-butyl phthalate	49.7	10.0	ug/L	50.0		99.4	10-120			
Di-n-octyl phthalate	46.0	10.0	ug/L	50.0		92.0	19-132			
Fluoranthene	43.2	10.0	ug/L	50.0		86.4	43-121			
Fluorene	42.7	10.0	ug/L	50.0		85.4	70-120			
Hexachlorobenzene	25.9	1.00	ug/L	50.0		51.8	10-142			

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Batch BGK0567 - SW3510C/EPA600-MS

LCS (BGK0567-BS1)

Prepared & Analyzed: 11/14/2023

Hexachlorobutadiene	36.5	10.0	ug/L	50.0		73.0	38-120			
Hexachlorocyclopentadiene	25.9	10.0	ug/L	50.0		51.8	10-76			
Hexachloroethane	37.8	10.0	ug/L	50.0		75.7	55-120			
Indeno (1,2,3-cd) pyrene	43.2	10.0	ug/L	50.0		86.5	10-151			
Isophorone	26.7	10.0	ug/L	50.0		53.4	47-180			
Naphthalene	36.2	5.00	ug/L	50.0		72.4	36-120			
Nitrobenzene	35.1	10.0	ug/L	50.0		70.2	54-158			
n-Nitrosodimethylamine	23.8	10.0	ug/L	50.0		47.6	10-85			
n-Nitrosodi-n-propylamine	34.6	10.0	ug/L	50.0		69.2	14-198			
n-Nitrosodiphenylamine	29.8	10.0	ug/L	50.0		59.7	12-97			
p-Chloro-m-cresol	36.2	10.0	ug/L	50.0		72.4	10-142			
Pentachlorophenol	33.2	20.0	ug/L	50.0		66.5	38-152			
Phenanthrene	49.1	10.0	ug/L	50.0		98.2	65-120			
Phenol	16.6	10.0	ug/L	50.5		32.9	17-120			
Pyrene	45.6	10.0	ug/L	50.0		91.2	70-120			
Pyridine	28.0	10.0	ug/L	50.0		55.9	10-103			
<hr/>										
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	63.6		ug/L	100		63.6	5-136			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	37.0		ug/L	50.0		74.1	9-117			
<i>Surr: 2-Fluorophenol (Surr)</i>	44.6		ug/L	100		44.6	5-60			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	35.6		ug/L	50.0		71.3	5-151			
<i>Surr: Phenol-d5 (Surr)</i>	32.8		ug/L	100		32.8	5-60			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	39.8		ug/L	50.0		79.6	5-141			

Matrix Spike (BGK0567-MS1)

Source: 23K0615-01

Prepared & Analyzed: 11/15/2023

1,2,4-Trichlorobenzene	206	100	ug/L	500	BLOD	41.2	44-142			M
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Batch BGK0567 - SW3510C/EPA600-MS

Matrix Spike (BGK0567-MS1)

Source: 23K0615-01

Prepared & Analyzed: 11/15/2023

1,2-Dichlorobenzene	181	100	ug/L	500	BLOD	36.3	22-115			
1,3-Dichlorobenzene	179	100	ug/L	500	BLOD	35.8	22-112			
1,4-Dichlorobenzene	222	100	ug/L	500	BLOD	44.4	13-112			
2,4,6-Trichlorophenol	232	100	ug/L	500	BLOD	46.5	37-144			
2,4-Dichlorophenol	196	100	ug/L	500	BLOD	39.1	39-135			
2,4-Dimethylphenol	209	50.0	ug/L	500	BLOD	41.7	32-120			
2,4-Dinitrophenol	ND	500	ug/L	500	BLOD		39-139			M
2,4-Dinitrotoluene	283	100	ug/L	500	BLOD	56.7	10-191			
2,6-Dinitrotoluene	227	100	ug/L	500	BLOD	45.5	50-158			M
2-Chloronaphthalene	204	100	ug/L	500	BLOD	40.7	60-120			M
2-Chlorophenol	173	100	ug/L	500	BLOD	34.5	23-134			
2-Nitrophenol	190	100	ug/L	500	BLOD	37.9	29-182			
3,3'-Dichlorobenzidine	ND	100	ug/L	500	BLOD		10-262			M
4,6-Dinitro-2-methylphenol	226	500	ug/L	500	BLOD	45.2	10-181			
4-Bromophenyl phenyl ether	235	100	ug/L	500	BLOD	47.0	53-127			M
4-Chlorophenyl phenyl ether	243	100	ug/L	500	BLOD	48.6	25-158			
4-Nitrophenol	ND	500	ug/L	500	BLOD		10-132			M
Acenaphthene	229	100	ug/L	500	BLOD	45.7	47-145			M
Acenaphthylene	238	100	ug/L	500	BLOD	47.6	33-145			
Acetophenone	229	200	ug/L	500	BLOD	45.8	0-200			
Anthracene	224	100	ug/L	500	BLOD	44.8	27-133			
Benzo (a) anthracene	259	100	ug/L	500	BLOD	51.8	33-143			
Benzo (a) pyrene	252	100	ug/L	500	BLOD	50.3	17-163			
Benzo (b) fluoranthene	270	100	ug/L	500	BLOD	53.9	24-159			
Benzo (g,h,i) perylene	225	100	ug/L	500	BLOD	45.1	10-219			

Certificate of Analysis

 Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
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Date Issued: 11/29/2023 2:55:20PM

Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0567 - SW3510C/EPA600-MS

Matrix Spike (BGK0567-MS1)	Source: 23K0615-01			Prepared & Analyzed: 11/15/2023						
Benzo (k) fluoranthene	252	100	ug/L	500	BLOD	50.3	11-162			
bis (2-Chloroethoxy) methane	164	100	ug/L	500	BLOD	32.8	33-184			M
bis (2-Chloroethyl) ether	157	100	ug/L	500	BLOD	31.4	12-158			
2,2'-Oxybis (1-chloropropane)	177	100	ug/L	500	BLOD	35.5	36-166			M
bis (2-Ethylhexyl) phthalate	225	100	ug/L	500	BLOD	45.1	10-158			
Butyl benzyl phthalate	176	100	ug/L	500	BLOD	35.2	10-152			
Chrysene	202	100	ug/L	500	BLOD	40.4	17-169			
Dibenz (a,h) anthracene	275	100	ug/L	500	BLOD	55.1	10-227			
Diethyl phthalate	256	100	ug/L	500	BLOD	51.1	10-120			
Dimethyl phthalate	239	100	ug/L	500	BLOD	47.8	10-120			
Di-n-butyl phthalate	248	100	ug/L	500	BLOD	49.6	10-120			
Di-n-octyl phthalate	281	100	ug/L	500	BLOD	56.2	10-146			
Fluoranthene	280	100	ug/L	500	BLOD	55.9	26-137			
Fluorene	239	100	ug/L	500	BLOD	47.8	59-121			M
Hexachlorobenzene	175	10.0	ug/L	500	BLOD	35.0	10-152			
Hexachlorobutadiene	316	100	ug/L	500	BLOD	63.2	24-120			
Hexachlorocyclopentadiene	64.0	100	ug/L	500	BLOD	12.8	10-90			
Hexachloroethane	230	100	ug/L	500	BLOD	45.9	40-120			
Indeno (1,2,3-cd) pyrene	257	100	ug/L	500	BLOD	51.4	10-171			
Isophorone	139	100	ug/L	500	BLOD	27.7	21-196			
Naphthalene	217	50.0	ug/L	500	BLOD	43.4	21-133			
Nitrobenzene	240	100	ug/L	500	BLOD	48.1	35-180			
n-Nitrosodimethylamine	76.5	100	ug/L	500	BLOD	15.3	10-85			
n-Nitrosodi-n-propylamine	226	100	ug/L	500	BLOD	45.1	10-230			
n-Nitrosodiphenylamine	181	100	ug/L	500	BLOD	36.2	12-111			

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0567 - SW3510C/EPA600-MS

Matrix Spike (BGK0567-MS1)

Source: 23K0615-01

Prepared & Analyzed: 11/15/2023

p-Chloro-m-cresol	214	100	ug/L	500	BLOD	42.8	10-127			
Pentachlorophenol	168	200	ug/L	500	BLOD	33.6	14-176			
Phenanthrene	286	100	ug/L	500	BLOD	57.1	54-120			
Phenol	63.9	100	ug/L	505	BLOD	12.7	10-120			
Pyrene	175	100	ug/L	500	BLOD	35.0	52-120			M
Pyridine	91.4	100	ug/L	500	BLOD	18.3	10-110			
<hr/>										
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	590		ug/L	1000		59.0	5-136			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	220		ug/L	500		43.9	9-117			
<i>Surr: 2-Fluorophenol (Surr)</i>	227		ug/L	1000		22.7	5-60			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	245		ug/L	500		49.0	5-151			
<i>Surr: Phenol-d5 (Surr)</i>	159		ug/L	1000		15.9	5-60			
<i>Surr: p-Terphenyl-d14 (Surr)</i>	154		ug/L	500		30.7	5-141			

Matrix Spike Dup (BGK0567-MSD1)

Source: 23K0615-01

Prepared & Analyzed: 11/15/2023

1,2,4-Trichlorobenzene	163	100	ug/L	500	BLOD	32.6	44-142	23.2	20	M, P
1,2-Dichlorobenzene	140	100	ug/L	500	BLOD	27.9	22-115	26.1	20	P
1,3-Dichlorobenzene	140	100	ug/L	500	BLOD	28.1	22-112	24.2	20	P
1,4-Dichlorobenzene	171	100	ug/L	500	BLOD	34.1	13-112	26.1	20	P
2,4,6-Trichlorophenol	198	100	ug/L	500	BLOD	39.7	37-144	15.8	20	
2,4-Dichlorophenol	167	100	ug/L	500	BLOD	33.4	39-135	15.7	20	M
2,4-Dimethylphenol	177	50.0	ug/L	500	BLOD	35.4	32-120	16.5	20	
2,4-Dinitrophenol	ND	500	ug/L	500	BLOD		39-139		20	M
2,4-Dinitrotoluene	241	100	ug/L	500	BLOD	48.3	10-191	16.0	20	
2,6-Dinitrotoluene	192	100	ug/L	500	BLOD	38.4	50-158	16.8	20	M
2-Chloronaphthalene	164	100	ug/L	500	BLOD	32.7	60-120	21.7	20	M, P

Certificate of Analysis

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0567 - SW3510C/EPA600-MS

Matrix Spike Dup (BGK0567-MSD1)	Source: 23K0615-01			Prepared & Analyzed: 11/15/2023						
2-Chlorophenol	147	100	ug/L	500	BLOD	29.4	23-134	16.0	20	
2-Nitrophenol	159	100	ug/L	500	BLOD	31.8	29-182	17.4	20	
3,3'-Dichlorobenzidine	ND	100	ug/L	500	BLOD		10-262		20	M
4,6-Dinitro-2-methylphenol	197	500	ug/L	500	BLOD	39.4	10-181	13.7	20	
4-Bromophenyl phenyl ether	206	100	ug/L	500	BLOD	41.3	53-127	13.0	20	M
4-Chlorophenyl phenyl ether	201	100	ug/L	500	BLOD	40.1	25-158	19.1	20	
4-Nitrophenol	87.8	500	ug/L	500	BLOD	17.6	10-132		20	
Acenaphthene	180	100	ug/L	500	BLOD	36.0	47-145	23.9	20	P
Acenaphthylene	187	100	ug/L	500	BLOD	37.5	33-145	23.7	20	P
Acetophenone	195	200	ug/L	500	BLOD	39.0	0-200	16.0	20	
Anthracene	187	100	ug/L	500	BLOD	37.3	27-133	18.2	20	
Benzo (a) anthracene	231	100	ug/L	500	BLOD	46.1	33-143	11.5	20	
Benzo (a) pyrene	216	100	ug/L	500	BLOD	43.3	17-163	15.0	20	
Benzo (b) fluoranthene	218	100	ug/L	500	BLOD	43.7	24-159	21.0	20	P
Benzo (g,h,i) perylene	192	100	ug/L	500	BLOD	38.4	10-219	16.0	20	
Benzo (k) fluoranthene	216	100	ug/L	500	BLOD	43.3	11-162	15.0	20	
bis (2-Chloroethoxy) methane	140	100	ug/L	500	BLOD	28.0	33-184	15.6	20	M
bis (2-Chloroethyl) ether	129	100	ug/L	500	BLOD	25.8	12-158	19.6	20	
2,2'-Oxybis (1-chloropropane)	148	100	ug/L	500	BLOD	29.6	36-166	17.9	20	M
bis (2-Ethylhexyl) phthalate	195	100	ug/L	500	BLOD	39.0	10-158	14.5	20	
Butyl benzyl phthalate	154	100	ug/L	500	BLOD	30.8	10-152	13.3	20	
Chrysene	173	100	ug/L	500	BLOD	34.5	17-169	15.6	20	
Dibenz (a,h) anthracene	241	100	ug/L	500	BLOD	48.2	10-227	13.4	20	
Diethyl phthalate	223	100	ug/L	500	BLOD	44.7	10-120	13.5	20	
Dimethyl phthalate	206	100	ug/L	500	BLOD	41.2	10-120	14.8	20	

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0567 - SW3510C/EPA600-MS

Matrix Spike Dup (BGK0567-MSD1)

Source: 23K0615-01

Prepared & Analyzed: 11/15/2023

Di-n-butyl phthalate	210	100	ug/L	500	BLOD	42.1	10-120	16.4	20	
Di-n-octyl phthalate	249	100	ug/L	500	BLOD	49.9	10-146	11.8	20	
Fluoranthene	234	100	ug/L	500	BLOD	46.8	26-137	17.6	20	
Fluorene	195	100	ug/L	500	BLOD	39.0	59-121	20.1	20	M, P
Hexachlorobenzene	153	10.0	ug/L	500	BLOD	30.6	10-152	13.4	20	
Hexachlorobutadiene	248	100	ug/L	500	BLOD	49.5	24-120	24.2	20	P
Hexachlorocyclopentadiene	41.8	100	ug/L	500	BLOD	8.36	10-90	42.0	20	M, P
Hexachloroethane	184	100	ug/L	500	BLOD	36.8	40-120	22.0	20	M, P
Indeno (1,2,3-cd) pyrene	230	100	ug/L	500	BLOD	46.0	10-171	11.2	20	
Isophorone	120	100	ug/L	500	BLOD	24.1	21-196	14.0	20	
Naphthalene	173	50.0	ug/L	500	BLOD	34.7	21-133	22.3	20	P
Nitrobenzene	211	100	ug/L	500	BLOD	42.2	35-180	13.0	20	
n-Nitrosodimethylamine	77.0	100	ug/L	500	BLOD	15.4	10-85	0.651	20	
n-Nitrosodi-n-propylamine	202	100	ug/L	500	BLOD	40.5	10-230	10.8	20	
n-Nitrosodiphenylamine	154	100	ug/L	500	BLOD	30.8	12-111	16.2	20	
p-Chloro-m-cresol	186	100	ug/L	500	BLOD	37.1	10-127	14.2	20	
Pentachlorophenol	148	200	ug/L	500	BLOD	29.5	14-176	12.9	20	
Phenanthrene	244	100	ug/L	500	BLOD	48.7	54-120	15.9	20	M
Phenol	52.5	100	ug/L	505	BLOD	10.4	10-120	19.6	20	
Pyrene	144	100	ug/L	500	BLOD	28.7	52-120	19.6	20	M
Pyridine	92.1	100	ug/L	500	BLOD	18.4	10-110	0.763	20	
<i>Surr: 2,4,6-Tribromophenol (Surr)</i>	<i>497</i>		<i>ug/L</i>	<i>1000</i>		<i>49.7</i>	<i>5-136</i>			
<i>Surr: 2-Fluorobiphenyl (Surr)</i>	<i>183</i>		<i>ug/L</i>	<i>500</i>		<i>36.5</i>	<i>9-117</i>			
<i>Surr: 2-Fluorophenol (Surr)</i>	<i>168</i>		<i>ug/L</i>	<i>1000</i>		<i>16.8</i>	<i>5-60</i>			
<i>Surr: Nitrobenzene-d5 (Surr)</i>	<i>206</i>		<i>ug/L</i>	<i>500</i>		<i>41.1</i>	<i>5-151</i>			

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Semivolatile Organic Compounds by GCMS - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
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Batch BGK0567 - SW3510C/EPA600-MS

Matrix Spike Dup (BGK0567-MSD1) **Source: 23K0615-01** Prepared & Analyzed: 11/15/2023

<i>Surr: Phenol-d5 (Surr)</i>	126		ug/L	1000		12.6	5-60
<i>Surr: p-Terphenyl-d14 (Surr)</i>	126		ug/L	500		25.3	5-141

Certificate of Analysis

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0437 - No Prep Wet Chem										
Blank (BGK0437-BLK1)				Prepared & Analyzed: 11/10/2023						
Nitrite as N	ND	0.05	mg/L							
LCS (BGK0437-BS1)				Prepared & Analyzed: 11/10/2023						
Nitrite as N	0.11	0.05	mg/L	0.100		108	80-120			
Matrix Spike (BGK0437-MS1)				Source: 23K0430-03		Prepared & Analyzed: 11/10/2023				
Nitrite as N	0.10	0.05	mg/L	0.100	BLOD	96.0	80-120			
Matrix Spike Dup (BGK0437-MSD1)				Source: 23K0430-03		Prepared & Analyzed: 11/10/2023				
Nitrite as N	0.10	0.05	mg/L	0.100	BLOD	96.0	80-120	0.00	20	
Batch BGK0445 - No Prep Wet Chem										
Blank (BGK0445-BLK1)				Prepared & Analyzed: 11/10/2023						
BOD	ND	2.0	mg/L							
LCS (BGK0445-BS1)				Prepared & Analyzed: 11/10/2023						
BOD	186	2	mg/L	198		93.9	84.6-115.4			
Duplicate (BGK0445-DUP1)				Source: 23K0470-01		Prepared & Analyzed: 11/10/2023				
BOD	ND	2.0	mg/L		BLOD			NA	20	
Batch BGK0789 - No Prep Wet Chem										
Blank (BGK0789-BLK1)				Prepared & Analyzed: 11/17/2023						
COD	ND	10.0	mg/L							

Certificate of Analysis

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0789 - No Prep Wet Chem										
LCS (BGK0789-BS1)				Prepared & Analyzed: 11/17/2023						
COD	46.8	10.0	mg/L	50.0		93.6	88-119			
Matrix Spike (BGK0789-MS1)				Source: 23K0722-01 Prepared & Analyzed: 11/17/2023						
COD	48.4	10.0	mg/L	50.0	BLOD	96.8	72.4-130			
Matrix Spike Dup (BGK0789-MSD1)				Source: 23K0722-01 Prepared & Analyzed: 11/17/2023						
COD	48.4	10.0	mg/L	50.0	BLOD	96.8	72.4-130	0.00	20	
Batch BGK0863 - No Prep Wet Chem										
Blank (BGK0863-BLK1)				Prepared & Analyzed: 11/20/2023						
Total Recoverable Phenolics	ND	0.050	mg/L							
LCS (BGK0863-BS1)				Prepared & Analyzed: 11/20/2023						
Total Recoverable Phenolics	0.42	0.050	mg/L	0.505		82.8	80-120			
Matrix Spike (BGK0863-MS1)				Source: 23K0493-06 Prepared & Analyzed: 11/20/2023						
Total Recoverable Phenolics	0.44	0.050	mg/L	0.500	BLOD	87.2	70-130			
Matrix Spike Dup (BGK0863-MSD1)				Source: 23K0493-06 Prepared & Analyzed: 11/20/2023						
Total Recoverable Phenolics	0.44	0.050	mg/L	0.500	BLOD	87.6	70-130	0.458	20	
Batch BGK0937 - No Prep Wet Chem										
Blank (BGK0937-BLK1)				Prepared & Analyzed: 11/21/2023						
Cyanide	ND	0.01	mg/L							

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0937 - No Prep Wet Chem										
LCS (BGK0937-BS1)				Prepared & Analyzed: 11/21/2023						
Cyanide	0.23	0.01	mg/L	0.250		91.7	80-120			
Matrix Spike (BGK0937-MS1)				Source: 23K0905-03 Prepared & Analyzed: 11/21/2023						
Cyanide	0.26	0.01	mg/L	0.250	BLOD	103	80-120			Cl
Matrix Spike (BGK0937-MS2)				Source: 23K0905-04 Prepared & Analyzed: 11/21/2023						
Cyanide	0.26	0.01	mg/L	0.250	BLOD	105	80-120			Cl
Matrix Spike Dup (BGK0937-MSD1)				Source: 23K0905-03 Prepared & Analyzed: 11/21/2023						
Cyanide	0.26	0.01	mg/L	0.250	BLOD	105	80-120	2.00	20	Cl
Matrix Spike Dup (BGK0937-MSD2)				Source: 23K0905-04 Prepared & Analyzed: 11/21/2023						
Cyanide	0.26	0.01	mg/L	0.250	BLOD	103	80-120	1.84	20	Cl
Batch BGK0963 - No Prep Wet Chem										
Blank (BGK0963-BLK1)				Prepared & Analyzed: 11/21/2023						
TKN as N	ND	0.50	mg/L							
LCS (BGK0963-BS1)				Prepared & Analyzed: 11/21/2023						
TKN as N	4.90	0.50	mg/L	5.00		97.9	90-110			
Matrix Spike (BGK0963-MS1)				Source: 23K0601-01 Prepared & Analyzed: 11/21/2023						
TKN as N	5.82	0.50	mg/L	5.00	0.99	96.7	90-110			
Matrix Spike (BGK0963-MS2)				Source: 23K0601-02 Prepared & Analyzed: 11/21/2023						
TKN as N	6.12	0.50	mg/L	5.00	0.91	104	90-110			

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Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK0963 - No Prep Wet Chem										
Matrix Spike Dup (BGK0963-MSD1)		Source: 23K0601-01			Prepared & Analyzed: 11/21/2023					
TKN as N	6.01	0.50	mg/L	5.00	0.99	100	90-110	3.13	20	
Matrix Spike Dup (BGK0963-MSD2)		Source: 23K0601-02			Prepared & Analyzed: 11/21/2023					
TKN as N	6.02	0.50	mg/L	5.00	0.91	102	90-110	1.71	20	
Batch BGK1016 - No Prep Wet Chem										
Blank (BGK1016-BLK1)		Prepared & Analyzed: 11/22/2023								
Nitrate+Nitrite as N	ND	0.10	mg/L							
LCS (BGK1016-BS1)		Prepared & Analyzed: 11/22/2023								
Nitrate+Nitrite as N	0.98	0.1	mg/L	1.00		98.2	90-110			
Matrix Spike (BGK1016-MS1)		Source: 23K0841-01			Prepared & Analyzed: 11/22/2023					
Nitrate+Nitrite as N	18.3	1.00	mg/L	10.0	9.50	87.7	90-120			M
Matrix Spike (BGK1016-MS2)		Source: 23K0560-01			Prepared & Analyzed: 11/22/2023					
Nitrate+Nitrite as N	6.15	0.50	mg/L	5.00	1.64	90.3	90-120			
Matrix Spike Dup (BGK1016-MSD1)		Source: 23K0841-01			Prepared & Analyzed: 11/22/2023					
Nitrate+Nitrite as N	18.3	1.00	mg/L	10.0	9.50	87.7	90-120	0.0109	20	M
Matrix Spike Dup (BGK1016-MSD2)		Source: 23K0560-01			Prepared & Analyzed: 11/22/2023					
Nitrate+Nitrite as N	6.33	0.50	mg/L	5.00	1.64	93.7	90-120	2.77	20	
Batch BGK1018 - No Prep Wet Chem										
Blank (BGK1018-BLK1)		Prepared & Analyzed: 11/22/2023								
Ammonia as N	ND	0.10	mg/L							

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Date Issued: 11/29/2023 2:55:20PM

Wet Chemistry Analysis - Quality Control

Enthalpy Analytical

Analyte	Result	LOQ	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Qual
Batch BGK1018 - No Prep Wet Chem										
LCS (BGK1018-BS1)				Prepared & Analyzed: 11/22/2023						
Ammonia as N	0.95	0.1	mg/L	1.00		94.7	90-110			
Matrix Spike (BGK1018-MS1)				Prepared & Analyzed: 11/22/2023						
	Source: 23K0883-04									
Ammonia as N	0.99	0.1	mg/L	1.00	BLOD	97.3	89.3-131			
Matrix Spike Dup (BGK1018-MSD1)				Prepared & Analyzed: 11/22/2023						
	Source: 23K0883-04									
Ammonia as N	1.00	0.1	mg/L	1.00	BLOD	98.5	89.3-131	1.20	20	

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Analytical Summary

23K0491-01 Subcontract

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: EPA200.8 R5.4		
23K0491-01	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0778	AK30288
23K0491-01RE1	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0827	AK30298

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method: No Prep Wet Chem		
23K0491-01	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0437	SGK0416	AJ30297
23K0491-01	300 mL / 300 mL	SM5210B-2016	BGK0445	SGK0616	
23K0491-01	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
23K0491-01	5.00 mL / 10.0 mL	SW9065	BGK0863	SGK0788	AK30292
23K0491-01	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
23K0491-01	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0963	SGK0903	AK30309
23K0491-01	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK1016	SGK0924	AK30311
23K0491-01	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1018	SGK0922	AK30310

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method: SW3510C/EPA600-MS		
23K0491-01	500 mL / 2.00 mL	SW8270E	BGK0567	SGK0635	AG30283

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
23K0491-01	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
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Date Issued: 11/29/2023 2:55:20PM

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
23K0491-02	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
23K0491-01	1.00 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Date Issued: 11/29/2023 2:55:20PM

QC Analytical Summary

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method:	EPA200.8 R5.4	
BGK0515-BLK1	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0595	AK30259
BGK0515-BS1	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0595	AK30259
BGK0515-MS1		SW6020B	BGK0515		
BGK0515-MS2	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0595	AK30259
BGK0515-MSD1		SW6020B	BGK0515		
BGK0515-MSD2	50.0 mL / 50.0 mL	SW6020B	BGK0515	SGK0595	AK30259
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BGK0437-BLK1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0437	SGK0416	AJ30297
BGK0437-BS1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0437	SGK0416	AJ30297
BGK0437-MRL1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0437	SGK0416	AJ30297
BGK0437-MS1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0437	SGK0416	AJ30297
BGK0437-MSD1	25.0 mL / 25.0 mL	SM4500-NO2B-2011	BGK0437	SGK0416	AJ30297
BGK0445-BLK1	300 mL / 300 mL	SM5210B-2016	BGK0445	SGK0616	
BGK0445-BS1	300 mL / 300 mL	SM5210B-2016	BGK0445	SGK0616	
BGK0445-DUP1	300 mL / 300 mL	SM5210B-2016	BGK0445	SGK0616	
BGK0789-BLK1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0789-BS1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0789-MRL1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0789-MS1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0789-MSD1	2.00 mL / 2.00 mL	SM5220D-2011	BGK0789	SGK0733	AJ30254
BGK0863-BLK1	5.00 mL / 10.0 mL	SW9065	BGK0863	SGK0788	AK30292

Certificate of Analysis

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 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Wet Chemistry Analysis			Preparation Method:	No Prep Wet Chem	
BGK0863-BS1	5.00 mL / 10.0 mL	SW9065	BGK0863	SGK0788	AK30292
BGK0863-MRL1	5.00 mL / 10.0 mL	SW9065	BGK0863	SGK0788	AK30292
BGK0863-MS1	5.00 mL / 10.0 mL	SW9065	BGK0863	SGK0788	AK30292
BGK0863-MSD1	5.00 mL / 10.0 mL	SW9065	BGK0863	SGK0788	AK30292
BGK0937-BLK1	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0937-BS1	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0937-MRL1	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0937-MS1	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0937-MS2	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0937-MSD1	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0937-MSD2	6.00 mL / 6.00 mL	SW9012B	BGK0937	SGK0859	AK30302
BGK0963-BLK1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0963	SGK0903	AK30309
BGK0963-BS1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0963	SGK0903	AK30309
BGK0963-MS1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0963	SGK0903	AK30309
BGK0963-MS2	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0963	SGK0903	AK30309
BGK0963-MSD1	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0963	SGK0903	AK30309
BGK0963-MSD2	25.0 mL / 25.0 mL	EPA351.2 R2.0	BGK0963	SGK0903	AK30309
BGK1016-BLK1	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK1016	SGK0924	AK30311
BGK1016-BS1	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK1016	SGK0924	AK30311
BGK1016-MRL1	5.00 mL / 5.00 mL	SM4500-NO3F-2016	BGK1016	SGK0924	AK30311
BGK1016-MS1	1.00 mL / 10.0 mL	SM4500-NO3F-2016	BGK1016	SGK0924	AK30311
BGK1016-MS2	2.00 mL / 10.0 mL	SM4500-NO3F-2016	BGK1016	SGK0924	AK30311
BGK1016-MSD1	1.00 mL / 10.0 mL	SM4500-NO3F-2016	BGK1016	SGK0924	AK30311
BGK1016-MSD2	2.00 mL / 10.0 mL	SM4500-NO3F-2016	BGK1016	SGK0924	AK30311
BGK1018-BLK1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1018	SGK0922	AK30310
BGK1018-BS1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1018	SGK0922	AK30310
BGK1018-MS1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1018	SGK0922	AK30310
BGK1018-MSD1	6.00 mL / 6.00 mL	EPA350.1 R2.0	BGK1018	SGK0922	AK30310

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Semivolatile Organic Compounds by GCMS			Preparation Method: SW3510C/EPA600-MS		
BGK0567-BLK1	1000 mL / 1.00 mL	SW8270E	BGK0567	SGK0583	AK30208
BGK0567-BS1	1000 mL / 1.00 mL	SW8270E	BGK0567	SGK0583	AK30208
BGK0567-MS1	100 mL / 1.00 mL	SW8270E	BGK0567	SGK0635	AG30283
BGK0567-MSD1	100 mL / 1.00 mL	SW8270E	BGK0567	SGK0635	AG30283
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Volatile Organic Compounds by GCMS			Preparation Method: SW5030B-MS		
BGK0533-BLK1	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373
BGK0533-BS1	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373
BGK0533-DUP1	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373
BGK0533-MS1	5.00 mL / 5.00 mL	SW8260D	BGK0533	SGK0509	AJ30373
Sample ID	Preparation Factors Initial / Final	Method	Batch ID	Sequence ID	Calibration ID
Metals (Total) by EPA 6000/7000 Series Methods			Preparation Method: SW7470A		
BGK0509-BLK1	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
BGK0509-BS1	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
BGK0509-MS1	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
BGK0509-MS2	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
BGK0509-MSD1	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243
BGK0509-MSD2	20.0 mL / 20.0 mL	SW7470A	BGK0509	SGK0499	AK30243

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Certified Analyses included in this Report

Analyte	Certifications
<i>EPA350.1 R2.0 in Non-Potable Water</i>	
Ammonia as N	VELAP,NCDEQ,PADEP,WVDEP
<i>EPA351.2 R2.0 in Non-Potable Water</i>	
TKN as N	VELAP,NCDEQ,WVDEP
<i>SM4500-NO2B-2011 in Non-Potable Water</i>	
Nitrite as N	VELAP,WVDEP,NCDEQ
<i>SM4500-NO3F-2016 in Non-Potable Water</i>	
Nitrate+Nitrite as N	VELAP,WVDEP
<i>SM5210B-2016 in Non-Potable Water</i>	
BOD	VELAP,NCDEQ,WVDEP
<i>SM5220D-2011 in Non-Potable Water</i>	
COD	VELAP,NCDEQ,PADEP,WVDEP
<i>SW6020B in Non-Potable Water</i>	
Arsenic	VELAP,WVDEP
Barium	VELAP,WVDEP
Cadmium	VELAP,WVDEP
Chromium	VELAP,WVDEP
Copper	VELAP,WVDEP
Lead	VELAP,WVDEP
Nickel	VELAP,WVDEP
Selenium	VELAP,WVDEP
Silver	VELAP,WVDEP
Zinc	VELAP,WVDEP
<i>SW7470A in Non-Potable Water</i>	
Mercury	VELAP,NCDEQ,WVDEP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Certified Analyses included in this Report

Analyte	Certifications
<i>SW8260D in Non-Potable Water</i>	
2-Butanone (MEK)	VELAP,NCDEQ,PADEP,WVDEP
Acetone	VELAP,NCDEQ,PADEP,WVDEP
Benzene	VELAP,NCDEQ,PADEP,WVDEP
Ethylbenzene	VELAP,NCDEQ,PADEP,WVDEP
m+p-Xylenes	VELAP,NCDEQ,PADEP,WVDEP
o-Xylene	VELAP,NCDEQ,PADEP,WVDEP
Toluene	VELAP,NCDEQ,PADEP,WVDEP
Xylenes, Total	VELAP,NCDEQ,PADEP,WVDEP
Tetrahydrofuran	VELAP,PADEP
<i>SW8270E in Non-Potable Water</i>	
Anthracene	VELAP,PADEP,NCDEQ,WVDEP
<i>SW9012B in Non-Potable Water</i>	
Cyanide	VELAP,WVDEP
<i>SW9065 in Non-Potable Water</i>	
Total Recoverable Phenolics	VELAP,WVDEP

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
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Date Issued: 11/29/2023 2:55:20PM

Code	Description	Laboratory ID	Expires
MdDOE	Maryland DE Drinking Water	341	12/31/2023
NC	North Carolina DENR	495	12/31/2023
NCDEQ	North Carolina DEQ	495	12/31/2023
NCDOH	North Carolina Department of Health	51714	07/31/2024
NYDOH	New York DOH Drinking Water	12069	04/01/2024
PADEP	NELAP-Pennsylvania Certificate #009	68-03503	10/31/2024
SCDHEC	South Carolina Dept of Health and Environmental Control Certificate 93016001	93016	06/14/2024
TXCEQ	Texas Comm on Environmental Quality #T104704576-23-1	T104704576	05/31/2024
VELAP	NELAP-Virginia Certificate #12617	460021	06/14/2024
WVDEP	West Virginia DEP	350	11/30/2024

Certificate of Analysis

Client Name: SCS Engineers-Winchester
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Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Qualifiers and Definitions

CI	Residual Chlorine or other oxidizing agent was detected in the container used to analyze this sample.
DS	Surrogate concentration reflects a dilution factor.
J	The reported result is an estimated value.
L	LCS recovery is outside of established acceptance limits
M	Matrix spike recovery is outside established acceptance limits
P	Duplicate analysis does not meet the acceptance criteria for precision
RPD	Relative Percent Difference
Qual	Qualifiers
-RE	Denotes sample was re-analyzed
LOD	Limit of Detection
BLOD	Below Limit of Detection
LOQ	Limit of Quantitation
DF	Dilution Factor
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.
PCBs, Total	Total PCBs are defined as the sum of detected Aroclors 1016, 1221, 1232, 1248, 1254, 1260, 1262, and 1268.



1941 REYMET ROAD
RICHMOND, VIRGINIA 23237
(804) 358-8295 PHONE
(804)358-8297 FAX

CHAIN OF CUSTODY

COMPANY NAME: SCS Engineers	INVOICE TO: SAME	PROJECT NAME/Quote #:
CONTACT: Jennifer Robb	INVOICE CONTACT:	SITE NAME: 2023 City of Bristol Landfill
ADDRESS: 296 Victory Road	INVOICE ADDRESS:	PROJECT NUMBER: 02218208.15 Task 1
Winchester, VA 22602	INVOICE PHONE #:	P.O. #:
PHONE #: 703-471-6150	EMAIL: jrobb@scsengineers.com	Pretreatment Program:
Is sample for compliance reporting? YES NO	Regulatory State: V A	Is sample from a chlorinated supply? YES NO
PWS I.D. #:		
SAMPLER NAME (PRINT): A. Minnick	SAMPLER SIGNATURE:	Turn Around Time: 10 Day(s)

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Start Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	ANALYSIS / (PRESERVATIVE)												COMMENTS	
											Ammonia - EPA 350.1	BOD - SM22 5210B-2021	COD - SM22 5220D-2011	Cyanide - 9012B	Nitrate SM22 450-NO3F-2011 (report separately from Nitrite)	Nitrite SM22 450-NO3F-2011	SVOC (Anthracene) 8270	Total Metals (As, Ba, Cd, Cr, Cu, Pb, Ni, Se, Ag, Zn) 6010	TKN - EPA 351.2 R2.0	Mercury - 7470	Total Recoverable Phenolics - 9065	V. Fatty Acids (See List) 8015		VOCs (See List) 8260
1) EW-52	X					110923	740		GW	13	X	X	X	X	X	X	X	X	X	X	X	X	<p>Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol</p> <p>Note VOC 8260 no HCl</p> <p>PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)</p>	
2)								GW																
3)								GW																
4)								GW																
5)								GW																
6)								GW																
7)								GW																
8)								GW																
9)								GW																
10) Trip Blank	X					92023	1335		DI															

RELINQUISHED:	DATE / TIME: 110923/1200	RECEIVED:	DATE / TIME:	QC Data Package	LAB USE ONLY Therm ID: 835	COOLER TEMP 0.5 °C
RELINQUISHED: LCW	DATE / TIME:	RECEIVED:	DATE / TIME: 11/10/23 0800	Level III <input type="checkbox"/>	Custody Seals used and intact? (X/N)	Received on ice? (X/N)
RELINQUISHED:	DATE / TIME:	RECEIVED:	DATE / TIME:	Level IV <input type="checkbox"/>	SCS-W 23K0491	
				City of Bristol Semi-Annual		
				Recd: 11/10/2023 Due: 11/28/2023		

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Sample Preservation Log

Order ID: 23K0491

Date Performed: 11/10/23

Analyst Performing Check: CSB

Sample ID	Container ID	Metals		Cyanide		Sulfide		Ammonia		TKN		Phos, Tot		NO3+NO2		DRO		Pesticide (8081/608/508) PCB DW only		SVOC (525/0270/625)		CrVI **		Pest/PCB (508) / SVOC(525)		COD		Phenolics		
		pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	Received Res. Cl	final + or -	Received Res. Cl	final + or -	Received pH	Final pH	pH as Received	Final pH	pH as Received	Final pH	pH as Received	Final pH	
		< 2	Other	> 12	Other	> 9	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	< 2	Other	+	-	+	-			< 2	Other	< 2	Other	< 2	Other	
1	A	5	<2																											
1	B							5	<2	5	<2			5	<2												5	<2		
1	D			6	>12																									
1	F																											5	<2	
1	G																													

NaOH ID: 2H00468 HNO3 ID: 2K02234
 H2SO4 ID: 2K02567 Na2S2O3 ID: _____
 HCL ID: _____ Na2SO3 ID: _____

CrVI preserved date/time: _____ Analyst Initials: _____
 * pH must be adjusted between 9.3 - 9.7
 Ammonia Buffer Sol'n ID: _____
 5N NaOH ID: _____

Metals were received with pH = 5. HNO3 was added at 1000 on 10 Nov 2023 by CSB in the Log-In room to bring pH= <2.

Certificate of Analysis

Client Name: SCS Engineers-Winchester
Client Site I.D.: 2023 City of Bristol Landfill
Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Certificate of Analysis

Client Name: SCS Engineers-Winchester
 Client Site I.D.: 2023 City of Bristol Landfill
 Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

Laboratory Order ID: 23K0491

Sample Conditions Checklist

Samples Received at:	0.50°C
How were samples received?	Logistics Courier
Were Custody Seals used? If so, were they received intact?	Yes
Are the custody papers filled out completely and correctly?	No
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?	Yes
Are all volatile organic and TOX containers free of headspace?	No
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.	Yes
Are all samples received appropriately preserved? Note that metals containers do not require field preservation but lab preservation may delay analysis. In addition, field parameters are always received outside holding time and will be marked accordingly.	No

*Metals (excepting Hg) were logged by 6020 per project history, which differs from the chain of custody (6010).

*H2SO4-preserved containers were received with a pH greater than 2, and H2SO4 was added to bring the pH to less than 2.

Certificate of Analysis

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Submitted To: Jennifer Robb

Date Issued: 11/29/2023 2:55:20PM

*An NaOH-preserved container was received with a pH less than 12, and NaOH was added to bring the pH to greater than 12.

*All VOAs were received with headspace.

Analysis to proceed per Jennifer Robb via email. MRS 11/13/23 0932



November 29, 2023

Virginia Thrasher
Enthalpy
1941 Reymet Road
Richmond, VA 23237

RE: Project: 23K0941
Pace Project No.: 20296852

Dear Virginia Thrasher:

Enclosed are the analytical results for sample(s) received by the laboratory on November 14, 2023. The results relate only to the samples included in this report. Results reported herein conform to the applicable TNI/NELAC Standards and the laboratory's Quality Manual, where applicable, unless otherwise noted in the body of the report.

The test results provided in this final report were generated by each of the following laboratories within the Pace Network:

- Pace Analytical Services - Baton Rouge

If you have any questions concerning this report, please feel free to contact me.

Sincerely,

Ruth Welsh
ruth.welsh@pacelabs.com
(225) 678-1833
Project Manager

Enclosures



REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.



CERTIFICATIONS

Project: 23K0941
Pace Project No.: 20296852

Pace Analytical Services Baton Rouge

7979 Innovation Park Drive Ste A, Baton Rouge, LA
70820-7402
Louisiana Dept of Environmental Quality (NELAC/LELAP):
01979
Florida Dept of Health (NELAC/FELAP): E87854
DoD ELAP (A2LA) #: 6429.01
Alabama DEM #: 41900
Alaska DEC-DW #: LA00024
Alaska DEC CS-LAP #: 21-001
Arkansas DEQ #: 88-0655
California ELAP #: 3063
Georgia DPD #: C050
Hawaii DOH State Laboratories Division
Illinois EPA #: 200048
Kansas DoHE #: E-10354
Kentucky DEP UST Branch #: 123054
Louisiana DOH #: LA036
Minnesota DOH #: 2233799
Mississippi State Dept of Health

Montana Department of Environmental Quality
Nebraska DHHS #: NE-OS-35.21
Nevada DCNR DEP #: LA00024
New York DOH #: 12149
North Carolina DEQ - WW & GW #: 618
North Dakota DEQ #: R195
Ohio EPA #: 87782
Oklahoma Dept of Environmental Quality #: 9403
Oregon ELAP #: 4168
Pennsylvania Dept of Environmental Protection #: 68-
05973
South Carolina DHEC #: 73006001
Texas CEQ #: T104704178-23-15
Utah DOH #: LA00024
Virginia DCLS #: 6460215
Washington Dept of Ecology #: C929
Wisconsin DNR #: 399139510

REPORT OF LABORATORY ANALYSIS

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SAMPLE SUMMARY

Project: 23K0941
Pace Project No.: 20296852

Lab ID	Sample ID	Matrix	Date Collected	Date Received
20296852001	23K0491-01: EW-52	Water	11/09/23 07:40	11/14/23 09:45

REPORT OF LABORATORY ANALYSIS

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SAMPLE ANALYTE COUNT

Project: 23K0941
Pace Project No.: 20296852

Lab ID	Sample ID	Method	Analysts	Analytes Reported
20296852001	23K0491-01: EW-52	Pace ENV-SOP-BTRO-0042	LHM	10

PASI-BR = Pace Analytical Services - Baton Rouge

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 23K0941
Pace Project No.: 20296852

Method: Pace ENV-SOP-BTRO-0042
Description: BR AM23G Low Level VFA
Client: BR-Enthalpy
Date: November 29, 2023

General Information:

1 sample was analyzed for Pace ENV-SOP-BTRO-0042 by Pace Analytical Services Baton Rouge. All samples were received in acceptable condition with any exceptions noted below or on the chain-of custody and/or the sample condition upon receipt form (SCUR) attached at the end of this report.

Hold Time:

The samples were analyzed within the method required hold times with any exceptions noted below.

Initial Calibrations (including MS Tune as applicable):

All criteria were within method requirements with any exceptions noted below.

Continuing Calibration:

All criteria were within method requirements with any exceptions noted below.

Internal Standards:

All internal standards were within QC limits with any exceptions noted below.

Surrogates:

All surrogates were within QC limits with any exceptions noted below.

Method Blank:

All analytes were below the report limit in the method blank, where applicable, with any exceptions noted below.

Laboratory Control Spike:

All laboratory control spike compounds were within QC limits with any exceptions noted below.

Matrix Spikes:

All percent recoveries and relative percent differences (RPDs) were within acceptance criteria with any exceptions noted below.

Additional Comments:

Analyte Comments:

QC Batch: 308943

D4: Sample was diluted due to the presence of high levels of target analytes.

- 23K0491-01: EW-52 (Lab ID: 20296852001)
 - Lactic Acid

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- 23K0491-01: EW-52 (Lab ID: 20296852001)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid

REPORT OF LABORATORY ANALYSIS

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PROJECT NARRATIVE

Project: 23K0941
Pace Project No.: 20296852

Method: Pace ENV-SOP-BTRO-0042
Description: BR AM23G Low Level VFA
Client: BR-Enthalpy
Date: November 29, 2023

Analyte Comments:

QC Batch: 308943

N2: The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

- BLANK (Lab ID: 1478913)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- LCS (Lab ID: 1478914)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- MS (Lab ID: 1479029)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid
- MSD (Lab ID: 1479030)
 - Hexanoic Acid
 - i-Hexanoic Acid
 - i-Pentanoic Acid
 - Pentanoic Acid

This data package has been reviewed for quality and completeness and is approved for release.

REPORT OF LABORATORY ANALYSIS

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ANALYTICAL RESULTS

Project: 23K0941
 Pace Project No.: 20296852

Sample: 23K0491-01: EW-52		Lab ID: 20296852001	Collected: 11/09/23 07:40	Received: 11/14/23 09:45	Matrix: Water			
Parameters	Results	Units	Report Limit	DF	Prepared	Analyzed	CAS No.	Qual

BR AM23G Low Level VFA

Analytical Method: Pace ENV-SOP-BTRO-0042
 Pace Analytical Services - Baton Rouge

Lactic Acid	6030	mg/L	500	1000		11/22/23 13:12	50-21-5	D4
Propionic Acid	2580	mg/L	500	1000		11/22/23 13:12	79-09-4	
Formic acid	3250	mg/L	500	1000		11/22/23 13:12	64-18-6	
Butyric Acid	3420	mg/L	500	1000		11/22/23 13:12	107-92-6	
Pyruvic Acid	ND	mg/L	500	1000		11/22/23 13:12	127-17-3	
i-Pentanoic Acid	ND	mg/L	500	1000		11/22/23 13:12	503-74-2	N2
Pentanoic Acid	ND	mg/L	500	1000		11/22/23 13:12	109-52-4	N2
i-Hexanoic Acid	ND	mg/L	500	1000		11/22/23 13:12	646-07-1	N2
Hexanoic Acid	ND	mg/L	500	1000		11/22/23 13:12	142-62-1	N2
Acetic Acid	9900	mg/L	1000	2000		11/28/23 15:57	64-19-7	

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 23K0941
 Pace Project No.: 20296852

QC Batch: 308943 Analysis Method: Pace ENV-SOP-BTRO-0042
 QC Batch Method: Pace ENV-SOP-BTRO-0042 Analysis Description: BR AM23G Low Level VFA
 Laboratory: Pace Analytical Services - Baton Rouge

Associated Lab Samples: 20296852001

METHOD BLANK: 1478913 Matrix: Water
 Associated Lab Samples: 20296852001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Butyric Acid	mg/L	ND	0.50	11/22/23 09:05	
Formic acid	mg/L	ND	0.50	11/22/23 09:05	
Hexanoic Acid	mg/L	ND	0.50	11/22/23 09:05	N2
i-Hexanoic Acid	mg/L	ND	0.50	11/22/23 09:05	N2
i-Pentanoic Acid	mg/L	ND	0.50	11/22/23 09:05	N2
Lactic Acid	mg/L	ND	0.50	11/22/23 09:05	
Pentanoic Acid	mg/L	ND	0.50	11/22/23 09:05	N2
Propionic Acid	mg/L	ND	0.50	11/22/23 09:05	
Pyruvic Acid	mg/L	ND	0.50	11/22/23 09:05	

LABORATORY CONTROL SAMPLE: 1478914

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Butyric Acid	mg/L	2	2.0	102	70-130	
Formic acid	mg/L	2	2.0	101	70-130	
Hexanoic Acid	mg/L	2	1.3	64	39-114	N2
i-Hexanoic Acid	mg/L	2	1.7	83	39-114	N2
i-Pentanoic Acid	mg/L	2	1.8	91	59-121	N2
Lactic Acid	mg/L	2	2.1	106	70-130	
Pentanoic Acid	mg/L	2	1.7	84	59-121	N2
Propionic Acid	mg/L	2	2.1	107	70-130	
Pyruvic Acid	mg/L	2	2.0	102	70-130	

MATRIX SPIKE & MATRIX SPIKE DUPLICATE: 1479029 1479030

Parameter	Units	MS		MSD		MS % Rec	MSD % Rec	% Rec Limits	RPD	Max RPD	Qual	
		20297283004 Result	Spike Conc.	Spike Conc.	MS Result							MSD Result
Butyric Acid	mg/L	2.5U	10	10	9.4	9.6	94	96	70-130	2	30	
Formic acid	mg/L	2.5U	10	10	9.9	10.0	98	99	70-130	1	30	
Hexanoic Acid	mg/L	4.1	10	10	10.1	10.1	60	60	39-114	0	30	N2
i-Hexanoic Acid	mg/L	2.5U	10	10	7.6	8.1	76	81	39-114	6	30	N2
i-Pentanoic Acid	mg/L	2.5U	10	10	8.5	8.8	85	88	59-121	4	30	N2
Lactic Acid	mg/L	0.50J	10	10	10.5	10.7	100	102	70-130	2	30	
Pentanoic Acid	mg/L	2.5U	10	10	9.5	9.6	95	96	59-121	1	30	N2
Propionic Acid	mg/L	2.5U	10	10	10.1	10.3	101	103	70-130	2	30	
Pyruvic Acid	mg/L	2.5U	10	10	9.9	9.8	99	98	70-130	1	30	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA

Project: 23K0941
 Pace Project No.: 20296852

QC Batch: 309469 Analysis Method: Pace ENV-SOP-BTRO-0042
 QC Batch Method: Pace ENV-SOP-BTRO-0042 Analysis Description: BR AM23G Low Level VFA
 Laboratory: Pace Analytical Services - Baton Rouge

Associated Lab Samples: 20296852001

METHOD BLANK: 1481687 Matrix: Water
 Associated Lab Samples: 20296852001

Parameter	Units	Blank Result	Reporting Limit	Analyzed	Qualifiers
Acetic Acid	mg/L	ND	0.50	11/28/23 14:18	

LABORATORY CONTROL SAMPLE: 1481688

Parameter	Units	Spike Conc.	LCS Result	LCS % Rec	% Rec Limits	Qualifiers
Acetic Acid	mg/L	2	2.1	106	70-130	

Results presented on this page are in the units indicated by the "Units" column except where an alternate unit is presented to the right of the result.

REPORT OF LABORATORY ANALYSIS

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QUALIFIERS

Project: 23K0941
Pace Project No.: 20296852

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above adjusted reporting limit.

TNTC - Too Numerous To Count

J - Estimated concentration above the adjusted method detection limit and below the adjusted reporting limit.

MDL - Adjusted Method Detection Limit.

PQL - Practical Quantitation Limit.

RL - Reporting Limit - The lowest concentration value that meets project requirements for quantitative data with known precision and bias for a specific analyte in a specific matrix.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Reported results are not rounded until the final step prior to reporting. Therefore, calculated parameters that are typically reported as "Total" may vary slightly from the sum of the reported component parameters.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The Nelac Institute

ANALYTE QUALIFIERS

D4 Sample was diluted due to the presence of high levels of target analytes.

N2 The lab does not hold NELAC/TNI accreditation for this parameter but other accreditations/certifications may apply. A complete list of accreditations/certifications is available upon request.

REPORT OF LABORATORY ANALYSIS

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QUALITY CONTROL DATA CROSS REFERENCE TABLE

Project: 23K0941
Pace Project No.: 20296852

Lab ID	Sample ID	QC Batch Method	QC Batch	Analytical Method	Analytical Batch
20296852001	23K0491-01: EW-52	Pace ENV-SOP-BTRO-0042	308943		
20296852001	23K0491-01: EW-52	Pace ENV-SOP-BTRO-0042	309469		

REPORT OF LABORATORY ANALYSIS

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Pace - Gulf Coast
7979 Innovation Park Dr
Baton Rouge, LA 70820

1941 R'
RICHMOND, VI
(804) 358
(804)

WO#: 20296852



CHAIN OF CUSTODY

COMPANY NAME: Enthalpy		INVOICE TO: Enthalpy	PROJECT NAME/Quote #: 23K0491
CONTACT: Dan Elliott		INVOICE CONTACT Tafral Middleton	SITE NAME: 23K0491
ADDRESS: 1941 Reymet Rd Richmond VA 23237		INVOICE ADDRESS: 1941 Reymet Rd Richmond VA 23237	PROJECT NUMBER: 23K0491
PHONE #: (804) 358-8295	INVOICE PHONE #: (804) 358-8295		P.O. #: PO-055825
FAX #:	EMAIL: ric-env@enthalpy.com		Pretreatment Program:
Is sample for compliance reporting? YES NO		Is sample from a chlorinated supply? YES NO	
SAMPLER NAME (PRINT):		SAMPLER SIGNATURE:	
			PWS I.D. #:
			Turn Around Time: 10

Matrix Codes: WW=Waste Water/Storm Water GW=Ground Water DW=Drinking Water S=Soil/Solids OR=Organic A=Air WP=Wipe OT=Other _____

CLIENT SAMPLE I.D.	Grab	Composite	Field Filtered (Dissolved Metals)	Composite Start Date	Composite Stop Time	Grab Date or Composite Stop Date	Grab Time or Composite Stop Time	Time Preserved	Matrix (See Codes)	Number of Containers	Volatile Fatty Acid Low Level	ANALYSIS / (PRESERVATIVE)								COMMENTS		
1) 23K0491-01: EW-52	x					11/09/23	0740		GW	3	X										Preservative Codes: N=Nitric Acid C=Hydrochloric Acid S=Sulfuric Acid H=Sodium Hydroxide A=Ascorbic Acid Z=Zinc Acetate T=Sodium Thiosulfate M=Methanol	
2)																						PLEASE NOTE PRESERVATIVE(S), INTERFERENCE CHECKS or PUMP RATE (L/min)
3)																						
4)																						
5)																						
6)																						
7)																						
8)																						
9)																						
10)																						

RELINQUISHED: <i>[Signature]</i> 11/13/23 1522	RECEIVED: <i>[Signature]</i> FedEx Express 11/13/23 1522	QC Data Package	LAB USE ONLY	COOLER TEMP _____ °C
RELINQUISHED: <i>[Signature]</i> 11/14/23 9:45	RECEIVED: <i>[Signature]</i> 11/14/23	Level I <input type="checkbox"/>		
		Level II <input type="checkbox"/>		
		Level III <input type="checkbox"/>		
		Level IV <input type="checkbox"/>		

WO# : 20296852

PM: RW

Due Date: 11/30/23

CLIENT: BR-Enthalpy

Pace

Sample Condition Upon Recie,

Workorder #: _____

7979 Innovation Park Dr. Baton Rouge, LA 70806

Cooler Inspected by/date: BRP / 11/14/23

Means of receipt: <input type="checkbox"/> Pace <input type="checkbox"/> Client <input type="checkbox"/> UPS <input checked="" type="checkbox"/> FedEx <input type="checkbox"/> Other: _____	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No	Were custody seals present on the cooler?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	If custody seals were present, were they intact and unbroken?
Method: <input type="checkbox"/> Temperature Blank <input checked="" type="checkbox"/> Against Bottles IR Gun ID: <u>TYM12</u> IR Gun Correction Factor: <u>0</u> °C	
Cooler #1 Cooler Temp °C: <u>0.7</u> (Actual/True)	Samples on ice <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No
Cooler #2 Cooler Temp °C: _____ (Actual/True)	Method of coolant: <input checked="" type="checkbox"/> Wet <input type="checkbox"/> Ice Packs <input type="checkbox"/> Dry Ice <input type="checkbox"/> None
Cooler #3 Cooler Temp °C: _____ (Actual/True)	
Cooler #4 Cooler Temp °C: _____ (Actual/True)	
Tracking #:	
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	Is a temperature blank present?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Was a chain of custody (COC) received?
<input type="checkbox"/> Yes <input checked="" type="checkbox"/> No <input type="checkbox"/> NA	Was the line and profile number listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Were all coolers received at or below 6.0°C? If no, notify Project Manager notified via email.
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were proper custody procedures (relinquished/received) followed?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Is the sampler name and signature on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were sample IDs listed on the COC and all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Was collection date & time listed on the COC and all sample containers?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Did all container label information (ID, date, time) agree with the COC?
<input type="checkbox"/> Yes <input type="checkbox"/> No	Were tests to be performed listed on the COC?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Did all samples arrive in the proper containers for each test and/or in good condition (unbroken, lids on, etc.)?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Was adequate sample volume available?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were all samples received within ½ the holding time or 48 hours, whichever comes first?
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No	Were all samples containers accounted for? (No missing / excess)
<input checked="" type="checkbox"/> Yes <input type="checkbox"/> No <input type="checkbox"/> NA	Were VOA, 8015C (GRO/VPH), and RSK-175 samples free of bubbles > "pea size" (1/4" or 6mm in diameter) in any of the VOA vials?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	Trip blank present?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	Filtered volume received for dissolved tests? <i>If no, list affected sample(s) in comments below.</i>
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	Were all metals/nutrient samples received at a pH of < 2?
<input type="checkbox"/> Yes <input type="checkbox"/> No <input checked="" type="checkbox"/> NA	Were all cyanide samples received at a pH > 12 and sulfide samples received at a pH > 9?
If No, was preservative added? <input type="checkbox"/> Yes <input type="checkbox"/> No If added, record lots. Dispenser/pipette lot #: _____ HNO ₃ _____ H ₂ SO ₄ _____ NaOH _____ Date: _____ Time: _____	
Comments:	

BRP

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ		
Parameter	Monitoring Event	Concentration																			LOD	LOQ		
Ammonia as N (mg/L)	November-2022	---	---	---	---	---	---	---	1560	---	1400	---	---	1380	---	---	---	---	---	---	---	50	50	
	December-2022	1700	2280	---	---	---	2110	---	1410	1310	---	---	---	---	1150	1780	---	---	---	---	---	100	100	
	January-2023	1520	---	---	---	---	---	936	---	---	---	---	---	1330	---	---	---	---	---	---	---	50	50	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1490	---	---	---	---	100	100	
	March-2023	---	---	---	---	---	---	---	667	1480	---	---	---	---	---	---	---	---	---	---	---	73.1	100	
	April-2023	---	---	---	---	---	---	---	1410	---	1220	---	---	---	---	---	---	---	---	---	---	73.1	100	
	May-2023	1390	---	---	---	---	---	---	1860	2380	---	---	---	---	---	---	---	---	---	---	---	146	200	
	June-2023	---	---	---	---	---	---	---	---	2740	---	2370	---	2170	---	---	---	---	---	---	---	---	146	200
	July-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1180	---	---	---	---	73.1	100
	August-2023	1570	---	---	---	---	2260	---	---	---	---	---	---	---	---	---	---	---	---	2350	310	146	200	
	September-2023	---	---	---	1600	---	1890	---	---	---	---	---	---	---	---	---	---	---	---	2140	222	146	200	
	October-2023	---	1250	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1720	---	---	---	---	73.1	100
	November-2023	---	---	---	---	1980	---	---	---	---	---	---	---	---	---	---	---	1730	2890	---	---	---	146	200
			1260	2490	1830	---	2070	---	---	---	---	---	---	---	---	---	---	1800	2590	---	---	---	146	200
		---	---	---	---	---	---	---	---	---	1170	---	---	---	---	---	---	---	---	---	2080	183	250	
		---	---	---	---	---	---	---	2440	---	---	---	---	---	---	---	---	---	---	---	---	366	500	
Biological Oxygen Demand (mg/L)	November-2022	---	---	---	---	---	---	---	15700	---	5860	---	---	5140	---	---	---	---	---	---	---	0.2	2	
	December-2022	6440	12500	---	---	---	11400	---	9240	3330	---	---	---	---	8360	6770	---	---	---	---	---	0.2	2	
	January-2023	9920	---	---	---	---	---	999	28100	---	---	---	---	7060	---	---	---	---	---	---	---	0.2	2	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	7230	---	---	---	---	---	0.2	2	
	March-2023	---	---	---	---	---	---	---	1570	9190	---	---	---	---	---	---	---	---	---	---	---	0.2	2	
	April-2023	---	---	---	---	---	---	---	8430	---	2860	---	---	---	---	---	---	---	---	---	---	0.2	2	
	May-2023	7350	---	---	---	---	---	---	11900	35300	---	---	---	---	---	---	---	---	---	---	---	0.2	2	
	June-2023	---	---	---	---	---	---	---	---	20000	---	27400	---	23100	---	---	---	---	---	---	---	0.2	2	
	July-2023	6820	---	---	---	---	32900	---	---	---	---	---	---	---	---	---	---	330	---	31800	937	0.2	2	
	August-2023	---	---	---	>33045	---	>33225	---	---	---	---	---	---	---	---	---	---	---	---	>32805	506	0.2	2	
	September-2023	---	40185.5	---	---	---	---	---	---	---	---	---	---	---	---	---	---	659	---	---	---	0.2	2	
	October-2023	---	---	---	---	34600	---	---	---	---	---	---	---	---	---	---	---	690	37000	---	---	0.2	2	
November-2023	1910	30400	27500	---	32015	---	---	---	29600	---	---	3640	---	---	---	---	480	32135	---	21500	0.2	2		

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ			
Parameter	Monitoring Event	Concentration																			LOD	LOQ			
Chemical Oxygen Demand (mg/L)	November-2022	---	---	---	---	---	---	---	---	---	9790	---	---	10800	---	---	---	---	---	---	---	1000	1000		
		---	---	---	---	---	---	---	---	23500	---	---	---	---	---	---	---	---	---	---	---	---	2000	2000	
	December-2022	7440	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1000	1000		
		---	---	---	---	---	---	---	---	13200	8000	---	---	---	---	20300	14100	---	---	---	---	2000	2000		
		---	---	---	---	---	---	22400	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5000	5000	
		---	86800	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10000	10000	
	January-2023	---	---	---	---	---	---	---	3630	---	---	---	---	---	---	---	---	---	---	---	---	500	500		
		14900	---	---	---	---	---	---	---	---	---	---	---	---	8430	---	---	---	---	---	---	2000	2000		
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5000	5000		
		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	9210	---	---	---	---	1000	1000		
	March-2023	---	---	---	---	---	---	---	1690	---	---	---	---	---	---	---	---	---	---	---	---	500	500		
		---	---	---	---	---	---	---	---	10600	---	---	---	---	---	---	---	---	---	---	---	---	2000	2000	
	April-2023	---	---	---	---	---	---	---	---	---	7370	---	---	---	---	---	---	---	---	---	---	1000	1000		
		---	---	---	---	---	---	---	16800	---	---	---	---	---	---	---	---	---	---	---	---	---	2000	2000	
	May-2023	7590	---	---	---	---	---	---	18700	---	---	---	---	---	---	---	---	---	---	---	---	2000	2000		
		---	---	---	---	---	---	---	---	44700	---	---	---	---	---	---	---	---	---	---	---	---	4000	4000	
	June-2023	---	---	---	---	---	---	---	---	---	44800	---	---	---	---	---	---	---	---	---	---	5000	5000		
		---	---	---	---	---	---	---	---	41300	---	---	---	55000	---	---	---	---	---	---	---	---	10000	10000	
	July-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2180	500	500
		6480	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2460	---	---	---	---	1000	1000	
---		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	41000	---	---	5000	5000		
August-2023	---	---	---	---	---	50100	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10000	10000		
	---	---	---	59000	---	58600	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1750	500	500	
September-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	60600	---	---	5000	5000		
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	6260	---	---	---	---	1000	1000		
October-2023	---	87400	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10000	10000		
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5320	---	---	---	500	500		
November-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5000	5000		
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	63600	---	---	---	10000	10000	
	6200	---	---	---	---	---	---	---	---	---	---	5620	---	---	---	---	4710	---	---	---	---	1000	1000		
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2000	2000		
---	---	48100	---	---	57900	---	---	---	43700	---	---	---	---	---	---	---	---	---	---	---	---	5000	5000		
---	77100	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	63900	---	---	---	10000	10000		

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ
Parameter	Monitoring Event	Concentration																			LOD	LOQ
Nitrate+Nitrite as N (mg/L)	November-2022	---	---	---	---	---	---	---	2.91	---	0.16	---	---	0.33	---	---	---	---	---	---	0.1	0.1
	December-2022	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	---	---	0.2
---		---	---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	0.2	0.6
ND		ND	---	---	---	---	ND	---	ND	---	---	---	---	---	---	---	---	---	---	---	1.1	5.1
January-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	5.5
	---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	0.35	1.35
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.1	1.1
February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2.1	2.1
	3.9	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2.2	2.2
March-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.35	1.35
April-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.04	5.1
May-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.6	2.6
June-2023	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.1	5.1
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.2	5.2
July-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.1	5.1
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.2	5.2
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.1	5.1
August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.2	5.2
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.355	0.35
September-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.15	0.35
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.55	0.75
	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1	3
October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	5.5
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---
November-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	5.5
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.15	0.35
November-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.35	1.35
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.75	1.75
November-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.1	5.1
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	5.5

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ		
Parameter	Monitoring Event	Concentration																				LOD	LOQ	
Nitrite as N (mg/L)	December-2022	---	---	---	---	---	---	---	---	0.12 J	---	---	---	---	---	---	---	---	---	---	---	0.1	0.5	
		ND	ND	---	---	---	ND	---	ND	---	---	---	---	---	ND	ND	---	---	---	---	---	1	5	
	January-2023	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	0.25	1.25	
		---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	---	---	---	1	1	
		ND	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	2	2	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.48 J	---	---	---	---	0.25	1.25	
	March-2023	---	---	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	1	5	
	April-2023	---	---	---	---	---	---	---	ND	---	ND	---	---	---	---	---	---	---	---	---	---	0.5	2.5	
	May-2023	ND	---	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	1	5	
	June-2023	---	---	---	---	---	---	---	---	2 J	---	ND	---	ND	---	---	---	---	---	---	---	1	5	
	July-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	ND	0.05	0.25	
		ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.5	2.5	
		---	---	---	---	---	---	1.2 J	---	---	---	---	---	---	---	---	---	---	---	ND	---	1	5	
	August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	0.05	0.25	
	---	---	---	ND	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	ND	---	0.5	2.5		
September-2023	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	0.2	1		
October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	0.25	1.25		
	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	0.5	2.5		
November-2023	0.06 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	0.05	0.25		
	---	---	---	---	ND	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	0.25	1.25		
	---	ND	ND	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	ND	---	ND	1	5		
Total Kjeldahl Nitrogen (mg/L)	November-2022	---	---	---	---	---	---	---	---	---	1290	---	---	1470	---	---	---	---	---	---	20	50		
		---	---	---	---	---	---	---	2110	---	---	---	---	---	---	---	---	---	---	---	---	50	125	
	December-2022	1510	3570	---	---	---	1790	---	1830	1490	---	---	---	---	1340	1940	---	---	---	---	200	500		
	January-2023	1840	---	---	---	---	---	881	---	---	---	---	---	1410	---	---	---	---	---	---	20	50		
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	40	100	
	March-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1870	---	---	---	---	---	16.8	50	
	April-2023	---	---	---	---	---	---	---	879	1920	---	---	---	---	---	---	---	---	---	---	---	33.6	100	
	May-2023	---	---	---	---	---	---	---	1820	---	1510	---	---	---	---	---	---	---	---	---	---	---	16.8	50
	June-2023	1590	---	---	---	---	---	---	1950	2910	---	---	---	---	---	---	---	---	---	---	---	40	100	
	July-2023	---	---	---	---	---	---	---	---	3080	---	---	---	2750	---	---	---	---	---	---	---	100	250	
		---	---	---	---	---	---	---	---	---	---	2650	---	---	---	---	---	---	---	---	---	200	500	
	August-2023	1670	---	---	---	---	---	2960	---	---	---	---	---	---	---	---	---	1670	---	2720	285	40	100	
		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	25	
September-2023	---	---	---	2240	---	---	2820	---	---	---	---	---	---	---	---	---	---	---	2850	---	100	250		
October-2023	---	3340	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2680	---	---	---	100	250		
November-2023	---	---	---	---	1050	---	---	---	---	---	---	---	---	---	---	---	---	1320	---	---	40	100		
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	4630	---	---	---	100	250		
	---	---	---	---	2240	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2120	80	200		
	1440	3290	2630	---	---	---	---	---	2530	---	---	1120	---	---	---	---	2270	3170	---	---	100	250		

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ	
Parameter	Monitoring Event	Concentration																			LOD	LOQ	
Total Recoverable Phenolics (mg/L)	November-2022	---	---	---	---	---	---	---	---	---	5.68	---	---	3	---	---	---	---	---	---	0.3	0.5	
	December-2022	---	---	---	---	---	---	---	28.8	---	---	---	---	---	---	---	---	---	---	---	0.75	1.25	
		24.9	54.6	---	---	---	28.3	---	32	---	---	---	---	---	20.2	36	---	---	---	---	1.5	2.5	
	January-2023	27.2	---	---	---	---	---	1.3	---	---	---	---	---	---	20.2	---	---	---	---	---	0.75	1.25	
		---	---	---	---	---	---	---	56.5	---	---	---	---	---	---	---	---	---	---	---	---	1.5	2.5
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	22.4	---	---	---	---	1.5	2.5	
	March-2023	---	---	---	---	---	---	0.4	---	---	---	---	---	---	---	---	---	---	---	---	0.03	0.05	
		---	---	---	---	---	---	---	13.9	---	---	---	---	---	---	---	---	---	---	---	---	0.3	0.5
	April-2023	---	---	---	---	---	---	18.7	---	5.1	---	---	---	---	---	---	---	---	---	---	0.3	0.5	
	May-2023	18.6	---	---	---	---	---	20	50	---	---	---	---	---	---	---	---	---	---	---	1.5	2.5	
	June-2023	---	---	---	---	---	---	---	39.1	---	45.6	---	80.6	---	---	---	---	---	---	---	1.5	2.5	
	July-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.7	---	---	---	0.15	0.25
		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2.92	0.3
	August-2023	11.6	---	---	---	---	---	47.9	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	2.5
		---	---	---	28.6	---	31.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.15	0.25
	September-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	2.5
		---	38.2	---	---	---	---	---	---	---	---	---	---	---	---	---	---	4.58	---	---	---	0.3	0.5
October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3	5	
	---	---	---	---	---	37	---	---	---	---	---	---	---	---	---	---	4.13	---	---	---	0.15	0.25	
November-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	38.7	---	---	0.6	1	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3.65	---	---	---	0.15	0.25	
	7.88	---	36.4	---	---	---	---	---	---	---	4.76	---	---	---	---	---	---	---	---	---	0.6	1	
---	38.8	---	---	---	47.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.75	1.25	
---	---	---	---	---	---	---	---	46.9	---	---	---	---	---	---	---	---	---	---	---	---	---	1.5	2.5

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ		
Parameter	Monitoring Event	Concentration																			LOD	LOQ		
SEMI-VOLATILE ORGANIC COMPOUND (ug/L)																								
Anthracene	November-2022	---	---	---	---	---	---	---	---	---	ND	---	---	ND	---	---	---	---	---	---	---	46.7	93.5	
		---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	93.5	187	
	December-2022	---	---	---	---	---	---	---	---	ND	ND	---	---	---	---	---	ND	---	---	---	---	---	9.35	9.35
		---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	11.7	11.7
		ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	23.4	23.4
	January-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	485	971
		---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	243	485
		ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	253	505
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	490	980
		---	---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	500	1000
	March-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	187	374
		---	---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	51	102
	April-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	117	234
		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	37.4	74.8
	May-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	38.8	77.7
		ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	93.5	187
	June-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	467	935
		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	485	971
	July-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	490	980
		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	46.7
ND		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	100	200	
August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	250	500	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	1000	2000
September-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	19.6	39.2	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1000	2000	
October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	40	80	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	40	80	
November-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	50	100	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	500	1000	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	20	40	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	50	100	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	100	200
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	400	800	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1000	2000	

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ	
Parameter	Monitoring Event	Concentration																			LOD	LOQ	
TOTAL METALS (mg/L)																							
Arsenic	November-2022	---	---	---	---	---	---	---	0.863	---	0.464	---	---	1.3	---	---	---	---	---	---	0.02	0.04	
	December-2022	1.02	0.406	---	---	---	0.174	---	1.69	0.49	---	---	---	---	0.159	0.574	---	---	---	---	0.02	0.04	
	January-2023	0.285	---	---	---	---	---	0.596	0.225	---	---	---	---	0.846	---	---	---	---	---	---	0.01	0.02	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.29	---	---	---	---	0.005	0.01	
	March-2023	---	---	---	---	---	---	1.07	1	---	---	---	---	---	---	---	---	---	---	---	0.01	0.02	
	April-2023	---	---	---	---	---	---	---	---	0.11	---	---	---	---	---	---	---	---	---	---	0.0005	0.001	
	May-2023	0.26	---	---	---	---	---	0.36	0.3	0.27	---	---	---	---	---	---	---	---	---	---	0.005	0.01	
	June-2023	---	---	---	---	---	---	---	0.26	---	0.5	---	0.14	---	---	---	---	---	---	---	0.0025	0.005	
	July-2023	0.23	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.24	---	0.19	0.06	0.0005	0.001
	August-2023	---	---	---	---	---	0.7	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0025	0.005	
	September-2023	---	---	---	0.32	---	0.43	---	---	---	---	---	---	---	---	---	---	---	---	0.15	0.0025	0.005	
	October-2023	---	0.42	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.25	---	0.29	---	0.005	0.01
November-2023	---	---	---	---	0.36	---	---	---	---	---	---	---	---	---	---	0.24	0.31	---	---	0.0005	0.001		
Barium	November-2022	---	---	---	---	---	---	---	0.871	---	0.485	---	---	0.36	---	---	---	---	---	---	0.01	0.02	
	December-2022	0.566	0.803	---	---	---	0.978	---	0.438	0.214	---	---	---	---	0.856	0.793	---	---	---	---	0.01	0.02	
	January-2023	0.643	---	---	---	---	---	0.683	1.92	---	---	---	---	0.554	---	---	---	---	---	---	0.005	0.01	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1.04	---	---	---	---	0.01	0.05	
	March-2023	---	---	---	---	---	---	0.406	0.683	---	---	---	---	---	---	---	---	---	---	---	0.005	0.01	
	April-2023	---	---	---	---	---	---	1.21	---	0.326	---	---	---	---	---	---	---	---	---	---	0.01	0.05	
	May-2023	0.636	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.005	0.025	
	June-2023	---	---	---	---	---	---	---	1.2	1.83	---	---	---	---	---	---	---	---	---	---	0.01	0.05	
	July-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.005	0.025	
	August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.217	0.001	0.005	
	September-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.002	0.01	
	October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.005	0.025	
November-2023	0.572	0.81	2.28	---	2.51	---	---	1.96	---	---	0.418	---	---	---	---	0.67	2.06	---	2.84	0.01	0.05		
Cadmium	November-2022	---	---	---	---	---	---	---	ND	---	ND	---	---	ND	---	---	---	---	---	---	0.004	0.008	
	December-2022	ND	0.0104	---	---	---	ND	---	ND	ND	---	---	---	---	ND	ND	---	---	---	---	0.004	0.008	
	January-2023	ND	---	---	---	---	---	ND	ND	---	---	---	---	ND	---	---	---	---	---	---	0.002	0.004	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.000297 J	---	---	---	---	0.0001	0.001	
	March-2023	---	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	0.002	0.004	
	April-2023	---	---	---	---	---	---	0.000158 J	---	0.000333 J	---	---	---	---	---	---	---	---	---	---	0.0001	0.001	
	May-2023	ND	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	0.0005	0.005	
	June-2023	---	---	---	---	---	---	---	ND	---	ND	---	ND	---	---	---	---	---	---	---	0.0005	0.005	
	July-2023	0.000219 J	---	---	---	---	0.000156 J	---	---	---	---	---	---	---	---	---	---	0.000186 J	---	ND	ND	0.0001	0.001
	August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0005	0.005	
	September-2023	---	---	---	ND	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	0.001	0.01
	October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.000171 J	ND	---	---	0.0001	0.001
November-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0002	0.002		
November-2023	ND	ND	ND	---	ND	---	---	---	ND	---	---	ND	---	---	---	---	ND	ND	---	ND	0.001	0.003	

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ	
Parameter	Monitoring Event	Concentration																			LOD	LOQ	
Chromium	November-2022	---	---	---	---	---	---	---	0.208	---	0.112	---	---	0.354	---	---	---	---	---	---	0.016	0.02	
	December-2022	0.503	1.08	---	---	---	1.76	---	0.274	0.319	---	---	---	---	0.499	0.822	---	---	---	---	0.016	0.02	
	January-2023	0.31	---	---	---	---	---	0.488	0.178	---	---	---	---	0.155	---	---	---	---	---	---	0.008	0.01	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.277	---	---	---	---	0.004	0.01	
	March-2023	---	---	---	---	---	---	0.213	0.188	---	---	---	---	---	---	---	---	---	---	---	0.008	0.01	
	April-2023	---	---	---	---	---	---	---	---	0.142	---	---	---	---	---	---	---	---	---	---	0.0004	0.001	
	May-2023	0.422	---	---	---	---	---	---	0.306	0.237	---	---	---	---	---	---	---	---	---	---	0.004	0.01	
	June-2023	---	---	---	---	---	---	---	0.281	0.251	---	---	---	---	---	---	---	---	---	---	0.002	0.005	
	July-2023	0.308	---	---	---	---	---	0.535	---	---	---	---	---	---	---	---	---	0.231	---	0.215	0.0265	0.0004	0.001
	August-2023	---	---	---	0.606	---	0.449	---	---	---	---	---	---	---	---	---	---	---	---	0.259	0.0276	0.002	0.005
	September-2023	---	1.17	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.234	---	---	---	0.004	0.01
	October-2023	---	---	---	---	---	0.273	---	---	---	---	---	---	---	---	---	---	0.144	0.194	---	---	0.0004	0.001
	November-2023	0.391	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0	0.003
Copper	November-2022	---	---	---	---	---	---	---	ND	---	ND	---	---	ND	---	---	---	---	---	---	0.016	0.02	
	December-2022	ND	ND	---	---	---	ND	---	ND	ND	---	---	---	---	ND	ND	---	---	---	---	---	0.016	0.02
	January-2023	ND	---	---	---	---	---	0.0127	0.0256	---	---	---	---	ND	---	---	---	---	---	---	0.008	0.01	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.00365	---	---	---	---	0.0003	0.001	
	March-2023	---	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	0.008	0.01	
	April-2023	---	---	---	---	---	---	0.00664	---	0.00767	---	---	---	---	---	---	---	---	---	---	0.0003	0.001	
	May-2023	ND	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	0.0015	0.005	
	June-2023	---	---	---	---	---	---	---	0.00154 J	---	0.00362 J	---	0.00269 J	---	---	---	---	---	---	---	---	0.0015	0.005
	July-2023	0.00124	---	---	---	---	0.00163	---	---	---	---	---	---	---	---	---	---	0.00811	---	ND	0.0027	0.0003	0.001
	August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	0.0015	0.005
	September-2023	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.00407 J	---	---	---	0.003	0.01
	October-2023	---	---	---	---	---	0.00806	---	---	---	---	---	---	---	---	---	---	0.00361	0.000609 J	---	---	0.0003	0.001
	November-2023	0.00607	0.00352	0.0212	---	0.00756	---	---	---	ND	---	---	0.00341	---	---	---	---	0.00387	ND	---	ND	0.003	0.003
Lead	November-2022	---	---	---	---	---	---	---	ND	---	ND	---	---	0.017 J	---	---	---	---	---	---	0.012	0.02	
	December-2022	ND	0.0381	---	---	---	ND	---	ND	ND	---	---	---	---	ND	ND	---	---	---	---	---	0.012	0.02
	January-2023	ND	---	---	---	---	---	ND	ND	---	---	---	---	ND	---	---	---	---	---	---	0.006	0.01	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.006	---	---	---	---	---	0.001	0.001
	March-2023	---	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	0.006	0.01
	April-2023	---	---	---	---	---	---	0.0022	---	0.0067	---	---	---	---	---	---	---	---	---	---	---	0.001	0.001
	May-2023	ND	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	0.005	0.005
	June-2023	---	---	---	---	---	---	---	ND	---	ND	---	0.0069	---	---	---	---	---	---	---	---	0.005	0.005
	July-2023	0.0014	---	---	---	---	0.019	---	---	---	---	---	---	---	---	---	---	0.0092	---	ND	0.0017	0.001	0.001
	August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	0.005	0.005
	September-2023	---	0.12	---	0.014	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	0.013	---	0.01	0.01
	October-2023	---	---	---	---	---	0.0077	---	---	---	---	---	---	---	---	---	---	0.0036	0.0034	---	---	0.001	0.001
	November-2023	ND	0.13	0.0046	---	0.014	---	---	---	ND	---	---	ND	---	---	---	---	0.0032	0.0043	---	ND	0.003	0.003

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ		
Parameter	Monitoring Event	Concentration																			LOD	LOQ		
Mercury	November-2022	---	---	---	---	---	---	---	---	---	0.00169	---	---	0.00053	---	---	---	---	---	---	0.0004	0.0004		
		---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	0.0008	0.0008		
	December-2022	0.00051	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0004	0.0004		
		---	---	---	---	---	0.00118	---	ND	0.00588	---	---	---	---	---	0.0048	ND	---	---	---	0.0008	0.0008		
		---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.004	0.004		
	January-2023	ND	---	---	---	---	---	ND	---	---	---	---	---	---	ND	---	---	---	---	---	0.0004	0.0004		
		---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	0.004	0.004		
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	0.0004	0.0004		
		---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	0.0002	0.0002		
	March-2023	---	---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	0.0004	0.0004		
		---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	0.0002	0.0002		
	April-2023	---	---	---	---	---	---	---	---	---	0.00128	---	---	---	---	---	---	---	---	---	0.0002	0.0002		
		---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	0.0004	0.0004		
	May-2023	ND	---	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	0.0002	0.0002		
	June-2023	---	---	---	---	---	---	---	---	ND	---	ND	---	ND	---	---	---	---	---	---	0.004	0.004		
July-2023	0.000306	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	ND	0.0002	0.0002	
	---	---	---	---	---	0.0107	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	0.001	0.001	
August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	0.001	0.001	
	---	---	---	0.00312	---	0.00397	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	0.002	0.002	
September-2023	---	0.00503	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	0.002	0.002	
October-2023	---	---	---	---	0.00165	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	0.00055	---	0.0004	0.0004
November-2023	ND	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	0.0000002	0.0000002		
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	0.0000004	0.0000004	
	---	0.00576	0.00606	---	0.00578	---	---	---	ND	---	---	---	---	---	---	---	---	---	---	0.00954	---	ND	0.000004	0.000004
Nickel	November-2022	---	---	---	---	---	---	---	0.0866	---	0.1344	---	---	0.173	---	---	---	---	---	---	0.014	0.02		
	December-2022	0.1722	0.5025	---	---	---	0.2989	---	0.1299	0.287	---	---	---	---	0.1853	0.346	---	---	---	---	0.014	0.02		
	January-2023	0.1074	---	---	---	---	---	0.1442	0.0407	---	---	---	---	0.0769	---	---	---	---	---	---	0.007	0.01		
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.1726	---	---	---	---	---	0.001	0.001	
	March-2023	---	---	---	---	---	---	0.1254	0.1033	---	---	---	---	---	---	---	---	---	---	---	---	0.007	0.01	
	April-2023	---	---	---	---	---	---	0.1143	---	0.1732	---	---	---	---	---	---	---	---	---	---	---	0.001	0.001	
	May-2023	0.113	---	---	---	---	---	0.09726	0.05657	---	---	---	---	---	---	---	---	---	---	---	---	0.005	0.005	
	June-2023	---	---	---	---	---	---	---	0.05978	---	0.05892	---	0.07161	---	---	---	---	---	---	---	---	0.005	0.005	
	July-2023	0.09872	---	---	---	---	0.08332	---	---	---	---	---	---	---	---	---	---	0.1576	---	0.03074	0.01403	0.001	0.001	
	August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.02029	0.005	0.005
		---	---	---	0.1457	---	0.09673	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0513	---	0.01	0.01
	September-2023	---	0.5152	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.2387	---	---	---	0.01	0.01	
	October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.2019	0.09206	---	---	0.001	0.001	
		---	---	---	---	0.104	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.002	0.002	
November-2023	0.1178	0.4227	0.1242	---	0.07791	---	---	0.05944	---	---	0.1493	---	---	---	---	---	0.2492	0.1332	---	0.05277	0.01	0.01		

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ	
Parameter	Monitoring Event	Concentration																			LOD	LOQ	
Selenium	November-2022	---	---	---	---	---	---	---	ND	---	ND	---	---	ND	---	---	---	---	---	---	---	0.08	0.1
	December-2022	ND	ND	---	---	---	ND	---	ND	ND	---	---	---	---	ND	ND	---	---	---	---	---	0.08	0.1
	January-2023	ND	---	---	---	---	---	ND	ND	---	---	---	---	ND	---	---	---	---	---	---	---	0.04	0.05
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.00199	---	---	---	---	---	0.00085	0.001
	March-2023	---	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	0.04	0.05
	April-2023	---	---	---	---	---	---	0.00189	---	0.00185	---	---	---	---	---	---	---	---	---	---	---	0.00085	0.001
	May-2023	ND	---	---	---	---	---	ND	0.00569	---	---	---	---	---	---	---	---	---	---	---	---	0.00425	0.005
	June-2023	---	---	---	---	---	---	---	ND	---	ND	---	ND	---	---	---	---	---	---	---	---	0.00425	0.005
	July-2023	0.00101	---	---	---	---	---	0.00331	---	---	---	---	---	---	---	---	---	0.00116	---	0.00251	ND	0.00085	0.001
	August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	0.00425	0.005
	September-2023	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	0.0085	0.01
	October-2023	---	---	---	---	---	0.00332	---	---	---	---	---	---	---	---	---	---	0.00186	0.0044	---	---	0.00085	0.001
	November-2023	ND	0.00425	0.00314	---	0.00315	---	---	ND	---	---	ND	---	---	---	---	---	ND	0.0032	---	ND	0.003	0.003
Silver	November-2022	---	---	---	---	---	---	---	ND	---	ND	---	---	ND	---	---	---	---	---	---	---	0.01	0.02
	December-2022	ND	0.0187 J	---	---	---	ND	---	ND	ND	---	---	---	---	ND	ND	---	---	---	---	---	0.01	0.02
	January-2023	ND	---	---	---	---	---	ND	ND	---	---	---	---	ND	---	---	---	---	---	---	---	0.005	0.01
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	---	---	0.00006	0.001
	March-2023	---	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	0.005	0.01
	April-2023	---	---	---	---	---	---	ND	---	0.00011 J	---	---	---	---	---	---	---	---	---	---	---	0.00006	0.001
	May-2023	ND	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	0.0003	0.005
	June-2023	---	---	---	---	---	---	---	ND	---	ND	---	ND	---	---	---	---	---	---	---	---	0.0003	0.005
	July-2023	ND	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	ND	---	ND	ND	0.00006	0.001
	August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	0.0003	0.005
	September-2023	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	0.0006	0.01
	October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	ND	---	---	0.00006	0.001
	November-2023	ND	ND	ND	---	ND	---	---	---	ND	---	---	ND	---	---	---	---	ND	ND	---	ND	0.0006	0.01
Zinc	November-2022	---	---	---	---	---	---	---	ND	---	0.032	---	---	0.694	---	---	---	---	---	---	---	0.02	0.02
	December-2022	0.208	29.7	---	---	---	0.162	---	0.0686	0.75	---	---	---	---	0.364	0.286	---	---	---	---	0.02	0.02	
	January-2023	0.133	---	---	---	---	---	0.15	0.074	---	---	---	---	0.0752	---	---	---	---	---	---	0.01	0.01	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0851	---	---	---	---	0.0025	0.005	
	March-2023	---	---	---	---	---	---	0.0689	0.0538	---	---	---	---	---	---	---	---	---	---	---	---	0.01	0.01
	April-2023	---	---	---	---	---	---	0.0539	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0025	0.005
	May-2023	0.079	---	---	---	---	---	---	0.0635	0.0519	---	---	---	---	---	---	---	---	---	---	---	0.0125	0.025
	June-2023	---	---	---	---	---	---	---	0.0538	---	0.0253	---	0.945	---	---	---	---	---	---	---	---	0.0125	0.025
	July-2023	0.0488	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0714	---	0.354	0.0782	0.0025	0.005
	August-2023	---	---	---	---	---	2.03	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.0125	0.025
	September-2023	---	---	---	---	---	1.71	---	---	---	---	---	---	---	---	---	---	---	---	0.914	---	0.025	0.05
	October-2023	---	---	---	5.92	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.05	0.1
	November-2023	0.0471 J	---	0.0534	---	0.74	---	---	0.053	---	---	0.0618	---	---	---	---	---	0.0722	0.845	---	0.0313 J	0.025	0.05
	---	30.4	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	0.25	0.5	

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ		
Parameter	Monitoring Event	Concentration																			LOD	LOQ		
VOLATILE FATTY ACIDS (ug/L)																								
Acetic Acid	November-2022	---	---	---	---	---	---	---	---	---	1600	---	---	---	---	---	---	---	---	---	25	100		
		---	---	---	---	---	---	---	3500	---	---	---	---	150 J	---	---	---	---	---	---	62	250		
	December-2022	1800	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	62	250		
	January-2023	ND	---	---	---	---	---	ND	4400	---	---	---	---	ND	---	---	---	---	---	---	---	500		
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	---	---	500		
	March-2023	---	---	---	---	---	---	ND	640	---	---	---	---	---	---	---	---	---	---	---	---	500		
	April-2023	---	---	---	---	---	---	1200	---	520	---	---	---	---	---	---	---	---	---	---	370	500		
	May-2023	990	---	---	---	---	---	1800	3000	---	---	---	---	---	---	---	---	---	---	---	370	500		
	June-2023	---	---	---	---	---	---	---	5900	---	4100	---	5000	---	---	---	---	---	---	---	750	1000		
		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	150	200	
	July-2023	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	370	500		
		---	---	---	---	---	6100	---	---	---	---	---	---	---	---	---	---	---	---	750	---	750	1000	
	August-2023	---	---	---	3300	---	5300	---	---	---	---	---	---	---	---	---	---	---	---	4200	ND	---	500	
	September-2023	---	7400	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	370	500	
October-2023	---	---	---	---	3200	---	---	---	---	---	---	---	---	---	---	---	720	4100	---	---	370	500		
November-2023	ND	---	---	---	---	---	---	---	---	---	ND	---	---	---	---	---	ND	---	---	4160	250	500		
	---	---	4950	---	6650	---	---	---	5350	---	---	---	---	---	---	---	---	---	---	7300	---	500	1000	
	---	9900	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1000	2000		
Butyric Acid	November-2022	---	---	---	---	---	---	---	---	---	430	---	---	---	---	---	---	---	---	---	12	100		
		---	---	---	---	---	---	---	830	---	---	---	---	ND	---	---	---	---	---	---	29	250		
	December-2022	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	29	250		
	January-2023	ND	---	---	---	---	---	ND	1800	---	---	---	---	ND	---	---	---	---	---	---	---	500		
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	---	---	500		
	March-2023	---	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	500		
	April-2023	---	---	---	---	---	---	ND	---	ND	---	---	---	---	---	---	---	---	---	---	330	500		
	May-2023	ND	---	---	---	---	---	ND	1200	---	---	---	---	---	---	---	---	---	---	---	---	330	500	
	June-2023	---	---	---	---	---	---	---	2500	---	1500	---	2900	---	---	---	---	---	---	---	---	650	1000	
		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	130	200
	July-2023	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	330	500	
		---	---	---	---	---	2800	---	---	---	---	---	---	---	---	---	---	---	---	650	---	650	1000	
	August-2023	---	---	---	1400	---	1700	---	---	---	---	---	---	---	---	---	---	---	---	1600	ND	---	500	
	September-2023	---	3100	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	330	500	
October-2023	---	---	---	---	1200	---	---	---	---	---	---	---	---	---	---	---	ND	2000	---	---	330	500		
November-2023	ND	---	1670	---	1760	---	---	---	1370	---	---	ND	---	---	---	---	ND	2730	---	740	250	500		
	---	3420	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	500	1000		
Lactic Acid	November-2022	---	---	---	---	---	---	---	---	---	ND	---	---	---	---	---	---	---	---	---	11	100		
		---	---	---	---	---	---	---	ND	---	---	---	---	ND	---	---	---	---	---	---	27	250		
	December-2022	90 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	27	250		
	November-2023	ND	---	968	---	1800	---	---	969	---	---	ND	---	---	---	---	ND	1170	---	324	250	500		
	---	6030	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	500	1000		

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ		
Parameter	Monitoring Event	Concentration																			LOD	LOQ		
Propionic Acid	November-2022	---	---	---	---	---	---	---	---	---	620	---	---	---	---	---	---	---	---	---	---	11	100	
		---	---	---	---	---	---	---	1600	---	---	---	---	73 J	---	---	---	---	---	---	---	27	250	
	December-2022	640	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	27	250	
	January-2023	ND	---	---	---	---	---	ND	2000	---	---	---	---	ND	---	---	---	---	---	---	---	---	500	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	---	---	---	500	
	March-2023	---	---	---	---	---	---	ND	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	500	
	April-2023	---	---	---	---	---	---	600	---	ND	---	---	---	---	---	---	---	---	---	---	---	340	500	
	May-2023	520	---	---	---	---	---	800	1400	---	---	---	---	---	---	---	---	---	---	---	---	340	500	
	June-2023	---	---	---	---	---	---	---	2900	---	2000	---	2900	---	---	---	---	---	---	---	---	680	1000	
	July-2023	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	140	200
		---	---	---	---	---	---	3100	---	---	---	---	---	---	---	---	---	---	---	---	---	680	680	1000
	August-2023	---	---	---	1200	---	2000	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	500
	September-2023	---	1800	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	340	500
	October-2023	---	---	---	---	1300	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	340	500
	November-2023	ND	---	2170	---	2310	---	---	---	2080	---	---	387	---	---	---	---	---	---	---	---	---	250	500
---		2580	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	500	1000	
Pyruvic Acid	November-2022	---	---	---	---	---	---	---	---	---	46 J	---	---	---	---	---	---	---	---	---	---	12	100	
		---	---	---	---	---	---	---	98 J	---	---	---	---	ND	---	---	---	---	---	---	---	30	250	
	December-2022	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	30	250	
	November-2023	ND	---	ND	---	ND	---	---	---	ND	---	---	ND	---	---	---	---	---	---	---	---	---	250	500
---		ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	500	1000	

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ	
Parameter	Monitoring Event	Concentration																			LOD	LOQ	
VOLATILE ORGANIC COMPOUNDS (ug/L)																						LOD	LOQ
2-Butanone (MEK)	November-2022	---	---	---	---	---	---	---	3510	---	---	---	---	1140	---	---	---	---	---	---	30	100	
	December-2022	3140	---	---	---	---	---	---	---	3390	---	---	---	---	---	---	---	---	---	---	30	1000	
	January-2023	---	26800	---	---	---	---	27700	---	5670	---	---	---	---	21700	7150	---	---	---	---	300	1000	
	February-2023	3480	---	---	---	---	---	632	---	---	---	---	---	---	---	---	---	---	---	---	30	100	
	March-2023	---	---	---	---	---	---	---	7840	---	---	---	---	5470	---	---	---	---	---	---	300	1000	
	April-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	14400	---	---	---	---	600	2000	
	May-2023	---	---	---	---	---	---	---	257	2770	---	---	---	---	---	---	---	---	---	---	30	100	
	June-2023	5360	---	---	---	---	---	---	3420	---	5530	---	---	---	---	---	---	---	---	---	750	2500	
	July-2023	---	---	---	---	---	---	---	5970	---	---	---	---	---	---	---	---	---	---	---	150	500	
	August-2023	---	---	---	---	---	---	---	---	13600	---	---	---	---	---	---	---	---	---	---	750	2500	
	September-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	750	2500	
	October-2023	5860	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1500	5000	
	November-2023	---	---	---	---	---	---	---	---	---	20100	---	---	22600	---	---	---	---	---	---	---	60	200
	December-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	750	2500
	January-2024	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	31600	10000
	February-2024	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5950	200
	March-2024	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	7350	500
	April-2024	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	750	2500
	May-2024	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1500	5000
	June-2024	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	60	200
July-2024	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	750	2500	
August-2024	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	150	500	
September-2024	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	750	2500	
October-2024	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	60	200	
November-2024	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	750	2500	
December-2024	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	15	50	
January-2025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1500	5000	
February-2025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	30	100	
March-2025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	150	500	
April-2025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	300	1000	
May-2025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	750	2500	
June-2025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1500	5000	
July-2025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	78.8 J	100	
August-2025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	300	1000	
September-2025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	150	500	
October-2025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	300	1000	
November-2025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	750	2500	
December-2025	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1500	5000	

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ	
Parameter	Monitoring Event	Concentration																			LOD	LOQ	
Acetone	November-2022	---	---	---	---	---	---	---	---	---	---	---	---	---	4420	---	---	---	---	---	---	70	100
		---	---	---	---	---	---	---	---	16100	---	38300	---	---	---	---	---	---	---	---	---	---	700
	December-2022	---	---	---	---	---	---	---	---	15600	5170	---	---	---	---	---	9800	---	---	---	---	700	1000
		8500	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1750	2500
	January-2023	---	53100	---	---	---	---	49900	---	---	---	---	---	---	---	45600	---	---	---	---	---	3500	5000
		---	---	---	---	---	---	---	1530	---	---	---	---	---	---	---	---	---	---	---	---	70	100
	February-2023	---	---	---	---	---	---	---	---	22200	---	---	---	---	14000	---	---	---	---	---	---	700	1000
		8130	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1750	2500
	March-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	23900	---	---	---	---	1400	2000
		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	70	100
	April-2023	---	---	---	---	---	---	---	375	---	---	---	---	---	---	---	---	---	---	---	---	700	1000
		---	---	---	---	---	---	---	---	6810	---	---	---	---	---	---	---	---	---	---	---	---	700
	May-2023	---	---	---	---	---	---	---	---	8290	7560	---	---	---	---	---	---	---	---	---	---	1750	2500
		10700	---	---	---	---	---	---	11700	---	---	---	---	---	---	---	---	---	---	---	---	350	500
	June-2023	---	---	---	---	---	---	---	---	29600	---	---	---	---	---	---	---	---	---	---	---	1750	2500
		---	---	---	---	---	---	---	---	29600	---	---	---	---	---	---	---	---	---	---	---	---	1750
	July-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3500	5000
		9780	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1180	---	---	---	140	200
	August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	700	1000
		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	700
September-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1750	2500
	---	40100	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1750	2500
October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	35	50
	---	---	---	---	---	66900	---	---	---	---	---	---	---	---	---	---	---	79	---	---	---	3500	5000
November-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	70	100
	5560	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	700	1000
	---	64700	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1750	2500
	---	---	43100	---	---	61100	---	---	36800	---	---	32800	---	---	---	---	---	---	---	---	---	3500	5000

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ		
Parameter	Monitoring Event	Concentration																			LOD	LOQ		
Benzene	November-2022	---	---	---	---	---	---	---	7.4 J	---	2860	---	---	50.4	---	---	---	---	---	---	4	10		
	December-2022	301	2960	---	---	---	---	---	---	6.3 J	622	---	---	---	---	1750	179	---	---	---	---	4	10	
		---	---	---	---	---	---	6550	---	---	---	---	---	---	---	---	---	---	---	---	---	40	100	
	January-2023	240	---	---	---	---	---	28.7	1620	---	---	---	---	167	---	---	---	---	---	---	---	4	10	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	1370	---	---	---	---	---	4	10	
	March-2023	---	---	---	---	---	---	1540	727	---	---	---	---	---	---	---	---	---	---	---	---	4	10	
	April-2023	---	---	---	---	---	---	3740	---	320	---	---	---	---	---	---	---	---	---	---	---	4	10	
	May-2023	814	---	---	---	---	---	4890	3370	---	---	---	---	---	---	---	---	---	---	---	---	20	50	
	June-2023	---	---	---	---	---	---	---	---	2630	---	---	---	---	---	---	---	---	---	---	---	8	20	
		---	---	---	---	---	---	---	---	---	1400	---	1590	---	---	---	---	---	---	---	---	20	50	
	July-2023	824	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	80.8	---	---	---	8	20	
		---	---	---	---	---	---	4050	---	---	---	---	---	---	---	---	---	---	---	---	1420	---	20	50
	August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	11800	100	250
		---	---	---	2320	---	168	---	---	---	---	---	---	---	---	---	---	---	---	---	---	379	8	20
	September-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	20	50	
---		468	---	---	---	---	---	---	---	---	---	---	---	---	---	---	193	---	---	---	8	20		
October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	100	250		
	---	---	---	---	576	---	---	---	---	---	---	---	---	---	---	---	399	---	---	---	2	5		
November-2023	80.8	---	---	---	---	---	---	---	---	---	---	31.3	---	---	---	---	---	---	---	---	2	5		
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	4	10		
	---	---	1070	---	654	---	---	982	---	---	---	---	---	---	---	---	---	1960	---	1190	20	50		
Ethylbenzene	December-2022	67.3	172	---	---	---	287	---	ND	48.5	---	---	---	---	108	27.4	---	---	---	---	4	10		
	November-2022	---	---	---	---	---	---	---	ND	---	194	---	---	16.2	---	---	---	---	---	---	---	4	10	
	January-2023	65.1	---	---	---	---	---	---	ND	93.9	---	---	---	20.8	---	---	---	---	---	---	---	4	10	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	151	---	---	---	---	---	4	10	
	March-2023	---	---	---	---	---	---	131	71.5	---	---	---	---	---	---	---	---	---	---	---	---	4	10	
	April-2023	---	---	---	---	---	---	186	---	43.4	---	---	---	---	---	---	---	---	---	---	---	4	10	
	May-2023	124	---	---	---	---	---	276	144	---	---	---	---	---	---	---	---	---	---	---	---	20	50	
	June-2023	---	---	---	---	---	---	---	---	104	---	---	---	---	---	---	---	---	---	---	---	---	8	20
		---	---	---	---	---	---	---	---	---	98	---	116	---	---	---	---	---	---	---	---	---	20	50
	July-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	666	4	10
		128	---	---	---	---	---	224	---	---	---	---	---	---	---	---	---	82	---	---	---	8	20	
	August-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	87.5	20	50
		---	---	---	80	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	16.8 J	8	20
	September-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	20	50
		---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	22.8	---	---	---	8	20	
October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	100	250	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	34.8	---	---	---	2	5		
November-2023	---	---	---	---	42.5 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	20	50	
	26.3	---	---	---	---	---	---	---	---	---	---	45.4	---	---	---	---	---	---	---	---	---	2	5	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	26.9	---	---	---	4	10		
November-2023	---	---	62	---	54	---	---	---	76.5	---	---	---	---	---	---	---	---	---	---	---	224	20	50	
	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	100	250	

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ		
Parameter	Monitoring Event	Concentration																			LOD	LOQ		
Tetrahydrofuran	November-2022	---	---	---	---	---	---	---	309	---	---	---	---	176	---	---	---	---	---	---	---	100	100	
	December-2022	---	---	---	---	---	---	---	---	---	8530	---	---	---	---	---	---	---	---	---	---	1000	1000	
		---	151	---	---	---	---	---	---	170	1120	---	---	---	---	---	663	---	---	---	---	100	100	
	January-2023	---	5210	---	---	---	---	---	19800	---	---	---	---	---	---	6130	---	---	---	---	---	1000	1000	
		---	183	---	---	---	---	---	566	1810	---	---	---	---	352	---	---	---	---	---	---	100	100	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	3760	---	---	---	---	2000	2000		
	March-2023	---	---	---	---	---	---	353	464	---	---	---	---	---	---	---	---	---	---	---	100	100		
	April-2023	---	---	---	---	---	---	2410	---	4790	---	---	---	---	---	---	---	---	---	---	100	100		
	May-2023	ND	---	---	---	---	---	2740	2380	---	---	---	---	---	---	---	---	---	---	---	500	500		
	June-2023	---	---	---	---	---	---	---	---	2100	---	---	---	---	---	---	---	---	---	---	---	200	200	
		---	---	---	---	---	---	---	---	---	---	7320	---	6670	---	---	---	---	---	---	---	500	500	
	July-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2960	100	100
		---	411	---	---	---	---	---	---	---	---	---	---	---	---	---	---	616	---	---	---	200	200	
	August-2023	---	---	---	---	---	---	8380	---	---	---	---	---	---	---	---	---	---	---	5310	---	500	500	
		---	---	---	7370	---	3210	---	---	---	---	---	---	---	---	---	---	---	---	---	2880	200	200	
	September-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	500	500	
---		---	ND	---	---	---	---	---	---	---	---	---	---	---	---	343	---	---	---	---	200	200		
October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2500	2500		
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	606	---	---	---	---	50	50		
November-2023	---	---	---	---	---	---	4870	---	---	---	---	---	---	---	---	---	---	---	---	---	500	500		
	---	199	---	---	---	---	---	---	---	---	---	325	---	---	---	---	---	---	---	---	50	50		
November-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	100	100		
	---	---	4780	---	3320	---	---	---	785	---	---	---	---	---	---	---	---	---	---	---	500	500		
November-2023	---	4620	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2500	2500		
	November-2022	---	---	---	---	---	---	---	ND	---	214	---	---	32.8	---	---	---	---	---	---	5	10		
Toluene	December-2022	122	175	---	---	---	195	---	ND	113	---	---	---	---	113	48.3	---	---	---	---	5	10		
	January-2023	122	---	---	---	---	---	8 J	139	---	---	---	---	35.3	---	---	---	---	---	---	5	10		
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	224	---	---	---	---	5	10		
	March-2023	---	---	---	---	---	---	182	98.1	---	---	---	---	---	---	---	---	---	---	---	5	10		
	April-2023	---	---	---	---	---	---	303	---	94.4	---	---	---	---	---	---	---	---	---	---	5	10		
	May-2023	258	---	---	---	---	---	371	239	---	---	---	---	---	---	---	---	---	---	---	25	50		
	June-2023	---	---	---	---	---	---	---	---	165	---	---	---	---	---	---	---	---	---	---	---	10	20	
		---	---	---	---	---	---	---	---	---	---	67	---	212	---	---	---	---	---	---	---	25	50	
	July-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	965	5	10
		---	248	---	---	---	---	---	---	---	---	---	---	---	---	---	---	107	---	---	---	10	20	
	August-2023	---	---	---	---	---	---	218	---	---	---	---	---	---	---	---	---	---	---	---	---	25	50	
		---	---	---	105	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	36.6	10	20
	September-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	10	20	
		---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	125	250	
	October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2.5	5	
		---	---	---	---	---	37 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	25	50	
November-2023	---	47.3	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	2.5	5		
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5	10		
November-2023	---	---	62.5	---	51.5	---	---	---	114	---	---	---	---	---	---	---	---	---	---	---	25	50		
	---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	125	250		

Historical LFG-EW Leachate Monitoring Results Summary

Well ID		EW-50	EW-52	EW-53	EW-54	EW-55	EW-57	EW-58	EW-59	EW-60	EW-61	EW-62	EW-64	EW-65	EW-67	EW-68	EW-78	EW-87	EW-94	EW-98	LOD	LOQ	
Parameter	Monitoring Event	Concentration																			LOD	LOQ	
Xylenes, Total	November-2022	---	---	---	---	---	---	---	ND	---	185	---	---	37.8	---	---	---	---	---	---	10	30	
	December-2022	161	222	---	---	---	186	---	ND	112	---	---	---	---	197	59.9	---	---	---	---	10	30	
	January-2023	138	---	---	---	---	---	ND	134	---	---	---	---	38.1	---	---	---	---	---	---	10	30	
	February-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	240	---	---	---	---	10	30	
	March-2023	---	---	---	---	---	---	240	111	---	---	---	---	---	---	---	---	---	---	---	10	30	
	April-2023	---	---	---	---	---	---	329	---	97.4	---	---	---	---	---	---	---	---	---	---	10	30	
	May-2023	274	---	---	---	---	---	441	230	---	---	---	---	---	---	---	---	---	---	---	50	150	
	June-2023	---	---	---	---	---	---	---	177	---	---	---	---	---	---	---	---	---	---	---	20	60	
	July-2023	---	---	---	---	---	---	---	---	---	---	92 J	---	136 J	---	---	---	---	---	---	---	50	150
		257	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	74.4	---	---	1130	10	30
	August-2023	---	---	---	---	---	---	230	---	---	---	---	---	---	---	---	---	---	---	---	---	20	60
		---	---	---	180	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	50	150
	September-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	50	150
		---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	ND	---	---	---	20	60
	October-2023	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	30.6	---	---	---	250	750
		---	---	---	---	134 J	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	5	15
November-2023	---	56	---	---	---	---	---	---	---	---	---	48	---	---	---	---	---	---	---	---	50	150	
	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	25.3 J	---	---	---	10	30	
	---	---	116 J	---	104 J	---	---	---	132 J	---	---	---	---	---	---	---	---	---	---	---	50	150	
---	---	ND	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	250	750	

--- = not applicable/available

J = Parameter was detected at a concentration greater than the laboratory's LOD, but less than the laboratory's LOQ. Concentration is considered estimated.

LOD = laboratory's Limit of Detection

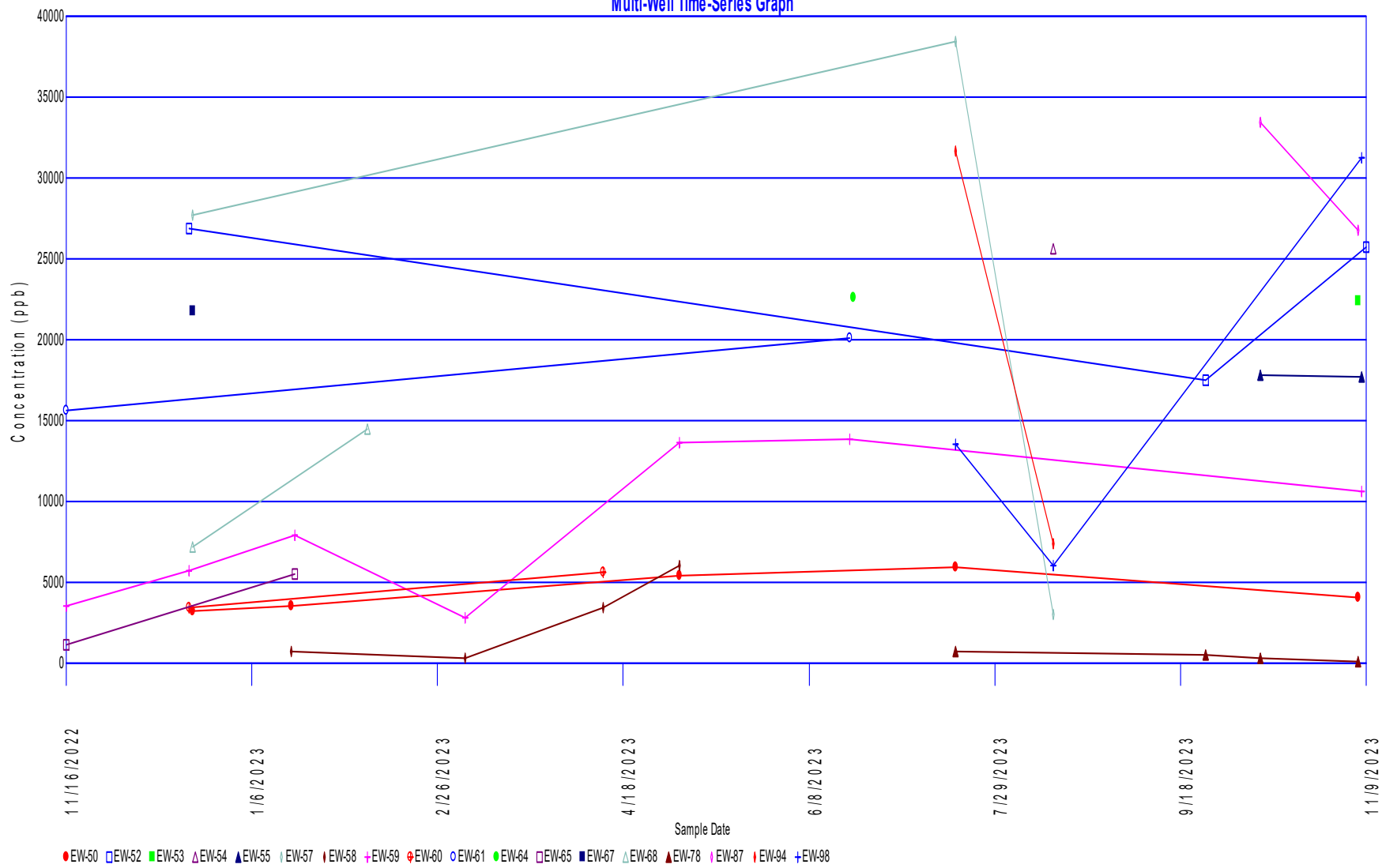
LOQ = laboratory's Limit of Quantitation

mg/L = milligrams per liter

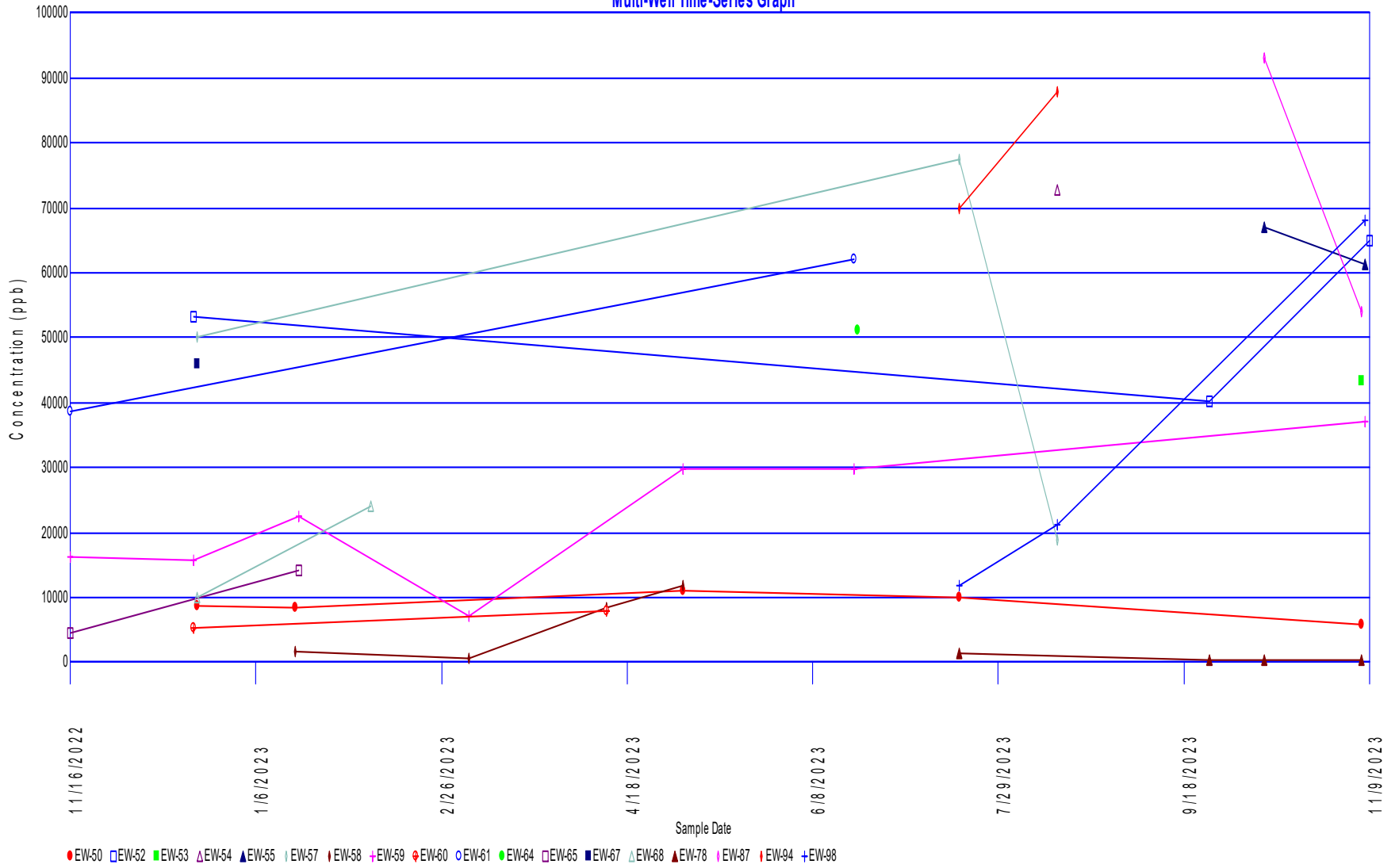
ND = Not Detected

ug/L = micrograms per liter

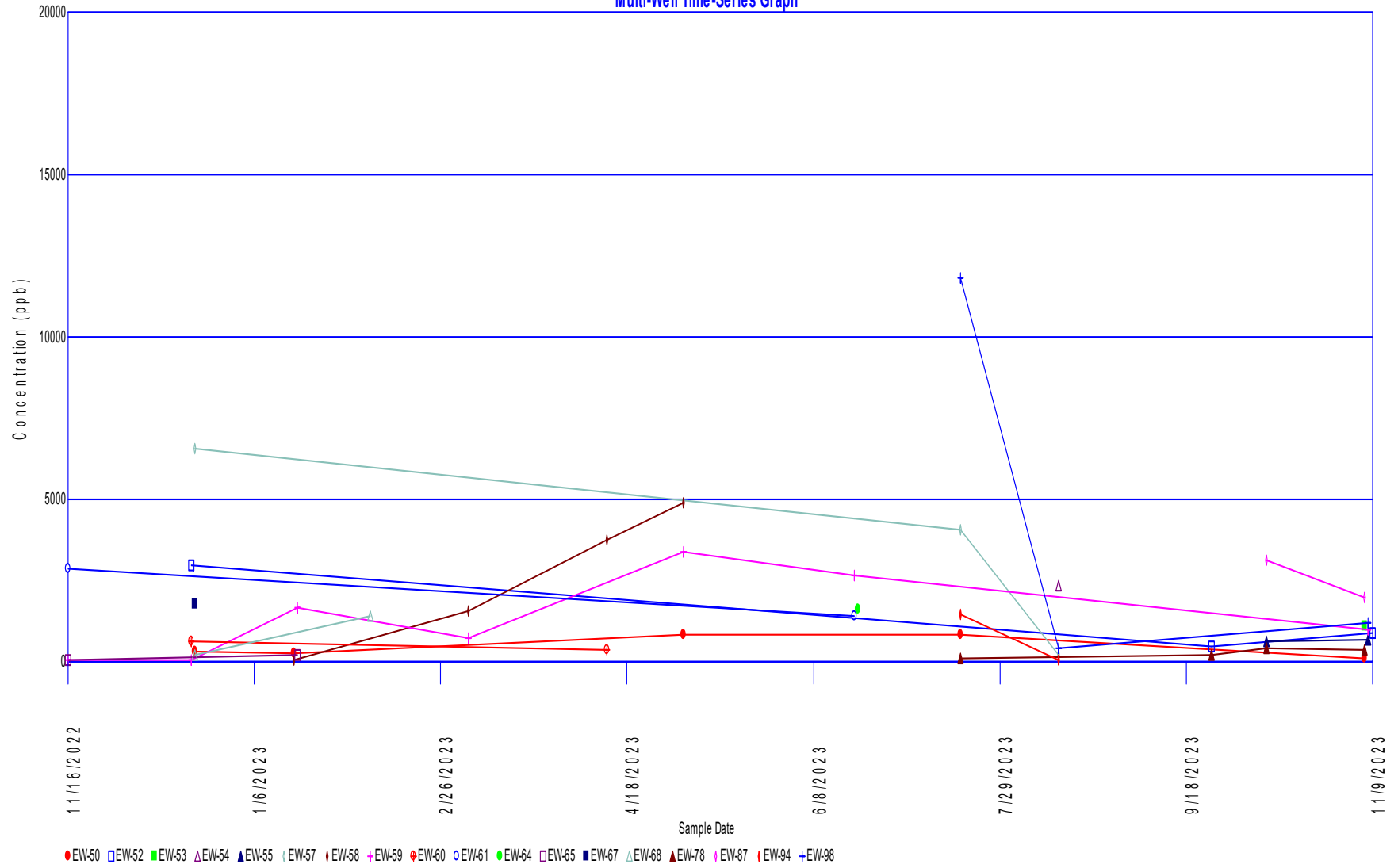
2-Butanone Multi-Well Time-Series Graph



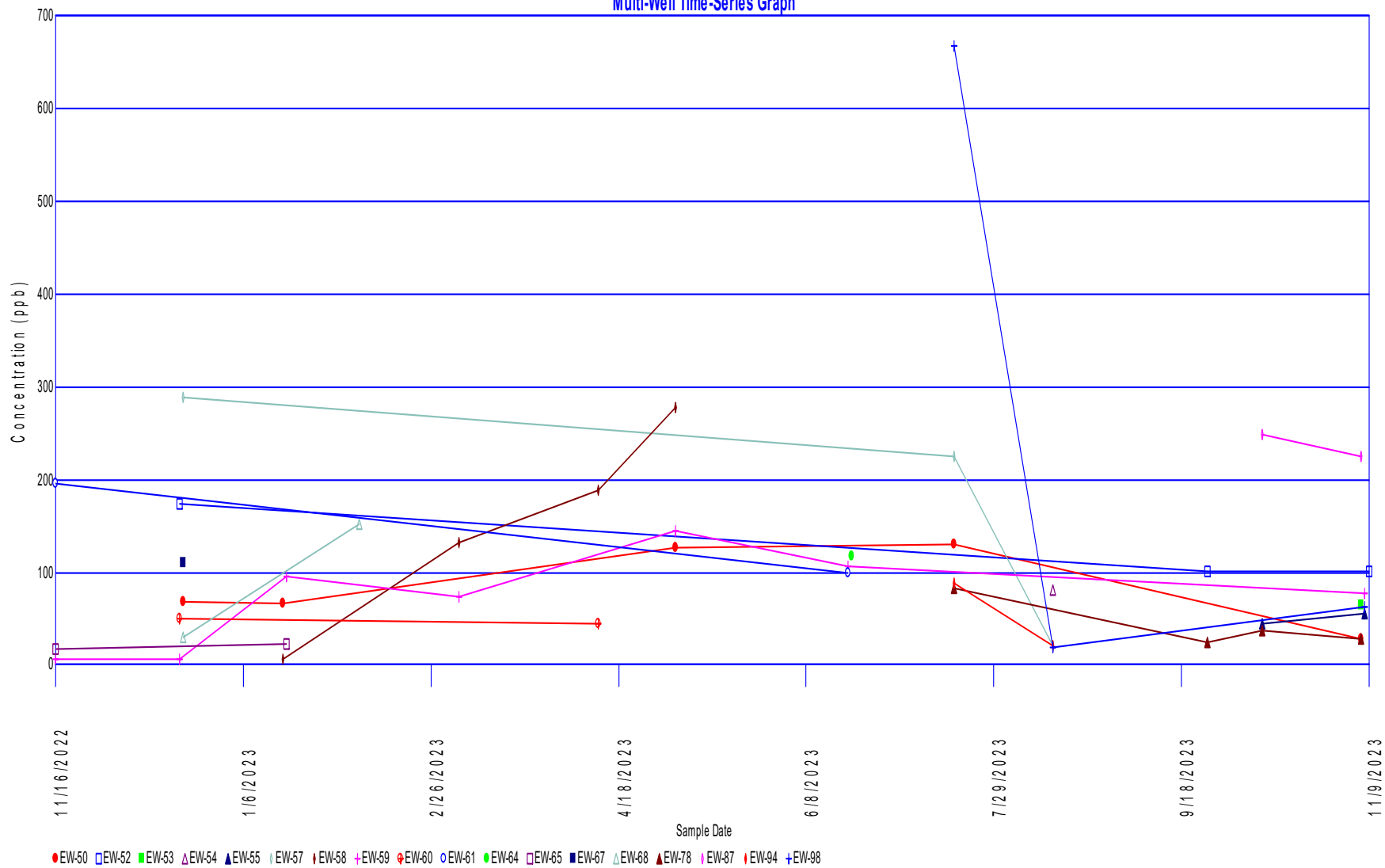
Acetone Multi-Well Time-Series Graph



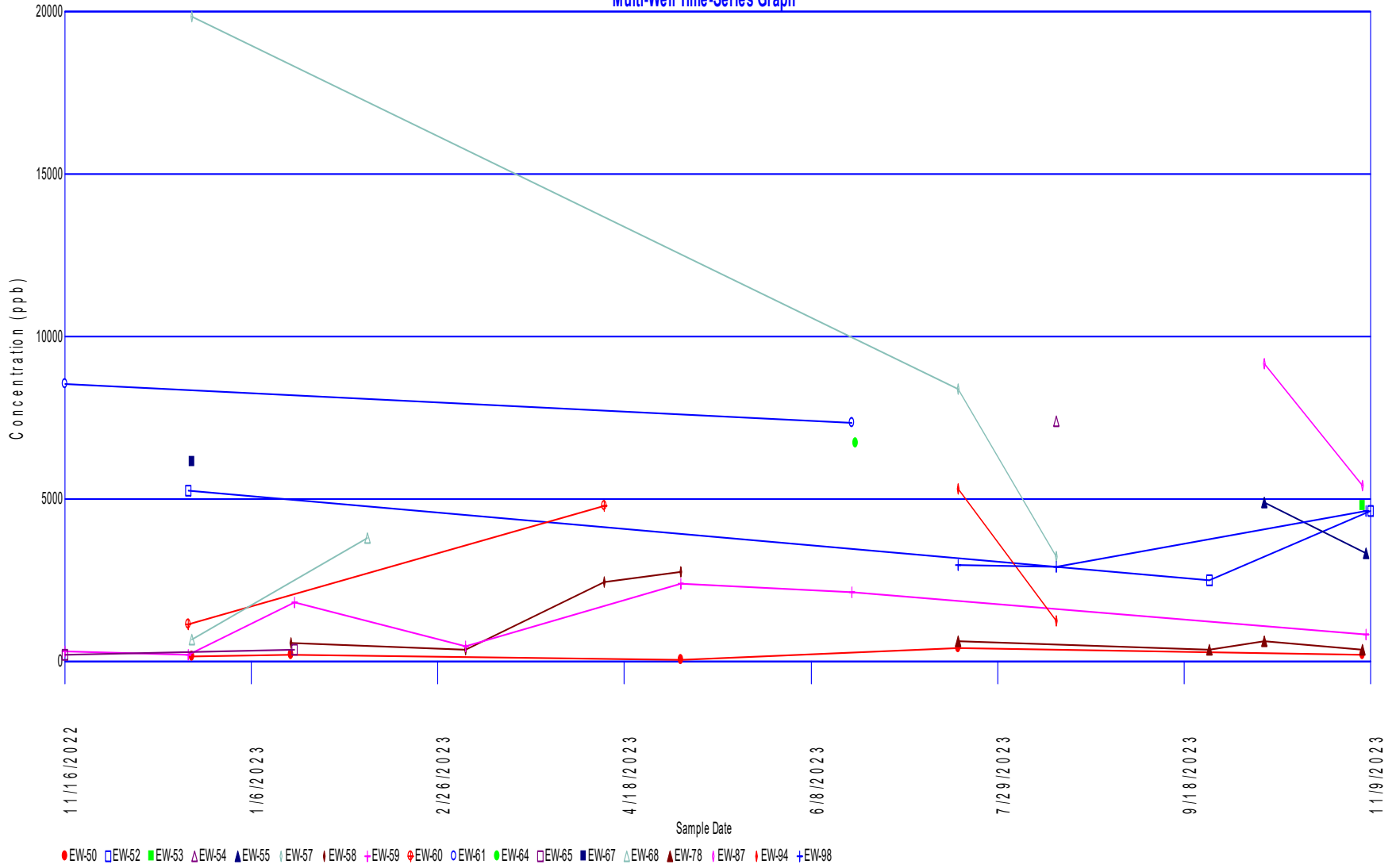
Benzene Multi-Well Time-Series Graph



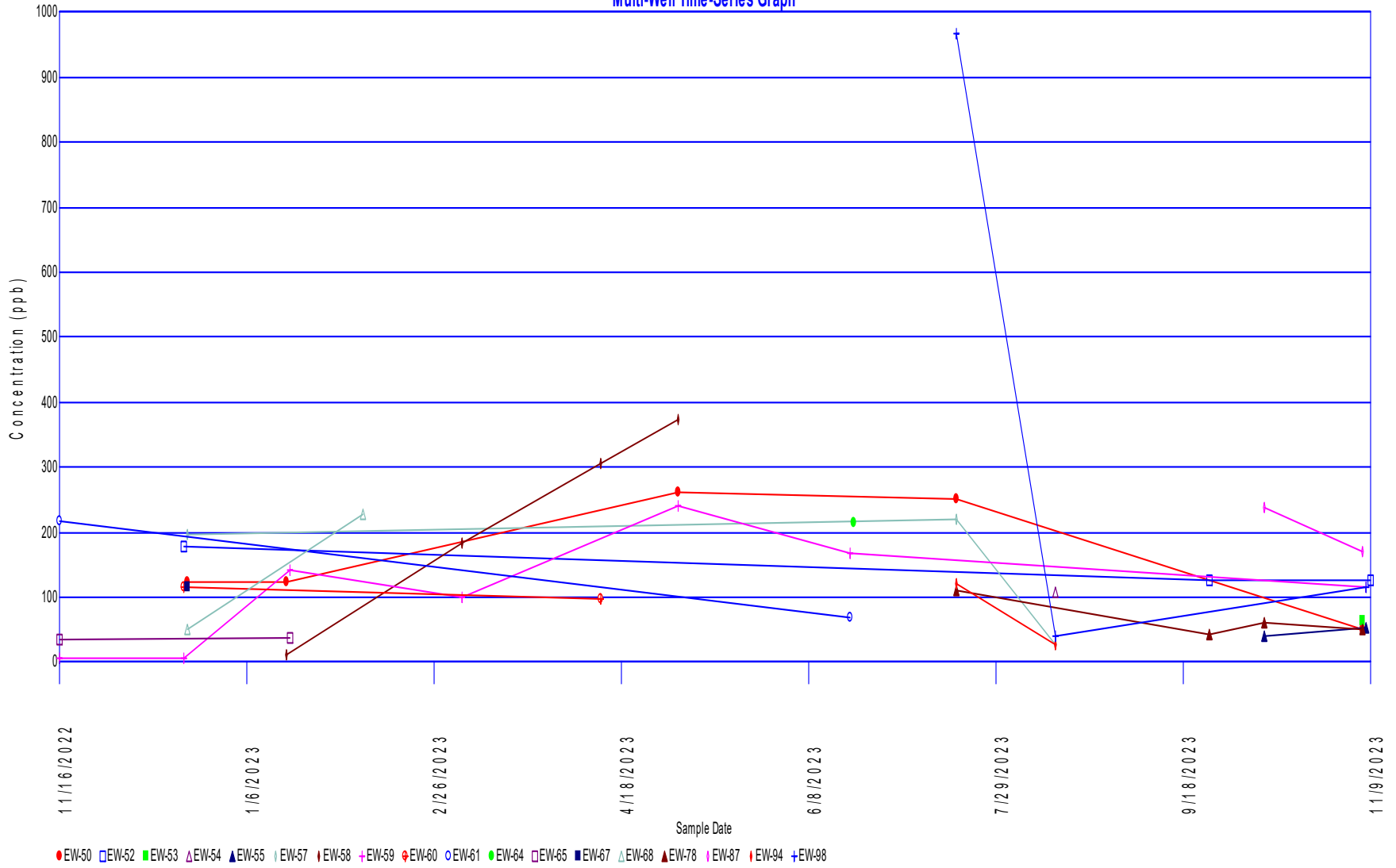
Ethylbenzene Multi-Well Time-Series Graph



Tetrahydrofuran
Multi-Well Time-Series Graph



Toluene
Multi-Well Time-Series Graph



Xylenes Multi-Well Time-Series Graph

