November 14, 2025

Mr. Brad Davison, Environmental Specialist
Land Quality Bureau
Iowa Department of Natural Resources
6200 Park Avenue, Suite 200
Des Moines, Iowa 50321

HLW Engineering Group
Engineering Management

RE: ANNUAL WATER QUALITY REPORT and GAS MONITORING REPORT
CEDAR COUNTY SANITARY LANDFILL
IDNR PERMIT NO. 16-SDP-01-76C

Dear Mr. Davison:

Permit provisions in Amendment #18, dated February 21, 2022 (Doc #102402) established an annual frequency for water quality monitoring and gas monitoring. Following submittal of the 2023 Annual Water Quality Report on November 30, 2023 (Doc #108349) the IDNR required that Statistically Significant Levels (SSL) and trends be evaluated (IDNR Letter dated January 23, 2024 – Doc #108891).

On May 6, 2024 an initial Evaluation of the SSL and trends was submitted to the IDNR (Doc #109996).

Based on the evaluation, IDNR again amended the Hydrologic Monitoring System Plan (HMSP) and the Gas Monitoring System Plan (GMSP) in a letter dated May 9, 2024 (Doc #110021). Water quality monitoring was reduced to a single well (MW-23), while the frequency of gas monitoring was increased from an annual frequency to a semi-annual frequency.

The results of the 2025 HMSP and GMSP are presented herein. This letter constitutes the 2025 Annual Water Quality Report and the 2025 Gas Monitoring Report.

Figure 1, Site Plan and Figure 2, 2025 Groundwater Contour Map are attached for reference.

Evaluation of Statistically Significant Levels (SSL) for VOC

The tables in Attachment A include the calculation of the Confidence Interval (95% Upper Confidence Limit to the 95% Lower Confidence Limit) for each compound at each well based on the most recent eight (8) sampling episodes. The Tables in Attachment A are updated to include the water quality results from MW-23 collected on April 3, 2025 and October 3, 2025. The 95% Lower Confidence Limit (LCL) for each compound at each well is then directly compared to the Groundwater Protection Standard (GWPS) for each compound. The GWPS are equal to the Statewide Standards published in Iowa Administrative Code (IAC) 137.

Review of the tables indicates that the 95% LCL value (highlighted in orange) does not exceed the GWPS (highlighted in blue) for any compound at any well. It follows that there are no SSL recorded at the site based on evaluation of the referenced data.

The raw data is also reviewed. It is noted that vinyl chloride has exceeded the GWPS at MW-16, MW-17, and MW-23 during isolated sampling events which are typically interspersed with non-detected concentrations. Likewise, cis-1,2-dichloroethene also temporarily exceeded the GWPS at MW 23 in 2021 and 2022. There were no VOC detected in MW-23 that exceeded a GWPS in 2023, 2024, or 2025. The detection of elevated vinyl chloride and/or cis-1,2-dichloroethene is not consistently documented and is interpreted to be tied to landfill gas migration events.

The conclusion is made that plume delineation or further assessment of water quality is not required in the absence of an SSL. It is surmised that the concentrations have previously peaked and that both the concentrations and the fluctuations within the referenced wells will diminish with time given that the site has been closed since at least June 14, 1993 (the date of issuance of the Closure Permit).

Evaluation of Trends

Trend lines have been added to the graphs in Attachment A. The trend lines are only added to those wells where there are predominantly detected compounds.

The trend lines represent linear regression of the data and conform to the trend testing methods included in the Unified Guidance (Section 17.3.1). The linear regression equation (y=mx+b) dictates that the slope of the line would indicate upward or downward trends. It is acknowledged that there are non-detect values included in the trend lines (non-detect data is included as ½ the MDL). Review of the non-detect values does not indicate any changes in the MRL over time (has consistently been 1.0 ug/L) so there is no bias perceived in the non-detect data due to improved MRL over time.

Review of the plotted trend lines indicates downward trends in all data, with the following exceptions:

Vinyl chloride at MW-23
trans-1,2-dichloroethene at MW-23
cis-1,2-dichloroethene at MW-23

In each of the referenced instances at MW-23, a short-term spike in the concentrations in 2020 through 2022 seems to drive an apparent upward trend. It is also noted that the concentrations of vinyl chloride, trans-1,2-dichloroethene, and cis-1,2-dichloroethene were again undetected or dramatically decreased in 2023, 2024, and 2025 test results. The recent results would suggest a downward trend line in vinyl chloride, trans-1,2-dichloroethene, and cis-1,2-dichloroethene since 2021/2022.

Evaluation of Gas Monitoring Data

The tables in Attachment B support the observation that the methane concentrations were reported at or above the 100% Lower Explosive Limit (LEL) at MW-16 on two (2) occasions (May 11, 2020 and April 22, 2021) and at MW-14 on one (1) occasion (September 20, 2020). All gas monitoring results collected after April 22, 2021 (through October 2025) have been reported to be below 100% LEL.

Further review indicates that when concentrations of gas are detected above the reporting limit (<1% LEL) they are reported at MW-23, MW-14, MW-16, MW-17, and MW-18.

The gas monitoring performed in 2020 and 2021 was by others. The gas monitoring in 2022 through 2025 was performed by HLW Engineering. It is presumed herein that the referenced methane detections in the past (2020 and 2021) did not require any additional steps (pursuant 113.9(2)"c"(1)) to protect human health based on the nearby land use, the site relief on adjacent lands, and land ownership. A detailed review of the operating record has not been performed to determine whether a notification pursuant 113.9(2)"c" was filed.

Passive Venting – Long-Term Source Control

Water quality impact at the site is interpreted to include low-level VOC impact at numerous monitoring well locations across the site. The data presented herein does not indicate that VOC exceeds a Statistically Significant Level (SSL) at any well location. It follows that further water quality assessment, delineation, and/or corrective measures are not warranted at this site pursuant applicable rule.

The observed data does draw a direct correlation between apparent landfill gas impacts and VOC impacts in certain distinct locations at the site, namely in the northeast corner (near MW-14 and MW-23) and along the west side (near MW-16, MW-17, and MW-18). Gas impacts and VOC detections appear to occur in the same wells.

In 2024, passive gas venting in the northeast corner and along the west side of the site was recommended in order to control and mitigate gas migration and/or VOC concentrations at MW-23, MW-16, MW-17, and MW-18.

As documented in the Construction Certification Documentation submitted to IDNR on November 4, 2025 (Doc #114665), passive landfill gas venting structures were constructed at the Cedar County Sanitary Landfill outside of the waste boundary in August 2025. Figure 1 illustrates the location of each vent structure.

The initial vent monitoring at the designated vent risers GV-1 through GV-10 was completed on October 3, 2025. A summary is included in Attachment C. Review of the monitoring results for GV-1 through GV-10 indicate that explosive gas is recorded at 0% LEL at all ten (10) monitoring points. It is anticipated that venting of the vadose zone is occurring at each vent structure, however the concentration of gas likely varies over time and may commonly be below detection. The passive vent structures do add source control for landfill gas and/or VOC migration within the vadose zone at this facility. GV-1 through GV-10 will continue to be monitored during future site visits.

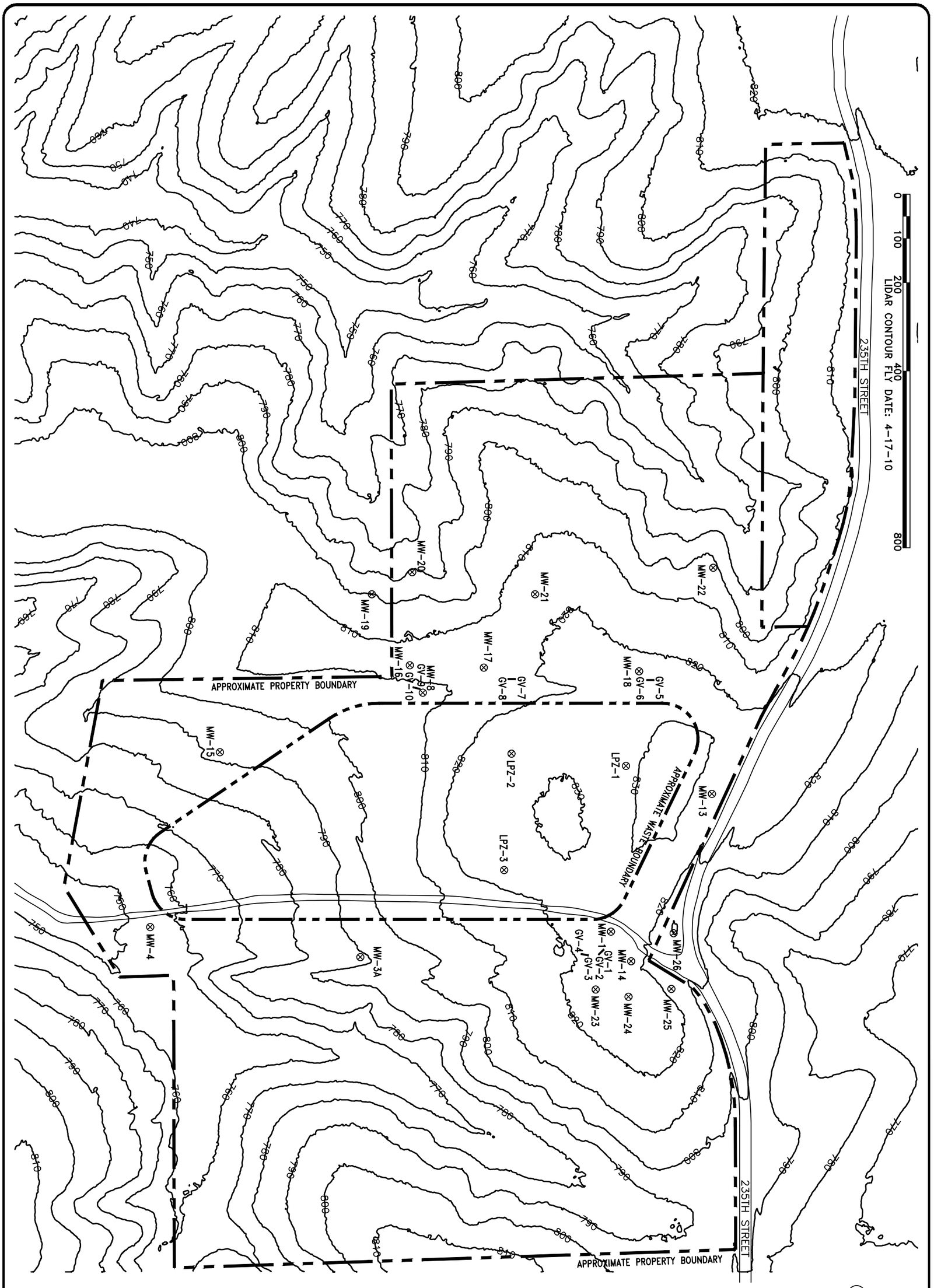
It is recommended that Cedar County request permission from IDNR to proceed with an Environmental Covenant for the site now that the gas venting project is completed.

Please let me know if you agree with the conclusions and recommendations included herein.

Respectfully,
HLW Engineering Group

Todd Whipple, CPG.
Project Manager

cc: Gary Crock, Director, Cedar County Solid Waste Commission (electronic copy)



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SITE PLAN

CEDAR COUNTY SANITARY LANDFILL
TIPTON, IOWA

FIGURE:	1	
REVISION	NO.	DATE
DRAWN DRA	PROJECT NO. 6053	DATE 10-24-25

0 100 200 400

LIDAR CONTOUR FLY DATE: 4-17-10

APPROXIMATE WASTE BOUNDARY

APPROXIMATE PROPERTY BOUNDARY

MW-26
MW-18
MW-14
MW-23
MW-17
MW-20
MW-16
MW-19
MW-3A
MW-15
MW-4

WATER ELEVATION OCTOBER 3, 2025	
WELL	ELEV.
MW-3A	774.15
MW-4	728.90
MW-14	797.46
MW-15	774.94
MW-16	787.43
MW-17	794.79
MW-18	798.36
MW-19	776.56
MW-20	771.38
MW-23	792.37
MW-26	798.15

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WATER TABLE CONTOURS

CEDAR COUNTY SANITARY LANDFILL
TIPTON, IOWA

FIGURE: 2

REVISION	NO.	DATE
DRAWN DRA	PROJECT NO. 6053	DATE 10-25-25

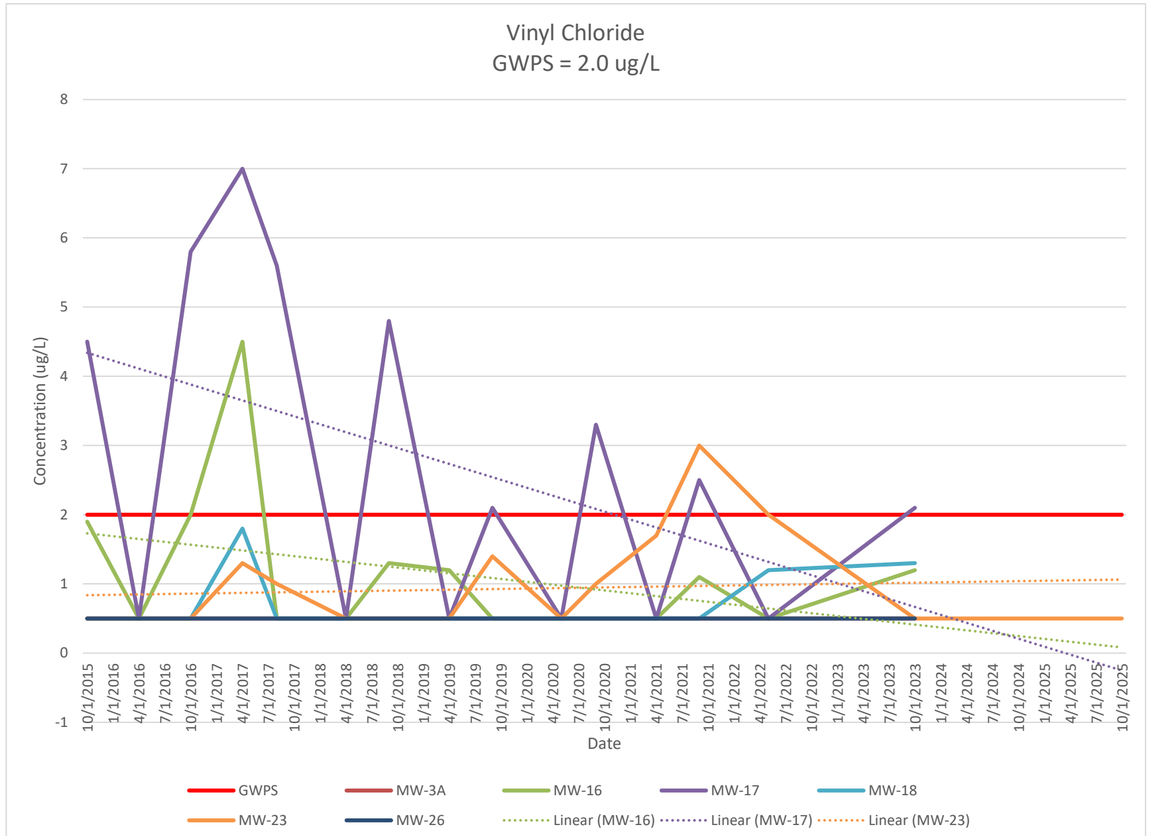
ATTACHMENT A

Tables & Graphs &
Analytical Reports

Times Series Graphs
Cedar County Sanitary Landfill
16-SDP-01-76C

0.5 = Red text represent undetected values that are reported at one-half of the MRL

Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	vinyl chloride	2	0.5	**1.9**	**4.5**	0.5	0.5	0.5
4/13/2016	vinyl chloride	2	0.5	0.5	0.5	0.5	0.5	0.5
10/4/2016	vinyl chloride	2	0.5	**2**	**5.8**	0.5	0.5	0.5
4/3/2017	vinyl chloride	2	0.5	**4.5**	**7**	**1.8**	**1.3**	0.5
8/29/2017	vinyl chloride	2	0.5	0.5	**5.6**	0.5	**1**	0.5
4/17/2018	vinyl chloride	2	0.5	0.5	0.5	0.5	0.5	0.5
9/17/2018	vinyl chloride	2	0.5	**1.3**	**4.8**	0.5	0.5	0.5
4/9/2019	vinyl chloride	2	0.5	**1.2**	0.5	0.5	0.5	0.5
9/4/2019	vinyl chloride	2	0.5	0.5	**2.1**	0.5	**1.4**	0.5
5/11/2020	vinyl chloride	2	0.5	0.5	0.5	0.5	0.5	0.5
9/21/2020	vinyl chloride	2	0.5	0.5	**3.3**	0.5	**1**	0.5
4/22/2021	vinyl chloride	2	0.5	0.5	0.5	0.5	**1.7**	0.5
9/13/2021	vinyl chloride	2	0.5	**1.1**	**2.5**	0.5	**3**	0.5
5/18/2022	vinyl chloride	2	0.5	0.5	0.5	**1.2**	**2**	0.5
10/19/2023	vinyl chloride	2	0.5	**1.2**	**2.1**	**1.3**	0.5	0.5
5/29/2024	vinyl chloride	2					0.5	
4/3/2025	vinyl chloride	2					0.5	
10/3/2025	vinyl chloride	2					0.5	
Sample size = 8			8	8	8	8	8	8
Mean value			0.5	0.75	1.5	0.6875	1.2125	0.5
standard deviation			0	0.324037	1.058301	0.32572	0.875268	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			0	0.114564	0.374166	0.11516	0.309454	0
Margin of Error			0	0.2171	0.709044	0.218227	0.586415	0
95% UCL (mean + Margin of Error)			**0.5**	**0.9671**	**2.209044**	**0.905727**	**1.798915**	**0.5**
95% LCL (mean - Margin of Error)			**0.5**	**0.5329**	**0.790956**	**0.469273**	**0.626085**	**0.5**
GWPS (ug/L)			**2.0**	**2.0**	**2.0**	**2.0**	**2.0**	**2.0**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



Times Series Graphs
Cedar County Sanitary Landfill
16-SDP-01-76C

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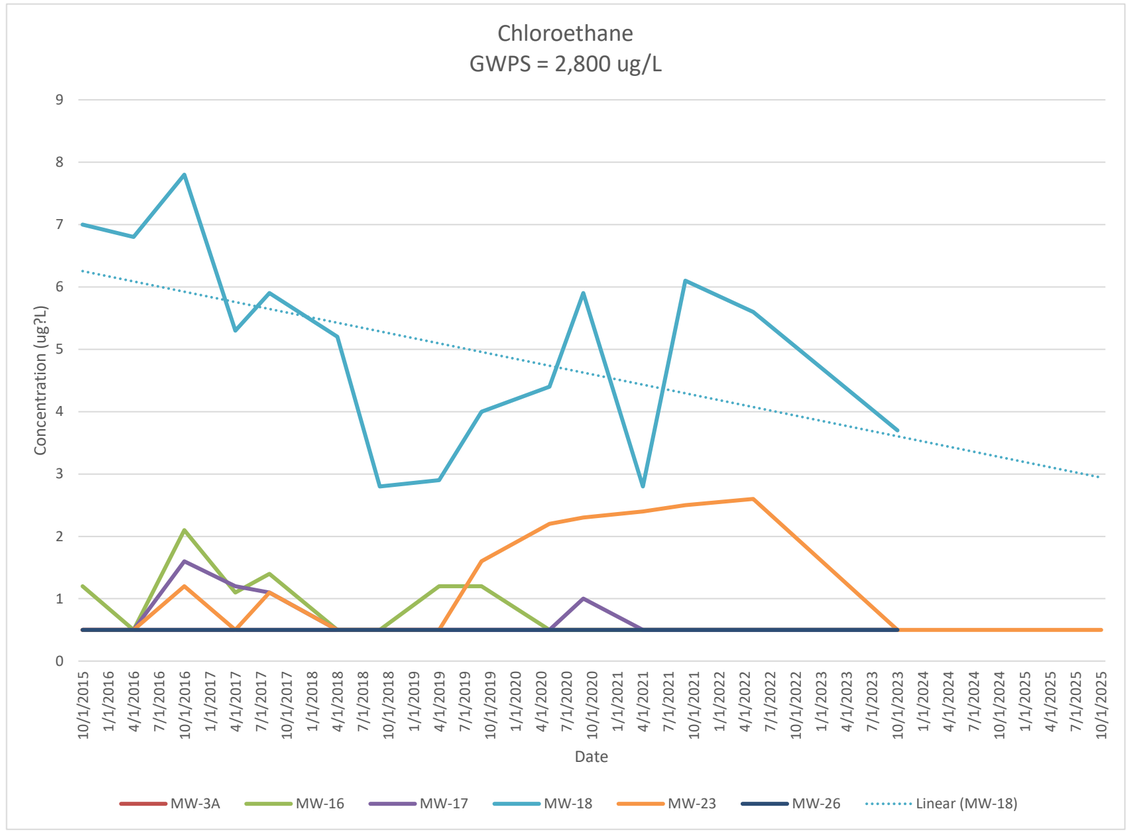
Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	chloroethane	2800	0.5	**1.2**	0.5	**7**	0.5	0.5
4/13/2016	chloroethane	2800	0.5	0.5	0.5	**6.8**	0.5	0.5
10/4/2016	chloroethane	2800	0.5	**2.1**	**1.6**	**7.8**	**1.2**	0.5
4/3/2017	chloroethane	2800	0.5	**1.1**	**1.2**	**5.3**	0.5	0.5
8/29/2017	chloroethane	2800	0.5	**1.4**	**1.1**	**5.9**	**1.1**	0.5
4/17/2018	chloroethane	2800	0.5	0.5	0.5	**5.2**	0.5	0.5
9/17/2018	chloroethane	2800	0.5	0.5	0.5	**2.8**	0.5	0.5
4/9/2019	chloroethane	2800	0.5	**1.2**	0.5	**2.9**	0.5	0.5
9/4/2019	chloroethane	2800	0.5	**1.2**	0.5	**4**	**1.6**	0.5
5/11/2020	chloroethane	2800	0.5	0.5	0.5	**4.4**	**2.2**	0.5
9/21/2020	chloroethane	2800	0.5	0.5	**1**	**5.9**	**2.3**	0.5
4/22/2021	chloroethane	2800	0.5	0.5	0.5	**2.8**	**2.4**	0.5
9/13/2021	chloroethane	2800	0.5	0.5	0.5	**6.1**	**2.5**	0.5
5/18/2022	chloroethane	2800	0.5	0.5	0.5	**5.6**	**2.6**	0.5
10/19/2023	chloroethane	2800	0.5	0.5	0.5	**3.7**	0.5	0.5
5/29/2024	chloroethane	2800					0.5	
4/3/2025	chloroethane	2800					0.5	
10/3/2025	chloroethane	2800					0.5	
Sample size = 8			8	8	8	8	8	8
Mean value			0.5	0.675	0.5625	4.425	1.475	0.5
standard deviation			0	0.303109	0.165359	1.22653	0.9782	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			0	0.107165	0.058463	0.433644	0.345846	0
Margin of Error			0	0.203078	0.110788	0.821755	0.655378	0
95% UCL (mean + Margin of Error)			**0.5**	**0.878078**	**0.673288**	**5.246755**	**2.130378**	**0.5**
95% LCL (mean - Margin of Error)			**0.5**	**0.471922**	**0.451712**	**3.603245**	**0.819622**	**0.5**
GWPS (ug/L)			**2800**	**2800**	**2800**	**2800**	**2800**	**2800**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



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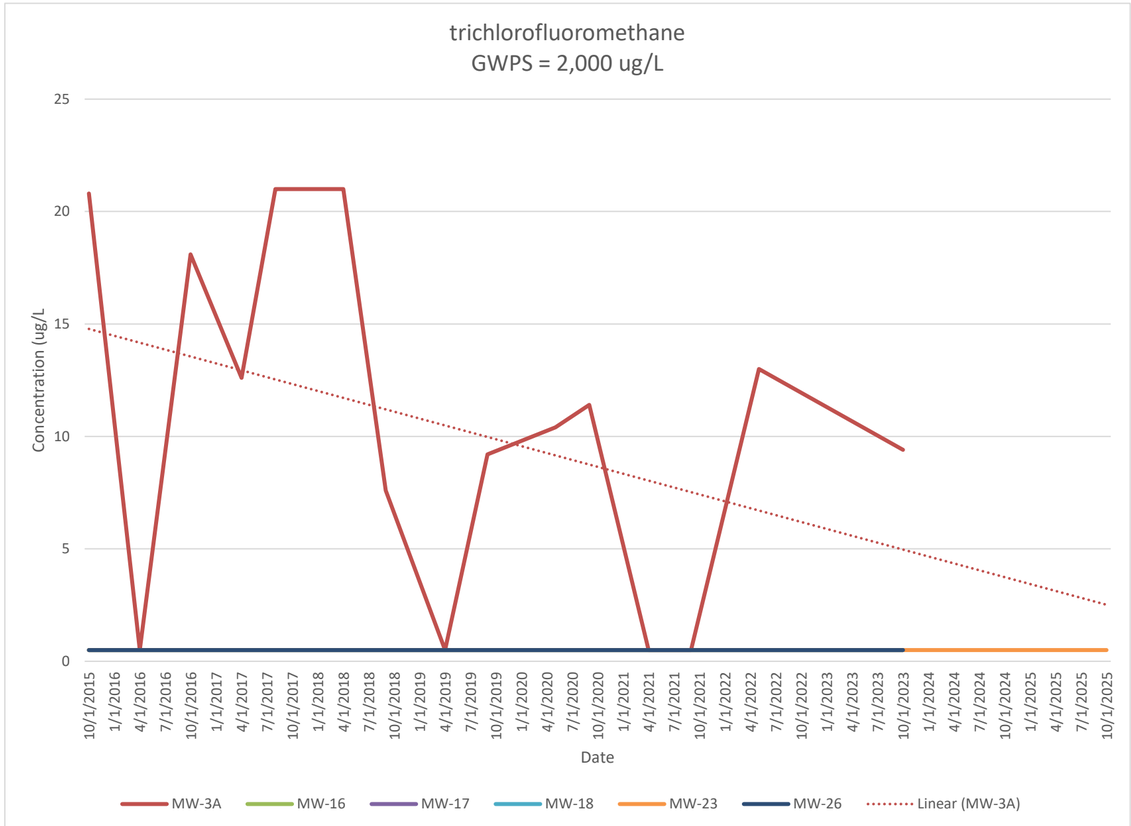
Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	trichlorofluoromethane	2000	**20.8**	0.5	0.5	0.5	0.5	0.5
4/13/2016	trichlorofluoromethane	2000	0.5	0.5	0.5	0.5	0.5	0.5
10/4/2016	trichlorofluoromethane	2000	**18.1**	0.5	0.5	0.5	0.5	0.5
4/3/2017	trichlorofluoromethane	2000	**12.6**	0.5	0.5	0.5	0.5	0.5
8/29/2017	trichlorofluoromethane	2000	**21**	0.5	0.5	0.5	0.5	0.5
4/17/2018	trichlorofluoromethane	2000	**21**	0.5	0.5	0.5	0.5	0.5
9/17/2018	trichlorofluoromethane	2000	**7.6**	0.5	0.5	0.5	0.5	0.5
4/9/2019	trichlorofluoromethane	2000	0.5	0.5	0.5	0.5	0.5	0.5
9/4/2019	trichlorofluoromethane	2000	**9.2**	0.5	0.5	0.5	0.5	0.5
5/11/2020	trichlorofluoromethane	2000	**10.4**	0.5	0.5	0.5	0.5	0.5
9/21/2020	trichlorofluoromethane	2000	**11.4**	0.5	0.5	0.5	0.5	0.5
4/22/2021	trichlorofluoromethane	2000	0.5	0.5	0.5	0.5	0.5	0.5
9/13/2021	trichlorofluoromethane	2000	0.5	0.5	0.5	0.5	0.5	0.5
5/18/2022	trichlorofluoromethane	2000	**13**	0.5	0.5	0.5	0.5	0.5
10/19/2023	trichlorofluoromethane	2000	**9.4**	0.5	0.5	0.5	0.5	0.5
5/29/2024	trichlorofluoromethane	2000					0.5	
4/3/2025	trichlorofluoromethane	2000					0.5	
10/3/2025	trichlorofluoromethane	2000					0.5	
Sample size = 8			8	8	8	8	8	8
Mean value			6.8625	0.5	0.5	0.5	0.5	0.5
standard deviation			5.051222	0	0	0	0	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			1.785877	0	0	0	0	0
Margin of Error			3.384236	0	0	0	0	0
95% UCL (mean + Margin of Error)			**10.24674**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
95% LCL (mean - Margin of Error)			**3.478264**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
GWPS (ug/L)			**2000**	**2000**	**2000**	**2000**	**2000**	**2000**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



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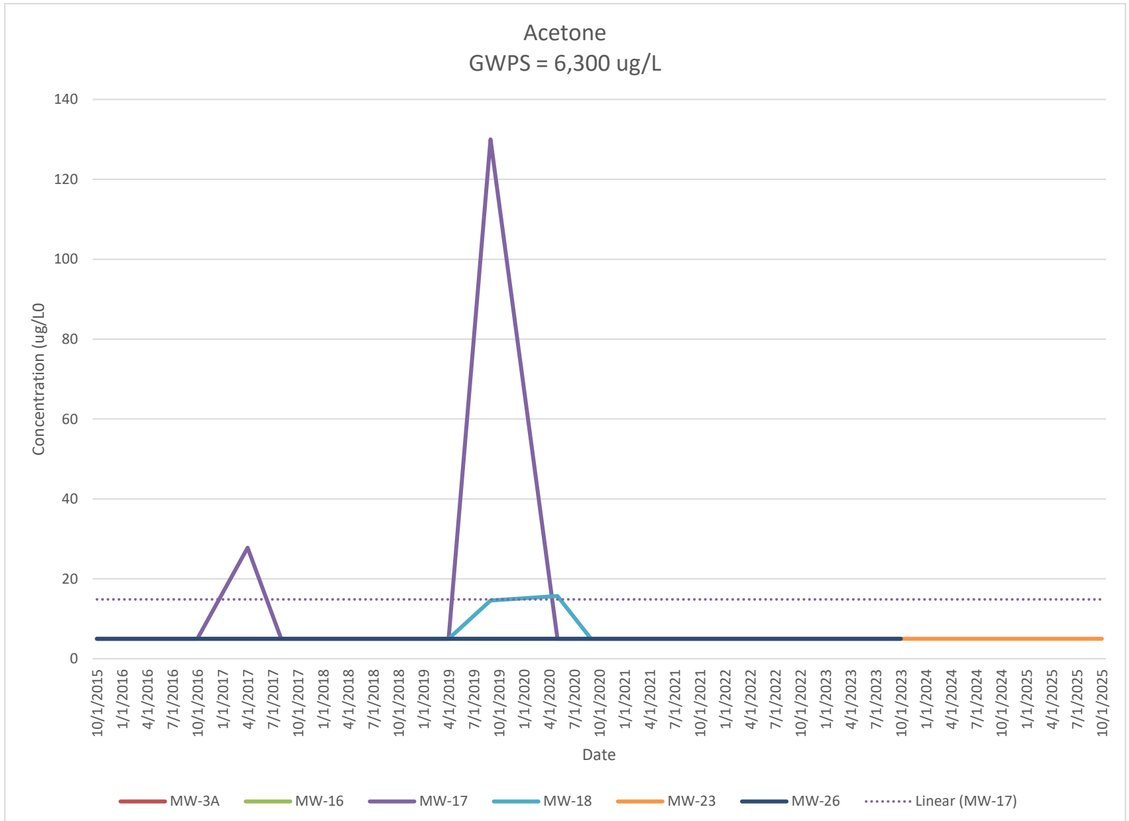
Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	acetone	6300	5	5	5	5	5	5
4/13/2016	acetone	6300	5	5	5	5	5	5
10/4/2016	acetone	6300	5	5	5	5	5	5
4/3/2017	acetone	6300	5	5	**27.8**	5	5	5
8/29/2017	acetone	6300	5	5	5	5	5	5
4/17/2018	acetone	6300	5	5	5	5	5	5
9/17/2018	acetone	6300	5	5	5	5	5	5
4/9/2019	acetone	6300	5	5	5	5	5	5
9/4/2019	acetone	6300	5	5	**130**	**14.6**	5	5
5/11/2020	acetone	6300	5	5	5	**15.7**	5	5
9/21/2020	acetone	6300	5	5	5	5	5	5
4/22/2021	acetone	6300	5	5	5	5	5	5
9/13/2021	acetone	6300	5	5	5	5	5	5
5/18/2022	acetone	6300	5	5	5	5	5	5
10/19/2023	acetone	6300	5	5	5	5	5	5
5/29/2024	acetone	6300					5	
4/3/2025	acetone	6300					5	
10/3/2025	acetone	6300					5	
Sample size = 8			8	8	8	8	8	8
Mean value			5	5	20.625	7.5375	5	5
standard deviation			0	0	41.33986	4.403674	0	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			0	0	14.61585	1.556934	0	0
Margin of Error			0	0	27.69703	2.95039	0	0
95% UCL (mean + Margin of Error)			**5**	**5**	**48.32203**	**10.48789**	**5**	**5**
95% LCL (mean - Margin of Error)			**5**	**5**	**-7.07203**	**4.58711**	**5**	**5**
GWPS (ug/L)			**6300**	**6300**	**6300**	**6300**	**6300**	**6300**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



Times Series Graphs
Cedar County Sanitary Landfill
16-SDP-01-76C

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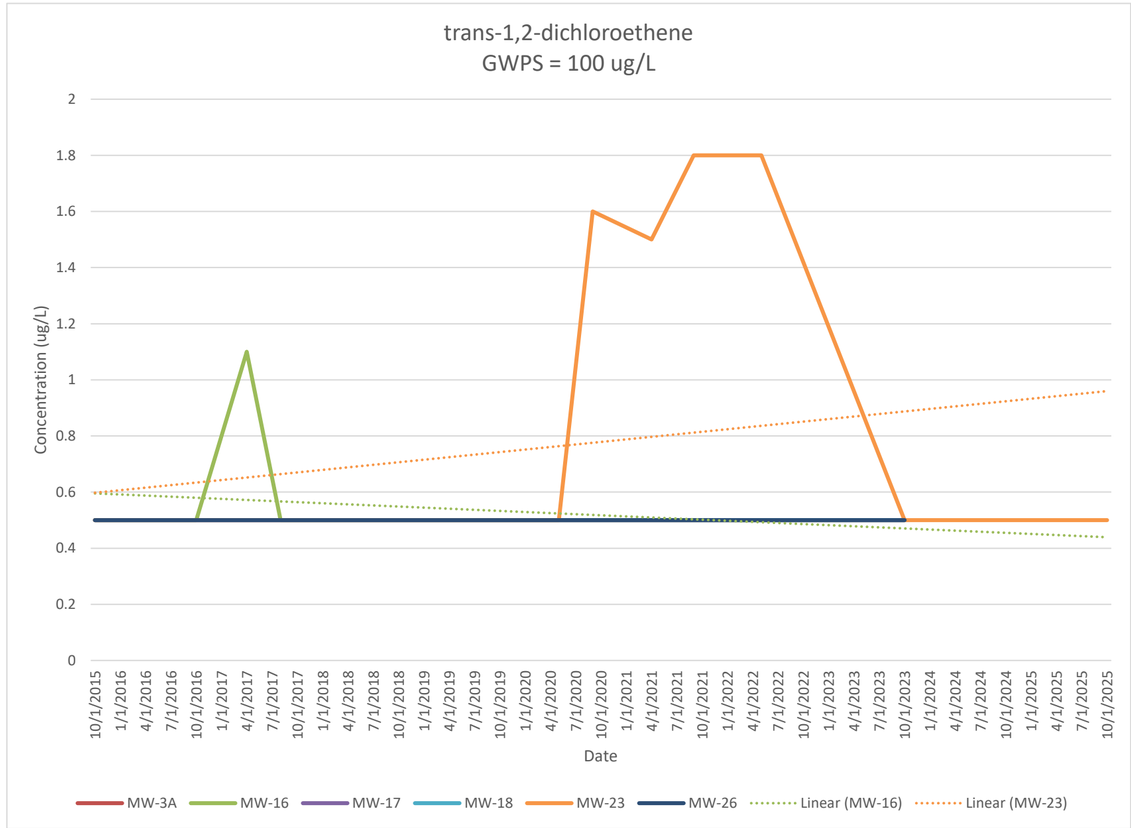
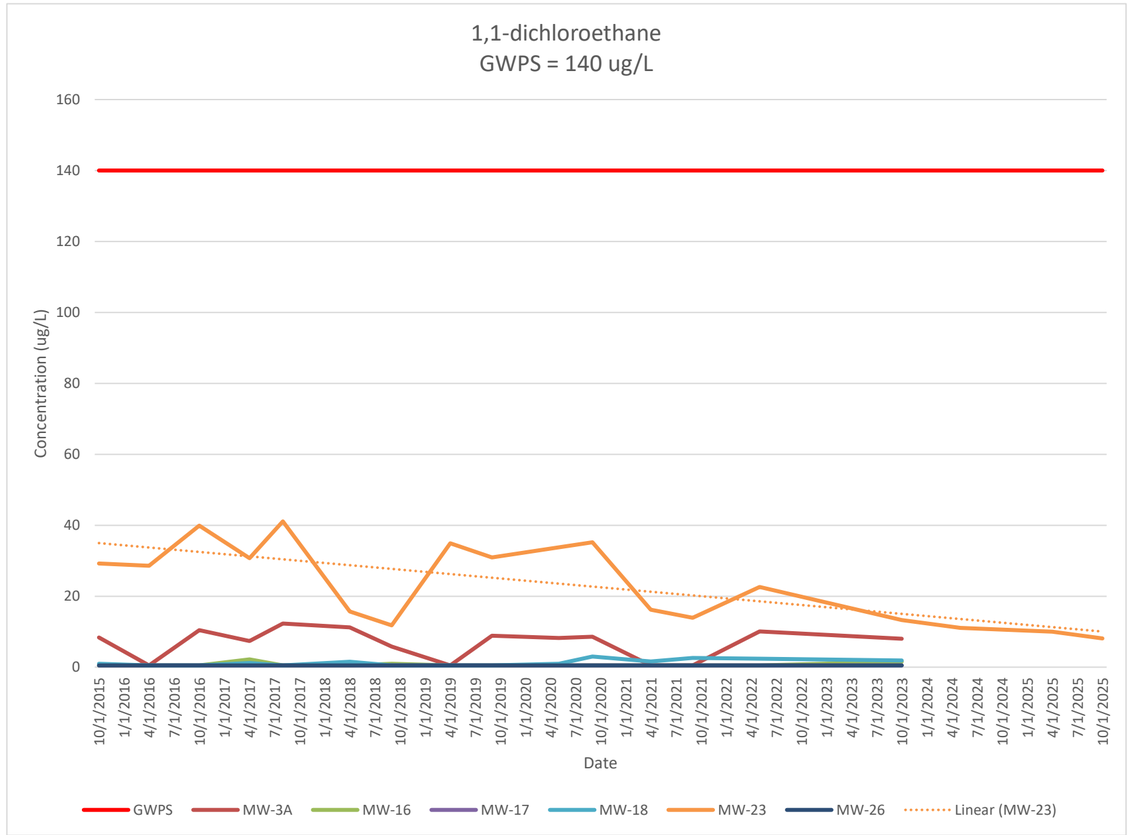
Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	0.5	0.5
4/13/2016	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	0.5	0.5
10/4/2016	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	0.5	0.5
4/3/2017	trans-1,2-dichloroethene	100	0.5	**1.1**	0.5	0.5	0.5	0.5
8/29/2017	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	0.5	0.5
4/17/2018	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	0.5	0.5
9/17/2018	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	0.5	0.5
4/9/2019	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	0.5	0.5
9/4/2019	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	0.5	0.5
5/11/2020	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	0.5	0.5
9/21/2020	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	**1.6**	0.5
4/22/2021	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	**1.5**	0.5
9/13/2021	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	**1.8**	0.5
5/18/2022	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	**1.8**	0.5
10/19/2023	trans-1,2-dichloroethene	100	0.5	0.5	0.5	0.5	0.5	0.5
5/29/2024	trans-1,2-dichloroethene	100					0.5	
4/3/2025	trans-1,2-dichloroethene	100					0.5	
10/3/2025	trans-1,2-dichloroethene	100					0.5	
Sample size = 8			8	8	8	8	8	8
Mean value			0.5	0.5	0.5	0.5	1.0875	0.5
standard deviation			0	0	0	0	0.594637	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			0	0	0	0	0.210236	0
Margin of Error			0	0	0	0	0.398397	0
95% UCL (mean + Margin of Error)			**0.5**	**0.5**	**0.5**	**0.5**	**1.485897**	**0.5**
95% LCL (mean - Margin of Error)			**0.5**	**0.5**	**0.5**	**0.5**	**0.689103**	**0.5**
GWPS (ug/L)			**100**	**100**	**100**	**100**	**100**	**100**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



Times Series Graphs
Cedar County Sanitary Landfill
16-SDP-01-76C

0.5 = Red text represent undetected values that are reported at one-half of the MRL

Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	1,1-dichloroethane	140	**8.4**	0.5	0.5	**1**	**29.2**	0.5
4/13/2016	1,1-dichloroethane	140	0.5	0.5	0.5	0.5	**28.6**	0.5
10/4/2016	1,1-dichloroethane	140	**10.4**	0.5	0.5	0.5	**39.9**	0.5
4/3/2017	1,1-dichloroethane	140	**7.4**	**2.2**	0.5	**1.2**	**30.7**	0.5
8/29/2017	1,1-dichloroethane	140	**12.3**	0.5	0.5	0.5	**41.1**	0.5
4/17/2018	1,1-dichloroethane	140	**11.2**	0.5	0.5	**1.5**	**15.7**	0.5
9/17/2018	1,1-dichloroethane	140	**5.8**	**1**	0.5	0.5	**11.8**	0.5
4/9/2019	1,1-dichloroethane	140	0.5	0.5	0.5	0.5	**34.9**	0.5
9/4/2019	1,1-dichloroethane	140	**8.9**	0.5	0.5	0.5	**30.9**	0.5
5/11/2020	1,1-dichloroethane	140	**8.2**	0.5	0.5	**1**	**33.8**	0.5
9/21/2020	1,1-dichloroethane	140	**8.6**	0.5	0.5	**3**	**35.2**	0.5
4/22/2021	1,1-dichloroethane	140	0.5	0.5	0.5	**1.6**	**16.2**	0.5
9/13/2021	1,1-dichloroethane	140	0.5	0.5	0.5	**2.6**	**13.9**	0.5
5/18/2022	1,1-dichloroethane	140	**10.1**	0.5	0.5	**2.4**	**22.6**	0.5
10/19/2023	1,1-dichloroethane	140	**8**	**1.5**	0.5	**1.9**	**13.3**	0.5
5/29/2024	1,1-dichloroethane	140					**11.1**	
4/3/2025	1,1-dichloroethane	140					**10.0**	
10/3/2025	1,1-dichloroethane	140					**8.1**	
Sample size = 8			8	8	8	8	8	8
Mean value			5.6625	0.625	0.5	1.6875	16.3	0.5
standard deviation			4.041329	0.330719	0	0.895038	8.258632	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			1.428826	0.116927	0	0.316444	2.919867	0
Margin of Error			2.707625	0.221576	0	0.599661	5.533149	0
95% UCL (mean + Margin of Error)			**8.370125**	**0.846576**	**0.5**	**2.287161**	**21.83315**	**0.5**
95% LCL (mean - Margin of Error)			**2.954875**	**0.403424**	**0.5**	**1.087839**	**10.76685**	**0.5**
GWPS (ug/L)			**140**	**140**	**140**	**140**	**140**	**140**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



Times Series Graphs
Cedar County Sanitary Landfill
16-SDP-01-76C

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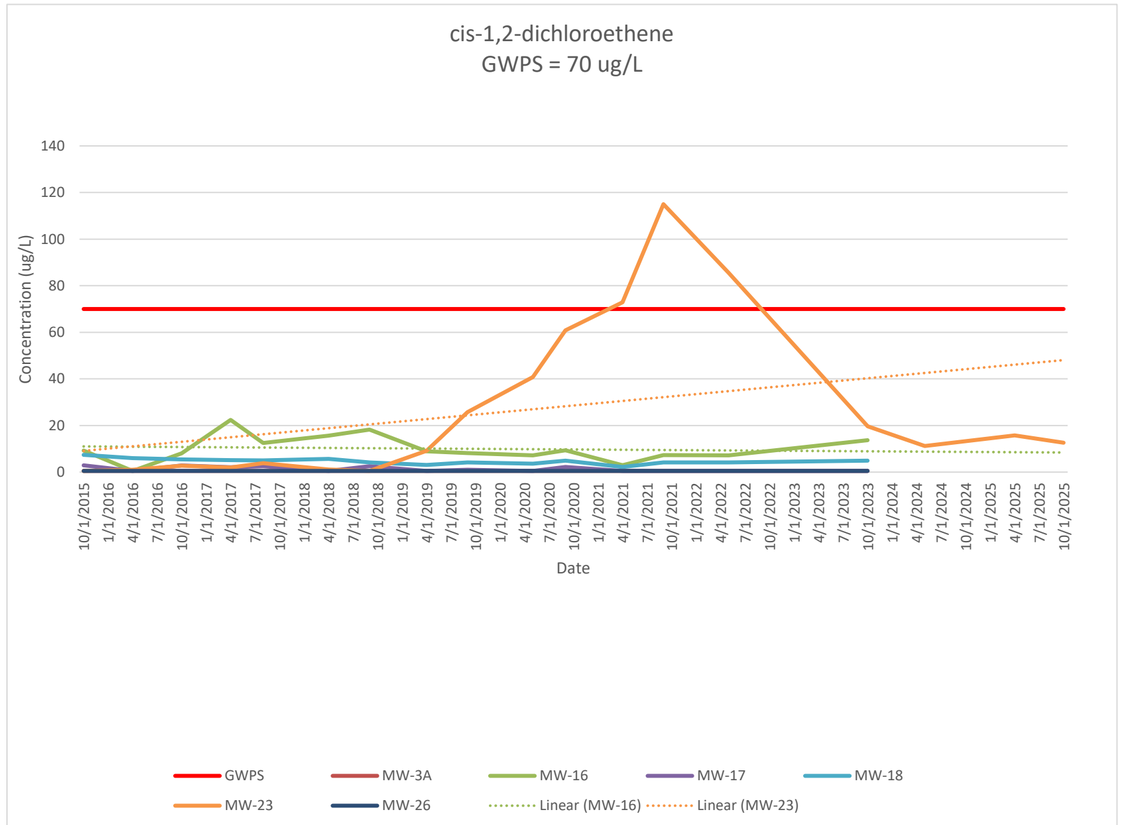
Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	cis-1,2-dichloroethene	70	0.5	**9.2**	**2.9**	**7.4**	0.5	0.5
4/13/2016	cis-1,2-dichloroethene	70	0.5	0.5	0.5	**6**	**1**	0.5
10/4/2016	cis-1,2-dichloroethene	70	0.5	**8.1**	**2.8**	**5.5**	**2.7**	0.5
4/3/2017	cis-1,2-dichloroethene	70	0.5	**22.4**	**2.1**	**5.1**	**2**	0.5
8/29/2017	cis-1,2-dichloroethene	70	0.5	**12.5**	**2.5**	**5**	**3.8**	0.5
4/17/2018	cis-1,2-dichloroethene	70	0.5	**15.6**	0.5	**5.7**	**1.1**	0.5
9/17/2018	cis-1,2-dichloroethene	70	0.5	**18.2**	**2.5**	**4.2**	0.5	0.5
4/9/2019	cis-1,2-dichloroethene	70	0.5	**8.9**	0.5	**3.1**	**9.1**	0.5
9/4/2019	cis-1,2-dichloroethene	70	0.5	**8.2**	**1**	**4.2**	**25.7**	0.5
5/11/2020	cis-1,2-dichloroethene	70	0.5	**7.2**	0.5	**3.6**	**40.8**	0.5
9/21/2020	cis-1,2-dichloroethene	70	0.5	**9.4**	**2.2**	**4.9**	**60.8**	0.5
4/22/2021	cis-1,2-dichloroethene	70	0.5	**3**	0.5	**2.2**	**72.9**	0.5
9/13/2021	cis-1,2-dichloroethene	70	0.5	**7.3**	0.5	**4.2**	**115**	0.5
5/18/2022	cis-1,2-dichloroethene	70	0.5	**7.2**	0.5	**4.2**	**85.5**	0.5
10/19/2023	cis-1,2-dichloroethene	70	0.5	**13.7**	0.5	**4.9**	**19.6**	0.5
5/29/2024	cis-1,2-dichloroethene	70					**11.2**	
4/3/2025	cis-1,2-dichloroethene	70					**15.7**	
10/3/2025	cis-1,2-dichloroethene	70					**12.6**	
Sample size = 8			8	8	8	8	8	8
Mean value			0.5	8.1125	0.775	3.9125	49.1625	0.5
standard deviation			0	2.783181	0.562917	0.857959	37.29199	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			0	0.984003	0.199021	0.303334	13.18471	0
Margin of Error			0	1.864686	0.377145	0.574819	24.98502	0
95% UCL (mean + Margin of Error)			**0.5**	**9.977186**	**1.152145**	**4.487319**	**74.14752**	**0.5**
95% LCL (mean - Margin of Error)			**0.5**	**6.247814**	**0.397855**	**3.337681**	**24.17748**	**0.5**
GWPS (ug/L)			**70**	**70**	**70**	**70**	**70**	**70**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



Times Series Graphs
Cedar County Sanitary Landfill
16-SDP-01-76C

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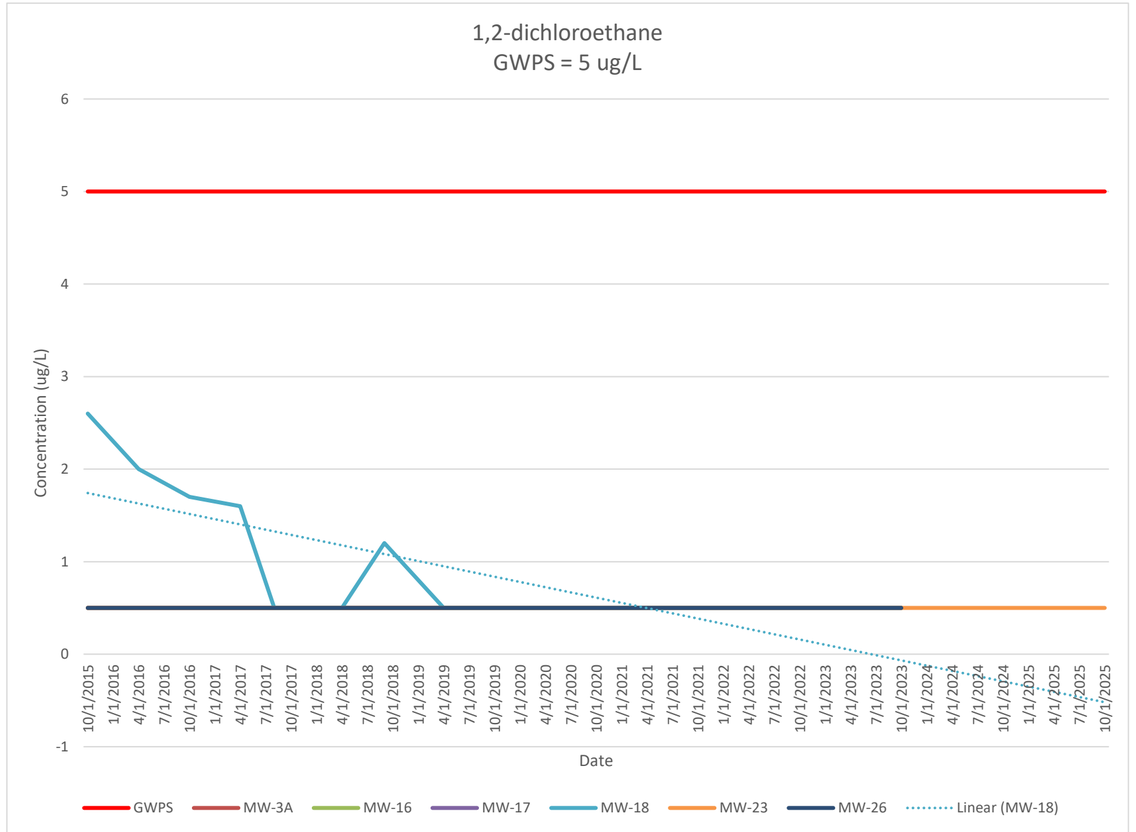
Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	1,2-Dichloroethane	5	0.5	0.5	0.5	**2.6**	0.5	0.5
4/13/2016	1,2-Dichloroethane	5	0.5	0.5	0.5	**2**	0.5	0.5
10/4/2016	1,2-Dichloroethane	5	0.5	0.5	0.5	**1.7**	0.5	0.5
4/3/2017	1,2-Dichloroethane	5	0.5	0.5	0.5	**1.6**	0.5	0.5
8/29/2017	1,2-Dichloroethane	5	0.5	0.5	0.5	0.5	0.5	0.5
4/17/2018	1,2-Dichloroethane	5	0.5	0.5	0.5	0.5	0.5	0.5
9/17/2018	1,2-Dichloroethane	5	0.5	0.5	0.5	**1.2**	0.5	0.5
4/9/2019	1,2-Dichloroethane	5	0.5	0.5	0.5	0.5	0.5	0.5
9/4/2019	1,2-Dichloroethane	5	0.5	0.5	0.5	0.5	0.5	0.5
5/11/2020	1,2-Dichloroethane	5	0.5	0.5	0.5	0.5	0.5	0.5
9/21/2020	1,2-Dichloroethane	5	0.5	0.5	0.5	0.5	0.5	0.5
4/22/2021	1,2-Dichloroethane	5	0.5	0.5	0.5	0.5	0.5	0.5
9/13/2021	1,2-Dichloroethane	5	0.5	0.5	0.5	0.5	0.5	0.5
5/18/2022	1,2-Dichloroethane	5	0.5	0.5	0.5	0.5	0.5	0.5
10/19/2023	1,2-Dichloroethane	5	0.5	0.5	0.5	0.5	0.5	0.5
5/29/2024	1,2-Dichloroethane	5					0.5	
4/3/2025	1,2-Dichloroethane	5					0.5	
10/3/2025	1,2-Dichloroethane	5					0.5	
Sample size = 8			8	8	8	8	8	8
Mean value			0.5	0.5	0.5	0.5	0.5	0.5
standard deviation			0	0	0	0	0	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			0	0	0	0	0	0
Margin of Error			0	0	0	0	0	0
95% UCL (mean + Margin of Error)			**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
95% LCL (mean - Margin of Error)			**0.5**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
GWPS (ug/L)			**5.0**	**5.0**	**5.0**	**5.0**	**5.0**	**5.0**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



Times Series Graphs
Cedar County Sanitary Landfill
16-SDP-01-76C

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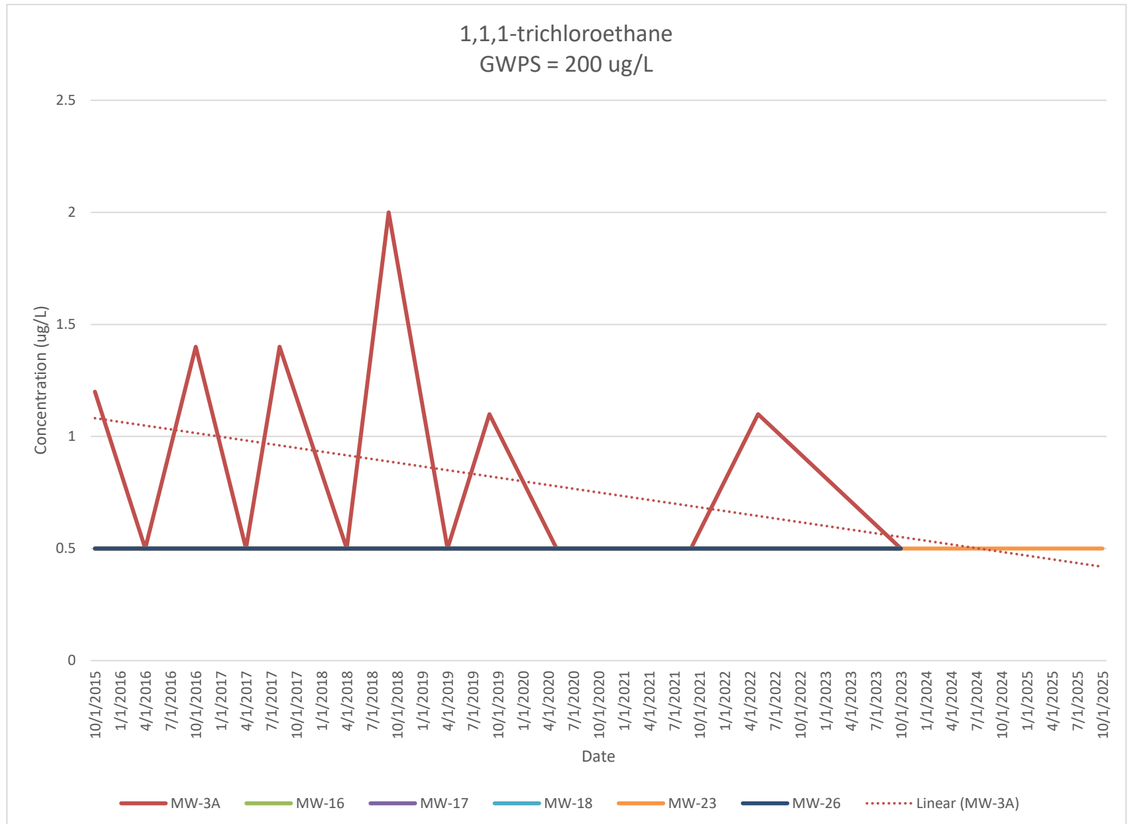
Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	1,1,1-Trichloroethane	200	**1.2**	0.5	0.5	0.5	0.5	0.5
4/13/2016	1,1,1-Trichloroethane	200	0.5	0.5	0.5	0.5	0.5	0.5
10/4/2016	1,1,1-Trichloroethane	200	**1.4**	0.5	0.5	0.5	0.5	0.5
4/3/2017	1,1,1-Trichloroethane	200	0.5	0.5	0.5	0.5	0.5	0.5
8/29/2017	1,1,1-Trichloroethane	200	**1.4**	0.5	0.5	0.5	0.5	0.5
4/17/2018	1,1,1-Trichloroethane	200	0.5	0.5	0.5	0.5	0.5	0.5
9/17/2018	1,1,1-Trichloroethane	200	**2**	0.5	0.5	0.5	0.5	0.5
4/9/2019	1,1,1-Trichloroethane	200	0.5	0.5	0.5	0.5	0.5	0.5
9/4/2019	1,1,1-Trichloroethane	200	**1.1**	0.5	0.5	0.5	0.5	0.5
5/11/2020	1,1,1-Trichloroethane	200	0.5	0.5	0.5	0.5	0.5	0.5
9/21/2020	1,1,1-Trichloroethane	200	0.5	0.5	0.5	0.5	0.5	0.5
4/22/2021	1,1,1-Trichloroethane	200	0.5	0.5	0.5	0.5	0.5	0.5
9/13/2021	1,1,1-Trichloroethane	200	0.5	0.5	0.5	0.5	0.5	0.5
5/18/2022	1,1,1-Trichloroethane	200	**1.1**	0.5	0.5	0.5	0.5	0.5
10/19/2023	1,1,1-Trichloroethane	200	0.5	0.5	0.5	0.5	0.5	0.5
5/29/2024	1,1,1-Trichloroethane	200					0.5	
4/3/2025	1,1,1-Trichloroethane	200					0.5	
10/3/2025	1,1,1-Trichloroethane	200					0.5	
Sample size = 8			8	8	8	8	8	8
Mean value			0.65	0.5	0.5	0.5	0.5	0.5
standard deviation			0.259808	0	0	0	0	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			0.091856	0	0	0	0	0
Margin of Error			0.174067	0	0	0	0	0
95% UCL (mean + Margin of Error)			**0.824067**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
95% LCL (mean - Margin of Error)			**0.475933**	**0.5**	**0.5**	**0.5**	**0.5**	**0.5**
GWPS (ug/L)			**200**	**200**	**200**	**200**	**200**	**200**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



Times Series Graphs
Cedar County Sanitary Landfill
16-SDP-01-76C

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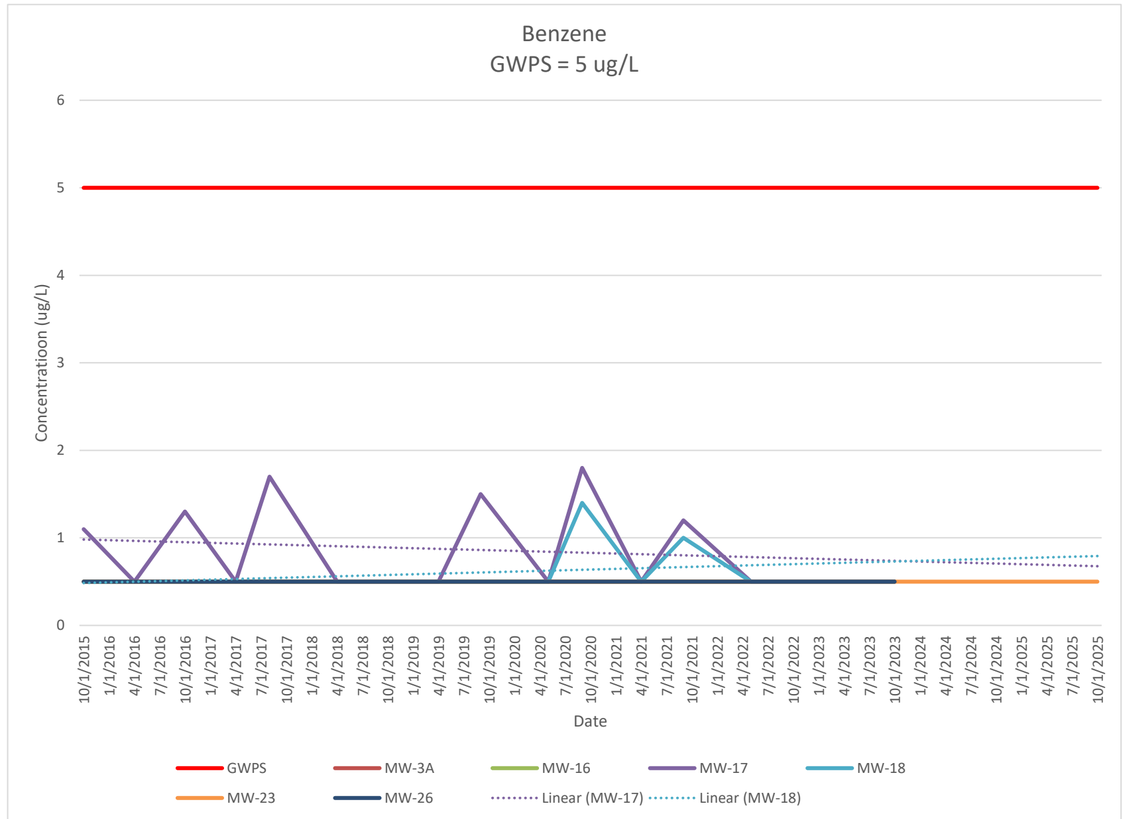
Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	benzene	5	0.5	0.5	**1.1**	0.5	0.5	0.5
4/13/2016	benzene	5	0.5	0.5	0.5	0.5	0.5	0.5
10/4/2016	benzene	5	0.5	0.5	**1.3**	0.5	0.5	0.5
4/3/2017	benzene	5	0.5	0.5	0.5	0.5	0.5	0.5
8/29/2017	benzene	5	0.5	0.5	**1.7**	0.5	0.5	0.5
4/17/2018	benzene	5	0.5	0.5	0.5	0.5	0.5	0.5
9/17/2018	benzene	5	0.5	0.5	0.5	0.5	0.5	0.5
4/9/2019	benzene	5	0.5	0.5	0.5	0.5	0.5	0.5
9/4/2019	benzene	5	0.5	0.5	**1.5**	0.5	0.5	0.5
5/11/2020	benzene	5	0.5	0.5	0.5	0.5	0.5	0.5
9/21/2020	benzene	5	0.5	0.5	**1.8**	**1.4**	0.5	0.5
4/22/2021	benzene	5	0.5	0.5	0.5	0.5	0.5	0.5
9/13/2021	benzene	5	0.5	0.5	**1.2**	**1**	0.5	0.5
5/18/2022	benzene	5	0.5	0.5	0.5	0.5	0.5	0.5
10/19/2023	benzene	5	0.5	0.5	0.5	0.5	0.5	0.5
5/29/2024	benzene	5					0.5	
4/3/2025	benzene	5					0.5	
10/3/2025	benzene	5					0.5	
Sample size = 8			8	8	8	8	8	8
Mean value			0.5	0.5	0.875	0.675	0.5	0.5
standard deviation			0	0	0.506828	0.319179	0	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			0	0	0.179191	0.112847	0	0
Margin of Error			0	0	0.339567	0.213844	0	0
95% UCL (mean + Margin of Error)			**0.5**	**0.5**	**1.214567**	**0.888844**	**0.5**	**0.5**
95% LCL (mean - Margin of Error)			**0.5**	**0.5**	**0.535433**	**0.461156**	**0.5**	**0.5**
GWPS (ug/L)			**5.0**	**5.0**	**5.0**	**5.0**	**5.0**	**5.0**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



Times Series Graphs
Cedar County Sanitary Landfill
16-SDP-01-76C

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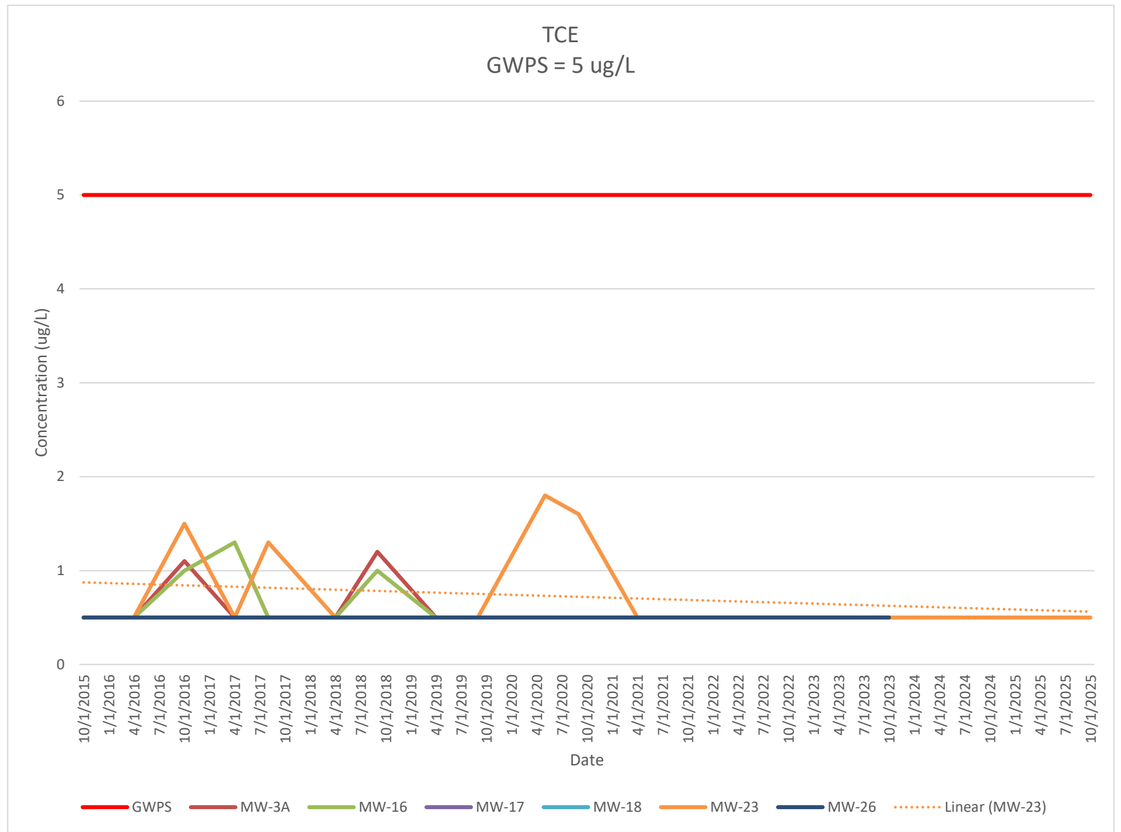
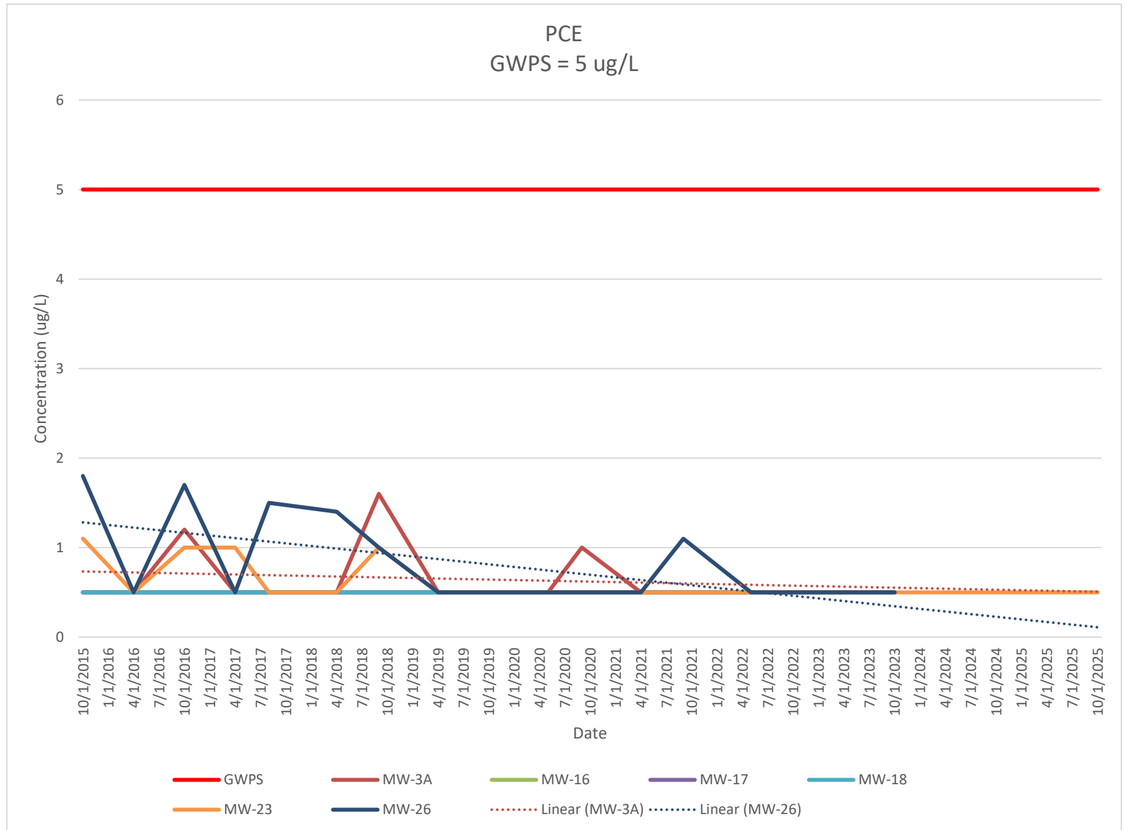
Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	TCE	5	0.5	0.5	0.5	0.5	0.5	0.5
4/13/2016	TCE	5	0.5	0.5	0.5	0.5	0.5	0.5
10/4/2016	TCE	5	**1.1**	**1**	0.5	0.5	**1.5**	0.5
4/3/2017	TCE	5	0.5	**1.3**	0.5	0.5	0.5	0.5
8/29/2017	TCE	5	0.5	0.5	0.5	0.5	**1.3**	0.5
4/17/2018	TCE	5	0.5	0.5	0.5	0.5	0.5	0.5
9/17/2018	TCE	5	**1.2**	**1**	0.5	0.5	0.5	0.5
4/9/2019	TCE	5	0.5	0.5	0.5	0.5	0.5	0.5
9/4/2019	TCE	5	0.5	0.5	0.5	0.5	0.5	0.5
5/11/2020	TCE	5	0.5	0.5	0.5	0.5	**1.8**	0.5
9/21/2020	TCE	5	0.5	0.5	0.5	0.5	**1.6**	0.5
4/22/2021	TCE	5	0.5	0.5	0.5	0.5	0.5	0.5
9/13/2021	TCE	5	0.5	0.5	0.5	0.5	0.5	0.5
5/18/2022	TCE	5	0.5	0.5	0.5	0.5	0.5	0.5
10/19/2023	TCE	5	0.5	0.5	0.5	0.5	0.5	0.5
5/29/2024	TCE	5					0.5	
4/3/2025	TCE	5					0.5	
10/3/2025	TCE	5					0.5	
Sample size = 8			8	8	8	8	8	8
Mean value			0.5	0.5	0.5	0.5	0.6375	0.5
standard deviation			0	0	0	0	0.363791	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			0	0	0	0	0.128619	0
Margin of Error			0	0	0	0	0.243734	0
95% UCL (mean + Margin of Error)			**0.5**	**0.5**	**0.5**	**0.5**	**0.881234**	**0.5**
95% LCL (mean - Margin of Error)			**0.5**	**0.5**	**0.5**	**0.5**	**0.393766**	**0.5**
GWPS (ug/L)			**5.0**	**5.0**	**5.0**	**5.0**	**5.0**	**5.0**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



Times Series Graphs
Cedar County Sanitary Landfill
16-SDP-01-76C

0.5 = Red text represent undetected values that are reported at one-half of the MRL

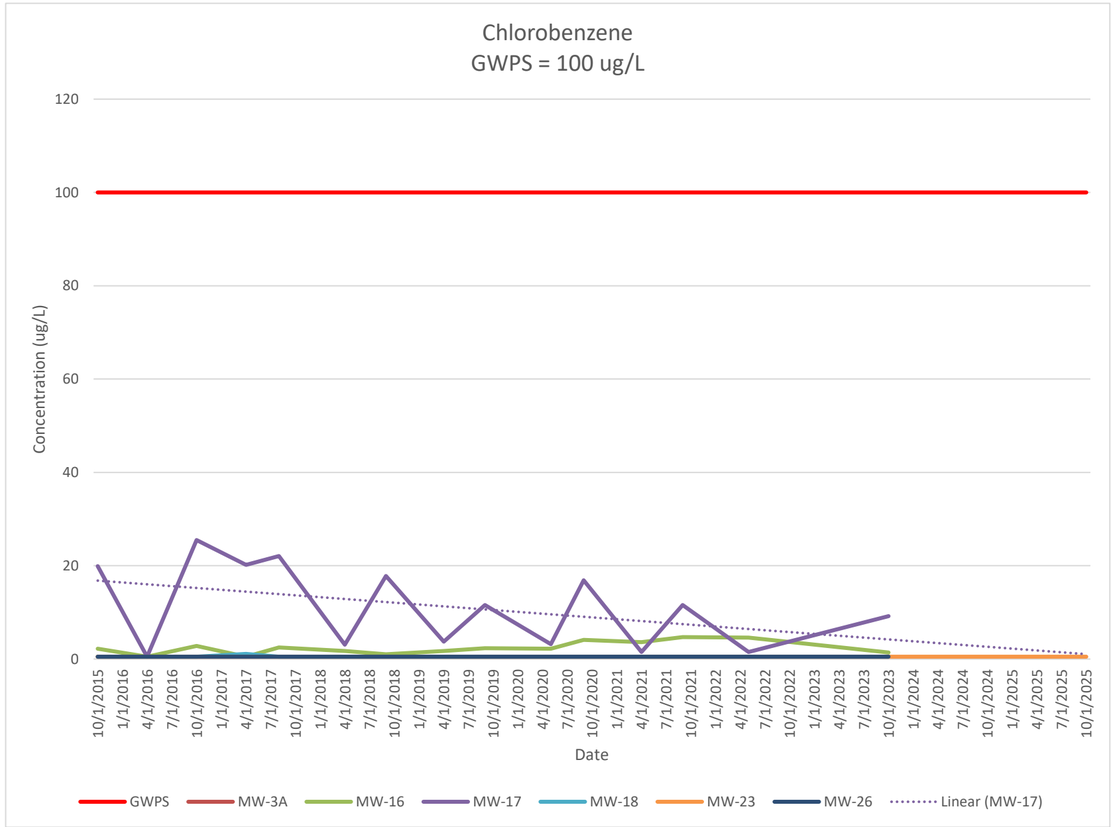
Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	PCE	5	0.5	0.5	0.5	0.5	**1.1**	**1.8**
4/13/2016	PCE	5	0.5	0.5	0.5	0.5	0.5	0.5
10/4/2016	PCE	5	**1.2**	0.5	0.5	0.5	**1**	**1.7**
4/3/2017	PCE	5	0.5	0.5	0.5	0.5	**1**	0.5
8/29/2017	PCE	5	0.5	0.5	0.5	0.5	0.5	**1.5**
4/17/2018	PCE	5	0.5	0.5	0.5	0.5	0.5	**1.4**
9/17/2018	PCE	5	**1.6**	0.5	0.5	0.5	**1**	**1**
4/9/2019	PCE	5	0.5	0.5	0.5	0.5	0.5	0.5
9/4/2019	PCE	5	0.5	0.5	0.5	0.5	0.5	0.5
5/11/2020	PCE	5	0.5	0.5	0.5	0.5	0.5	0.5
9/21/2020	PCE	5	**1**	0.5	0.5	0.5	0.5	0.5
4/22/2021	PCE	5	0.5	0.5	0.5	0.5	0.5	0.5
9/13/2021	PCE	5	0.5	0.5	0.5	0.5	0.5	**1.1**
5/18/2022	PCE	5	0.5	0.5	0.5	0.5	0.5	0.5
10/19/2023	PCE	5	0.5	0.5	0.5	0.5	0.5	0.5
5/29/2024	PCE	5					0.5	
4/3/2025	PCE	5					0.5	
10/3/2025	PCE	5					0.5	
Sample size = 8			8	8	8	8	8	8
Mean value			0.5625	0.5	0.5	0.5	0.5	0.575
standard deviation			0.165359	0	0	0	0	0.198431
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			0.058463	0	0	0	0	0.070156
Margin of Error			0.110788	0	0	0	0	0.132946
95% UCL (mean + Margin of Error)			**0.673288**	**0.5**	**0.5**	**0.5**	**0.5**	**0.707946**
95% LCL (mean - Margin of Error)			**0.451712**	**0.5**	**0.5**	**0.5**	**0.5**	**0.442054**
GWPS (ug/L)			**5.0**	**5.0**	**5.0**	**5.0**	**5.0**	**5.0**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



Times Series Graphs
Cedar County Sanitary Landfill
16-SDP-01-76C

0.5 = Red text represent undetected values that are reported at one-half of the MRL

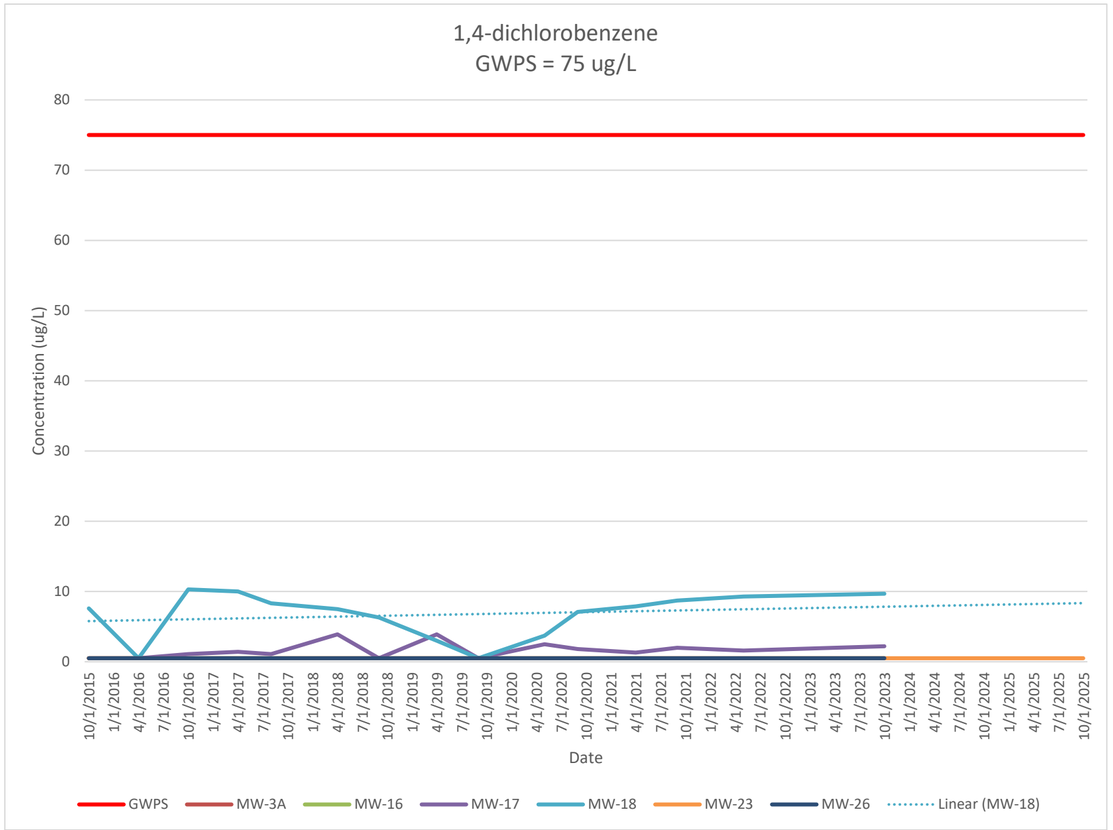
Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	chlorobenzene	100	0.5	**2.2**	**19.9**	0.5	0.5	0.5
4/13/2016	chlorobenzene	100	0.5	0.5	0.5	0.5	0.5	0.5
10/4/2016	chlorobenzene	100	0.5	**2.8**	**25.5**	0.5	0.5	0.5
4/3/2017	chlorobenzene	100	0.5	0.5	**20.2**	**1.1**	0.5	0.5
8/29/2017	chlorobenzene	100	0.5	**2.5**	**22.1**	0.5	0.5	0.5
4/17/2018	chlorobenzene	100	0.5	**1.7**	**3.1**	0.5	0.5	0.5
9/17/2018	chlorobenzene	100	0.5	**1**	**17.8**	0.5	0.5	0.5
4/9/2019	chlorobenzene	100	0.5	**1.7**	**3.7**	0.5	0.5	0.5
9/4/2019	chlorobenzene	100	0.5	**2.3**	**11.6**	0.5	0.5	0.5
5/11/2020	chlorobenzene	100	0.5	**2.2**	**3.2**	0.5	0.5	0.5
9/21/2020	chlorobenzene	100	0.5	**4.1**	**16.9**	0.5	0.5	0.5
4/22/2021	chlorobenzene	100	0.5	**3.6**	**1.5**	0.5	0.5	0.5
9/13/2021	chlorobenzene	100	0.5	**4.7**	**11.6**	0.5	0.5	0.5
5/18/2022	chlorobenzene	100	0.5	**4.6**	**1.5**	0.5	0.5	0.5
10/19/2023	chlorobenzene	100	0.5	**1.4**	**9.2**	0.5	0.5	0.5
5/29/2024	chlorobenzene	100					0.5	
4/3/2025	chlorobenzene	100					0.5	
10/3/2025	chlorobenzene	100					0.5	
Sample size = 8			8	8	8	8	8	8
Mean value			0.5	3.075	7.4	0.5	0.5	0.5
standard deviation			0	1.242729	5.358638	0	0	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			0	0.439371	1.894565	0	0	0
Margin of Error			0	0.832608	3.5902	0	0	0
95% UCL (mean + Margin of Error)			**0.5**	**3.907608**	**10.9902**	**0.5**	**0.5**	**0.5**
95% LCL (mean - Margin of Error)			**0.5**	**2.242392**	**3.8098**	**0.5**	**0.5**	**0.5**
GWPS (ug/L)			**100**	**100**	**100**	**100**	**100**	**100**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



Times Series Graphs
Cedar County Sanitary Landfill
16-SDP-01-76C

0.5 = Red text represent undetected values that are reported at one-half of the MRL

Date	Compound (ug/L)	GWPS	MW-3A	MW-16	MW-17	MW-18	MW-23	MW-26
10/5/2015	1,4-Dichlorobenzene	75	0.5	0.5	0.5	**7.6**	0.5	0.5
4/13/2016	1,4-Dichlorobenzene	75	0.5	0.5	0.5	0.5	0.5	0.5
10/4/2016	1,4-Dichlorobenzene	75	0.5	0.5	**1.1**	**10.3**	0.5	0.5
4/3/2017	1,4-Dichlorobenzene	75	0.5	0.5	**1.4**	**10**	0.5	0.5
8/29/2017	1,4-Dichlorobenzene	75	0.5	0.5	**1.1**	**8.3**	0.5	0.5
4/17/2018	1,4-Dichlorobenzene	75	0.5	0.5	**3.9**	**7.5**	0.5	0.5
9/17/2018	1,4-Dichlorobenzene	75	0.5	0.5	0.5	**6.3**	0.5	0.5
4/9/2019	1,4-Dichlorobenzene	75	0.5	0.5	**3.9**	**3**	0.5	0.5
9/4/2019	1,4-Dichlorobenzene	75	0.5	0.5	0.5	0.5	0.5	0.5
5/11/2020	1,4-Dichlorobenzene	75	0.5	0.5	**2.5**	**3.7**	0.5	0.5
9/21/2020	1,4-Dichlorobenzene	75	0.5	0.5	**1.8**	**7.1**	0.5	0.5
4/22/2021	1,4-Dichlorobenzene	75	0.5	0.5	**1.3**	**7.9**	0.5	0.5
9/13/2021	1,4-Dichlorobenzene	75	0.5	0.5	**2**	**8.7**	0.5	0.5
5/18/2022	1,4-Dichlorobenzene	75	0.5	0.5	**1.6**	**9.3**	0.5	0.5
10/19/2023	1,4-Dichlorobenzene	75	0.5	0.5	**2.2**	**9.7**	0.5	0.5
5/29/2024	1,4-Dichlorobenzene	75					0.5	
4/3/2025	1,4-Dichlorobenzene	75					0.5	
10/3/2025	1,4-Dichlorobenzene	75					0.5	
Sample size = 8			8	8	8	8	8	8
Mean value			0.5	0.5	1.975	6.2375	0.5	0.5
standard deviation			0	0	0.924324	3.177632	0	0
95% Confidence Z(0.95)			1.895	1.895	1.895	1.895	1.895	1.895
Standard Error (ST Dev/√8)			0	0	0.326798	1.123462	0	0
Margin of Error			0	0	0.619282	2.128961	0	0
95% UCL (mean + Margin of Error)			**0.5**	**0.5**	**2.594282**	**8.366461**	**0.5**	**0.5**
95% LCL (mean - Margin of Error)			**0.5**	**0.5**	**1.355718**	**4.108539**	**0.5**	**0.5**
GWPS (ug/L)			**75**	**75**	**75**	**75**	**75**	**75**
Does 95% LCL Value exceed GWPS?	If so, then SSL		**No**	**No**	**No**	**No**	**No**	**No**



CEDAR COUNTY SANITARY LANDFILL
PERMIT # 16-SDP-1-76C

Date: April 3, 2025 Sampled by: Todd Whipple Weather: Partly Cloudy, Slight Breeze, 42 F

Well # Ground Water

	TOC	Depth	2" dia.	Time	Depth	Elevation	Gallons	# of Vol.	Dry?	NTU
MW-3A (dg)	794.12	37.00	Static gw level		12.83	781.29				
	Capped	YES	After Pumping				Bailer for metals			
	Standing Water	NO					Dedicated Waterra Inertia pumped			
	Litter	NO	Comments: -- Gas 0%							

	TOC	Depth	2" dia.	Time	Depth	Elevation	Gallons	# of Vol.	Dry?	NTU
MW-16 (dg)	813.35	30.81	Static gw level		23.95	789.40				
	Capped	NO	After Pumping				Bailer for metals			
	Standing Water	NO					Dedicated Waterra Inertia pumped			
	Litter	NO	Comments: -- Gas 0%							

	TOC	Depth	2" dia.	Time	Depth	Elevation	Gallons	# of Vol.	Dry?	NTU
MW-17 (dg)	818.11	29.91	Static gw level		20.45	797.66				
	Capped	YES	After Pumping				Bailer for metals			
	Standing Water	NO					Dedicated Waterra Inertia pumped			
	Litter	NO	Comments: -- Gas 0%							

	TOC	Depth	2" dia.	Time	Depth	Elevation	Gallons	# of Vol.	Dry?	NTU
MW-18 (dg)	822.50	30.41	Static gw level		24.82	797.68				
	Capped	YES	After Pumping				Bailer for metals			
	Standing Water	NO					Dedicated Waterra Inertia pumped			
	Litter	NO	Comments: -- Gas 0%							

	TOC	Depth	2" dia.	Time	Depth	Elevation	Gallons	# of Vol.	Dry?	NTU
MW-23 (dg)	826.94	37.45	Static gw level	7:42	33.43	793.51			No	2.01
	Capped	YES	After Pumping				Bailer for metals			
	Standing Water	NO					Dedicated Waterra Inertia pumped			
	Litter	NO	Comments: Dead ants, 0% gas							

	TOC	Depth	2" dia.	Time	Depth	Elevation	Gallons	# of Vol.	Dry?	NTU
MW-26 (dg)	814.57	30.45	Static gw level		10.90	803.67				
	Capped	YES	After Pumping				Bailer for metals			
	Standing Water	NO					Dedicated Waterra Inertia pumped			
	Litter	NO	Comments: -- Gas 0%							

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1ID0773

Project Description

Appendix Sampling

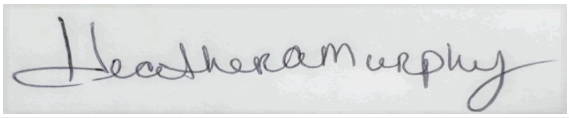
For:

Todd Whipple

HLW Engineering

204 West Broad St

Story City, IA 50248



Heather Murphy

Customer Relationship Specialist

Thursday, April 10, 2025

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Newton. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

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Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1ID0773

HLW Engineering

Todd Whipple
204 West Broad St
Story City, IA 50248

Project Name: Appendix Sampling

Project / PO Number: N/A
Received: 04/04/2025
Reported: 04/10/2025

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
MW-23	1ID0773-01	Aqueous	GRAB		04/03/25 07:42	04/04/25 10:33

Analytical Testing Parameters

Client Sample ID:	MW-23		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1ID0773-01	**Collection Date:**	04/03/2025 7:42

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 8260D								
Chloromethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Vinyl Chloride	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Bromomethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Chloroethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Trichlorofluoromethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,1-Dichloroethylene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Acetone	<10.0	10.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Methyl Iodide	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Carbon Disulfide	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Methylene Chloride	<5.0	5.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Acrylonitrile	<5.0	5.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,1-Dichloroethane	**10.0**	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Vinyl Acetate	<5.0	5.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
cis-1,2-Dichloroethylene	**15.7**	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
2-Butanone (MEK)	<10.0	10.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Bromochloromethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Chloroform	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,1,1-Trichloroethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Carbon Tetrachloride	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Benzene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,2-Dichloroethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Trichloroethylene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,2-Dichloropropane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Dibromomethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Bromodichloromethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
cis-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Toluene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
trans-1,3-Dichloropropene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,1,2-Trichloroethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Tetrachloroethylene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
2-Hexanone (MBK)	<5.0	5.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Dibromochloromethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,2-Dibromoethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Chlorobenzene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Ethylbenzene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Xylenes, total	<2.0	2.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Styrene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM

Client Sample ID:	MW-23		
Sample Matrix:	Aqueous	**Collected By:**	Whipple, Todd
Lab Sample ID:	1ID0773-01	**Collection Date:**	04/03/2025 7:42

Determination of Volatile Organic Compounds	Result	RL	Units	DF	Note	Prepared	Analyzed	Analyst
Bromoform	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,2,3-Trichloropropane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,4-Dichlorobenzene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,2-Dichlorobenzene	<1.0	1.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L	1		04/07/25 0000	04/07/25 1611	CSM
Surrogate: Dibromofluoromethane	86.5	Limit: 57-134	% Rec	1		04/07/25 0000	04/07/25 1611	CSM
Surrogate: Dibromofluoromethane	86.5	Limit: 75-136	% Rec	1		04/07/25 0000	04/07/25 1611	CSM
Surrogate: 1,2-Dichloroethane-d4	78.3	Limit: 61-142	% Rec	1		04/07/25 0000	04/07/25 1611	CSM
Surrogate: 1,2-Dichloroethane-d4	78.3	Limit: 53-140	% Rec	1		04/07/25 0000	04/07/25 1611	CSM
Surrogate: Toluene-d8	109	Limit: 86-114	% Rec	1		04/07/25 0000	04/07/25 1611	CSM
Surrogate: Toluene-d8	109	Limit: 82-121	% Rec	1		04/07/25 0000	04/07/25 1611	CSM
Surrogate: 4-Bromofluorobenzene	90.7	Limit: 80-116	% Rec	1		04/07/25 0000	04/07/25 1611	CSM
Surrogate: 4-Bromofluorobenzene	90.7	Limit: 78-121	% Rec	1		04/07/25 0000	04/07/25 1611	CSM

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
EPA 8260D	1ID0340	1ID0340-BS1	
		1ID0340-BSD1	
		1ID0340-BLK1	
		1ID0773-01	MW-23
		1ID0340-MS1	1ID0773-01
		1ID0340-MSD1	1ID0773-01

Batch Quality Control Summary: Microbac Laboratories, Inc., Newton

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1ID0340 - EPA 5030B - EPA 8260D										
Blank (1ID0340-BLK1)	Prepared: 04/07/25 00:00 Analyzed: 04/07/25 15:48									
Chloromethane	<1.0	1.0	ug/L							
Vinyl Chloride	<1.0	1.0	ug/L							
Bromomethane	<1.0	1.0	ug/L							
Chloroethane	<1.0	1.0	ug/L							
Trichlorofluoromethane	<1.0	1.0	ug/L							
1,1-Dichloroethylene	<1.0	1.0	ug/L							
Acetone	<10.0	10.0	ug/L							
Methyl Iodide	<1.0	1.0	ug/L							
Carbon Disulfide	<1.0	1.0	ug/L							
Methylene Chloride	<5.0	5.0	ug/L							
Acrylonitrile	<5.0	5.0	ug/L							
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L							
1,1-Dichloroethane	<1.0	1.0	ug/L							
Vinyl Acetate	<5.0	5.0	ug/L							
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L							
2-Butanone (MEK)	<10.0	10.0	ug/L							
Bromochloromethane	<1.0	1.0	ug/L							
Chloroform	<1.0	1.0	ug/L							
1,1,1-Trichloroethane	<1.0	1.0	ug/L							
Carbon Tetrachloride	<1.0	1.0	ug/L							
Benzene	<1.0	1.0	ug/L							
1,2-Dichloroethane	<1.0	1.0	ug/L							
Trichloroethylene	<1.0	1.0	ug/L							
1,2-Dichloropropane	<1.0	1.0	ug/L							
Dibromomethane	<1.0	1.0	ug/L							
Bromodichloromethane	<1.0	1.0	ug/L							
cis-1,3-Dichloropropene	<1.0	1.0	ug/L							
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L							
Toluene	<1.0	1.0	ug/L							
trans-1,3-Dichloropropene	<1.0	1.0	ug/L							

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1ID0340 - EPA 5030B - EPA 8260D										
Blank (1ID0340-BLK1)			Prepared: 04/07/25 00:00 Analyzed: 04/07/25 15:48							
1,1,2-Trichloroethane	<1.0	1.0	ug/L							
Tetrachloroethylene	<1.0	1.0	ug/L							
2-Hexanone (MBK)	<5.0	5.0	ug/L							
Dibromochloromethane	<1.0	1.0	ug/L							
1,2-Dibromoethane	<1.0	1.0	ug/L							
Chlorobenzene	<1.0	1.0	ug/L							
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L							
Ethylbenzene	<1.0	1.0	ug/L							
Xylenes, total	<2.0	2.0	ug/L							
Styrene	<1.0	1.0	ug/L							
Bromoform	<1.0	1.0	ug/L							
1,2,3-Trichloropropane	<1.0	1.0	ug/L							
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L							
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L							
1,4-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L							
Surrogate: Dibromofluoromethane	*40.6*		ug/L	*50.2*		*80.9*	*57-134*			
Surrogate: Dibromofluoromethane	*40.6*		ug/L	*50.2*		*80.9*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*39.4*		ug/L	*50.1*		*78.7*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*39.4*		ug/L	*50.1*		*78.7*	*61-142*			
Surrogate: Toluene-d8	*53.2*		ug/L	*50.4*		*106*	*86-114*			
Surrogate: Toluene-d8	*53.2*		ug/L	*50.4*		*106*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*45.5*		ug/L	*50.1*		*90.7*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*45.5*		ug/L	*50.1*		*90.7*	*80-116*			
LCS (1ID0340-BS1)			Prepared: 04/07/25 00:00 Analyzed: 04/07/25 14:41							
Chloromethane	29.73	1.0	ug/L	30.3		98.1	63-155			
Vinyl Chloride	30.96	1.0	ug/L	30.2		102	70-154			
Bromomethane	29.38	1.0	ug/L	30.1		97.5	52-176			
Chloroethane	30.81	1.0	ug/L	30.3		102	72-148			
Trichlorofluoromethane	31.55	1.0	ug/L	30.3		104	70-152			
1,1-Dichloroethylene	59.01	1.0	ug/L	50.1		118	70-148			
Acetone	106.3	10.0	ug/L	100		106	43-172			
Methyl Iodide	102.2	1.0	ug/L	100		102	69-170			
Carbon Disulfide	111.5	1.0	ug/L	100		112	72-162			
Methylene Chloride	47.26	5.0	ug/L	50.1		94.3	68-142			
Acrylonitrile	43.38	5.0	ug/L	50.2		86.4	56-135			
trans-1,2-Dichloroethylene	56.44	1.0	ug/L	50.1		113	66-148			
1,1-Dichloroethane	54.12	1.0	ug/L	50.1		108	66-143			
Vinyl Acetate	142.2	5.0	ug/L	140		102	43-153			
cis-1,2-Dichloroethylene	51.81	1.0	ug/L	50.4		103	71-149			
2-Butanone (MEK)	88.82	10.0	ug/L	100		88.8	52-159			
Bromochloromethane	51.01	1.0	ug/L	50.4		101	69-143			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1ID0340 - EPA 5030B - EPA 8260D										
LCS (1ID0340-BS1)				Prepared: 04/07/25 00:00 Analyzed: 04/07/25 14:41						
Chloroform	51.63	1.0	ug/L	50.1		103	69-144			
1,1,1-Trichloroethane	56.41	1.0	ug/L	50.1		113	62-129			
Carbon Tetrachloride	55.78	1.0	ug/L	50.1		111	63-141			
Benzene	48.86	1.0	ug/L	50.4		96.9	71-134			
1,2-Dichloroethane	49.23	1.0	ug/L	50.1		98.3	72-132			
Trichloroethylene	51.59	1.0	ug/L	50.1		103	71-135			
1,2-Dichloropropane	48.67	1.0	ug/L	50.1		97.2	69-136			
Dibromomethane	48.52	1.0	ug/L	50.4		96.3	73-147			
Bromodichloromethane	50.13	1.0	ug/L	50.1		100	68-129			
cis-1,3-Dichloropropene	47.35	1.0	ug/L	50.1		94.5	65-134			
4-Methyl-2-pentanone (MIBK)	90.02	5.0	ug/L	100		90.0	58-147			
Toluene	53.95	1.0	ug/L	50.5		107	72-133			
trans-1,3-Dichloropropene	46.04	1.0	ug/L	50.1		91.9	67-130			
1,1,2-Trichloroethane	42.31	1.0	ug/L	50.1		84.5	69-135			
Tetrachloroethylene	53.76	1.0	ug/L	50.1		107	69-130			
2-Hexanone (MBK)	95.65	5.0	ug/L	100		95.6	55-144			
Dibromochloromethane	48.23	1.0	ug/L	50.1		96.3	73-127			
1,2-Dibromoethane	48.95	1.0	ug/L	50.2		97.5	67-132			
Chlorobenzene	48.76	1.0	ug/L	50.1		97.4	72-123			
1,1,1,2-Tetrachloroethane	45.88	1.0	ug/L	50.3		91.1	73-127			
Ethylbenzene	54.95	1.0	ug/L	50.2		110	71-127			
Xylenes, total	161.1	2.0	ug/L	151		107	74-127			
Styrene	52.18	1.0	ug/L	50.4		104	66-126			
Bromoform	45.61	1.0	ug/L	50.1		91.0	68-130			
1,2,3-Trichloropropane	39.52	1.0	ug/L	50.3		78.5	63-136			
trans-1,4-Dichloro-2-butene	84.43	5.0	ug/L	100		84.4	54-134			
1,1,2,2-Tetrachloroethane	45.44	1.0	ug/L	50.1		90.7	61-131			
1,4-Dichlorobenzene	45.44	1.0	ug/L	50.1		90.7	70-129			
1,2-Dichlorobenzene	41.30	1.0	ug/L	50.1		82.4	69-126			
1,2-Dibromo-3-chloropropane	27.55	5.0	ug/L	50.1		55.0	50-143			
Surrogate: Dibromofluoromethane	*49.4*		ug/L	*50.2*		*98.5*	*57-134*			
Surrogate: Dibromofluoromethane	*49.4*		ug/L	*50.2*		*98.5*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*47.1*		ug/L	*50.1*		*94.0*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*47.1*		ug/L	*50.1*		*94.0*	*61-142*			
Surrogate: Toluene-d8	*50.7*		ug/L	*50.4*		*101*	*86-114*			
Surrogate: Toluene-d8	*50.7*		ug/L	*50.4*		*101*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*47.5*		ug/L	*50.1*		*94.6*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*47.5*		ug/L	*50.1*		*94.6*	*80-116*			
LCS Dup (1ID0340-BSD1)				Prepared: 04/07/25 00:00 Analyzed: 04/07/25 15:04						
Chloromethane	31.38	1.0	ug/L	30.3		103	63-155	5.40	24	
Vinyl Chloride	31.18	1.0	ug/L	30.2		103	70-154	0.708	25	
Bromomethane	31.05	1.0	ug/L	30.1		103	52-176	5.53	27	
Chloroethane	31.95	1.0	ug/L	30.3		105	72-148	3.63	25	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1ID0340 - EPA 5030B - EPA 8260D										
LCS Dup (1ID0340-BSD1)			Prepared: 04/07/25 00:00 Analyzed: 04/07/25 15:04							
Trichlorofluoromethane	32.04	1.0	ug/L	30.3		106	70-152	1.54	26	
1,1-Dichloroethylene	59.88	1.0	ug/L	50.1		119	70-148	1.46	24	
Acetone	125.3	10.0	ug/L	100		125	43-172	16.4	30	
Methyl Iodide	110.0	1.0	ug/L	100		110	69-170	7.40	30	
Carbon Disulfide	111.6	1.0	ug/L	100		112	72-162	0.0359	24	
Methylene Chloride	54.41	5.0	ug/L	50.1		109	68-142	14.1	21	
Acrylonitrile	56.84	5.0	ug/L	50.2		113	56-135	26.9	16	R1
trans-1,2-Dichloroethylene	58.69	1.0	ug/L	50.1		117	66-148	3.91	27	
1,1-Dichloroethane	58.07	1.0	ug/L	50.1		116	66-143	7.04	24	
Vinyl Acetate	181.0	5.0	ug/L	140		129	43-153	24.0	30	
cis-1,2-Dichloroethylene	57.20	1.0	ug/L	50.4		114	71-149	9.89	26	
2-Butanone (MEK)	111.0	10.0	ug/L	100		111	52-159	22.2	27	
Bromochloromethane	58.74	1.0	ug/L	50.4		117	69-143	14.1	23	
Chloroform	57.16	1.0	ug/L	50.1		114	69-144	10.2	23	
1,1,1-Trichloroethane	58.67	1.0	ug/L	50.1		117	62-129	3.93	24	
Carbon Tetrachloride	56.49	1.0	ug/L	50.1		113	63-141	1.26	25	
Benzene	51.77	1.0	ug/L	50.4		103	71-134	5.78	24	
1,2-Dichloroethane	56.81	1.0	ug/L	50.1		113	72-132	14.3	24	
Trichloroethylene	53.33	1.0	ug/L	50.1		106	71-135	3.32	24	
1,2-Dichloropropane	54.36	1.0	ug/L	50.1		109	69-136	11.0	24	
Dibromomethane	57.19	1.0	ug/L	50.4		114	73-147	16.4	25	
Bromodichloromethane	58.16	1.0	ug/L	50.1		116	68-129	14.8	22	
cis-1,3-Dichloropropene	55.51	1.0	ug/L	50.1		111	65-134	15.9	23	
4-Methyl-2-pentanone (MIBK)	122.0	5.0	ug/L	100		122	58-147	30.1	27	R1
Toluene	57.23	1.0	ug/L	50.5		113	72-133	5.90	24	
trans-1,3-Dichloropropene	56.71	1.0	ug/L	50.1		113	67-130	20.8	24	
1,1,2-Trichloroethane	52.88	1.0	ug/L	50.1		106	69-135	22.2	23	
Tetrachloroethylene	51.99	1.0	ug/L	50.1		104	69-130	3.35	25	
2-Hexanone (MBK)	122.1	5.0	ug/L	100		122	55-144	24.3	25	
Dibromochloromethane	56.46	1.0	ug/L	50.1		113	73-127	15.7	22	
1,2-Dibromoethane	55.68	1.0	ug/L	50.2		111	67-132	12.9	24	
Chlorobenzene	53.17	1.0	ug/L	50.1		106	72-123	8.65	23	
1,1,1,2-Tetrachloroethane	51.04	1.0	ug/L	50.3		101	73-127	10.6	24	
Ethylbenzene	55.55	1.0	ug/L	50.2		111	71-127	1.09	26	
Xylenes, total	166.5	2.0	ug/L	151		110	74-127	3.27	25	
Styrene	57.45	1.0	ug/L	50.4		114	66-126	9.61	23	
Bromoform	55.63	1.0	ug/L	50.1		111	68-130	19.8	23	
1,2,3-Trichloropropane	53.01	1.0	ug/L	50.3		105	63-136	29.2	24	R1
trans-1,4-Dichloro-2-butene	114.0	5.0	ug/L	100		114	54-134	29.8	27	R1
1,1,2,2-Tetrachloroethane	57.53	1.0	ug/L	50.1		115	61-131	23.5	29	
1,4-Dichlorobenzene	51.16	1.0	ug/L	50.1		102	70-129	11.8	24	
1,2-Dichlorobenzene	51.49	1.0	ug/L	50.1		103	69-126	22.0	26	
1,2-Dibromo-3-chloropropane	44.69	5.0	ug/L	50.1		89.2	50-143	47.5	30	R1

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1ID0340 - EPA 5030B - EPA 8260D										
LCS Dup (1ID0340-BSD1)				Prepared: 04/07/25 00:00 Analyzed: 04/07/25 15:04						
Surrogate: Dibromofluoromethane	*53.7*		ug/L	*50.2*		*107*	*57-134*			
Surrogate: Dibromofluoromethane	*53.7*		ug/L	*50.2*		*107*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*52.9*		ug/L	*50.1*		*106*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*52.9*		ug/L	*50.1*		*106*	*61-142*			
Surrogate: Toluene-d8	*50.8*		ug/L	*50.4*		*101*	*86-114*			
Surrogate: Toluene-d8	*50.8*		ug/L	*50.4*		*101*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*49.3*		ug/L	*50.1*		*98.4*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*49.3*		ug/L	*50.1*		*98.4*	*80-116*			
Matrix Spike (1ID0340-MS1)	**Source: 1ID0773-01**			Prepared: 04/07/25 00:00 Analyzed: 04/07/25 20:17						
Chloromethane	318.6	10.0	ug/L	303	ND	105	61-152			
Vinyl Chloride	330.7	10.0	ug/L	302	ND	109	66-149			
Bromomethane	309.4	10.0	ug/L	301	ND	103	43-171			
Chloroethane	329.7	10.0	ug/L	303	ND	109	69-148			
Trichlorofluoromethane	341.5	10.0	ug/L	303	ND	113	62-163			
1,1-Dichloroethylene	625.0	10.0	ug/L	501	ND	125	70-148			
Acetone	1193	100	ug/L	1000	ND	119	45-173			
Methyl Iodide	1079	10.0	ug/L	1000	ND	108	62-167			
Carbon Disulfide	1152	10.0	ug/L	1000	ND	115	71-163			
Methylene Chloride	527.4	50.0	ug/L	501	ND	105	69-140			
Acrylonitrile	517.0	50.0	ug/L	502	ND	103	38-147			
trans-1,2-Dichloroethylene	600.5	10.0	ug/L	501	ND	120	69-144			
1,1-Dichloroethane	594.2	10.0	ug/L	501	10.03	117	70-138			
Vinyl Acetate	1662	50.0	ug/L	1400	ND	119	58-142			
cis-1,2-Dichloroethylene	571.9	10.0	ug/L	504	15.74	110	68-151			
2-Butanone (MEK)	1089	100	ug/L	1000	ND	109	50-160			
Bromochloromethane	565.6	10.0	ug/L	504	ND	112	65-143			
Chloroform	567.2	10.0	ug/L	501	ND	113	71-143			
1,1,1-Trichloroethane	606.9	10.0	ug/L	501	ND	121	63-133			
Carbon Tetrachloride	602.8	10.0	ug/L	501	ND	120	63-142			
Benzene	510.3	10.0	ug/L	504	ND	101	69-133			
1,2-Dichloroethane	540.5	10.0	ug/L	501	ND	108	63-138			
Trichloroethylene	530.1	10.0	ug/L	501	ND	106	71-133			
1,2-Dichloropropane	519.8	10.0	ug/L	501	ND	104	69-132			
Dibromomethane	535.8	10.0	ug/L	504	ND	106	70-147			
Bromodichloromethane	558.9	10.0	ug/L	501	ND	112	67-130			
cis-1,3-Dichloropropene	515.6	10.0	ug/L	501	ND	103	61-126			
4-Methyl-2-pentanone (MIBK)	1130	50.0	ug/L	1000	ND	113	55-147			
Toluene	566.2	10.0	ug/L	505	ND	112	71-133			
trans-1,3-Dichloropropene	496.7	10.0	ug/L	501	ND	99.2	63-124			
1,1,2-Trichloroethane	495.5	10.0	ug/L	501	ND	98.9	69-133			
Tetrachloroethylene	525.3	10.0	ug/L	501	ND	105	70-124			
2-Hexanone (MBK)	1134	50.0	ug/L	1000	ND	113	53-141			
Dibromochloromethane	522.8	10.0	ug/L	501	ND	104	74-122			

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1ID0340 - EPA 5030B - EPA 8260D										
Matrix Spike (1ID0340-MS1)	**Source: 1ID0773-01**		Prepared: 04/07/25 00:00 Analyzed: 04/07/25 20:17							
1,2-Dibromoethane	518.9	10.0	ug/L	502	ND	103	66-127			
Chlorobenzene	503.2	10.0	ug/L	501	ND	100	76-116			
1,1,1,2-Tetrachloroethane	499.1	10.0	ug/L	503	ND	99.1	77-121			
Ethylbenzene	553.5	10.0	ug/L	502	ND	110	73-124			
Xylenes, total	1636	20.0	ug/L	1510	ND	108	75-123			
Styrene	553.1	10.0	ug/L	504	ND	110	70-120			
Bromoform	504.0	10.0	ug/L	501	ND	101	70-124			
1,2,3-Trichloropropane	448.4	10.0	ug/L	503	ND	89.1	62-135			
trans-1,4-Dichloro-2-butene	1015	50.0	ug/L	1000	ND	102	50-120			
1,1,2,2-Tetrachloroethane	555.1	10.0	ug/L	501	ND	111	63-126			
1,4-Dichlorobenzene	520.9	10.0	ug/L	501	ND	104	72-119			
1,2-Dichlorobenzene	517.3	10.0	ug/L	501	ND	103	71-117			
1,2-Dibromo-3-chloropropane	465.5	50.0	ug/L	501	ND	92.9	49-134			
Surrogate: Dibromofluoromethane	*545*		ug/L	*502*		*109*	*57-134*			
Surrogate: Dibromofluoromethane	*545*		ug/L	*502*		*109*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*550*		ug/L	*501*		*110*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*550*		ug/L	*501*		*110*	*61-142*			
Surrogate: Toluene-d8	*513*		ug/L	*504*		*102*	*86-114*			
Surrogate: Toluene-d8	*513*		ug/L	*504*		*102*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*483*		ug/L	*501*		*96.3*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*483*		ug/L	*501*		*96.3*	*80-116*			
Matrix Spike Dup (1ID0340-MSD1)	**Source: 1ID0773-01**		Prepared: 04/07/25 00:00 Analyzed: 04/07/25 20:39							
Chloromethane	313.2	10.0	ug/L	303	ND	103	61-152	1.71	26	
Vinyl Chloride	317.9	10.0	ug/L	302	ND	105	66-149	3.95	23	
Bromomethane	304.0	10.0	ug/L	301	ND	101	43-171	1.76	29	
Chloroethane	318.2	10.0	ug/L	303	ND	105	69-148	3.55	25	
Trichlorofluoromethane	318.0	10.0	ug/L	303	ND	105	62-163	7.13	25	
1,1-Dichloroethylene	592.4	10.0	ug/L	501	ND	118	70-148	5.36	22	
Acetone	1166	100	ug/L	1000	ND	117	45-173	2.35	30	
Methyl Iodide	1060	10.0	ug/L	1000	ND	106	62-167	1.80	24	
Carbon Disulfide	1093	10.0	ug/L	1000	ND	109	71-163	5.29	22	
Methylene Chloride	506.1	50.0	ug/L	501	ND	101	69-140	4.12	19	
Acrylonitrile	526.8	50.0	ug/L	502	ND	105	38-147	1.88	30	
trans-1,2-Dichloroethylene	576.5	10.0	ug/L	501	ND	115	69-144	4.08	22	
1,1-Dichloroethane	564.0	10.0	ug/L	501	10.03	111	70-138	5.21	20	
Vinyl Acetate	1703	50.0	ug/L	1400	ND	122	58-142	2.43	24	
cis-1,2-Dichloroethylene	561.7	10.0	ug/L	504	15.74	108	68-151	1.80	22	
2-Butanone (MEK)	1139	100	ug/L	1000	ND	114	50-160	4.51	23	
Bromochloromethane	556.1	10.0	ug/L	504	ND	110	65-143	1.69	22	
Chloroform	554.5	10.0	ug/L	501	ND	111	71-143	2.26	21	
1,1,1-Trichloroethane	584.1	10.0	ug/L	501	ND	117	63-133	3.83	23	
Carbon Tetrachloride	576.2	10.0	ug/L	501	ND	115	63-142	4.51	22	
Benzene	505.2	10.0	ug/L	504	ND	100	69-133	1.00	18	

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1ID0340 - EPA 5030B - EPA 8260D										
Matrix Spike Dup (1ID0340-MSD1)	**Source: 1ID0773-01**	Prepared: 04/07/25 00:00 Analyzed: 04/07/25 20:39								
1,2-Dichloroethane	532.9	10.0	ug/L	501	ND	106	63-138	1.42	20	
Trichloroethylene	514.8	10.0	ug/L	501	ND	103	71-133	2.93	23	
1,2-Dichloropropane	518.5	10.0	ug/L	501	ND	104	69-132	0.250	20	
Dibromomethane	531.8	10.0	ug/L	504	ND	106	70-147	0.749	22	
Bromodichloromethane	546.0	10.0	ug/L	501	ND	109	67-130	2.34	21	
cis-1,3-Dichloropropene	503.2	10.0	ug/L	501	ND	100	61-126	2.43	21	
4-Methyl-2-pentanone (MIBK)	1113	50.0	ug/L	1000	ND	111	55-147	1.47	23	
Toluene	563.9	10.0	ug/L	505	ND	112	71-133	0.407	19	
trans-1,3-Dichloropropene	500.9	10.0	ug/L	501	ND	100	63-124	0.842	21	
1,1,2-Trichloroethane	496.8	10.0	ug/L	501	ND	99.2	69-133	0.262	19	
Tetrachloroethylene	509.9	10.0	ug/L	501	ND	102	70-124	2.98	24	
2-Hexanone (MBK)	1108	50.0	ug/L	1000	ND	111	53-141	2.34	24	
Dibromochloromethane	507.0	10.0	ug/L	501	ND	101	74-122	3.07	21	
1,2-Dibromoethane	527.6	10.0	ug/L	502	ND	105	66-127	1.66	23	
Chlorobenzene	488.9	10.0	ug/L	501	ND	97.6	76-116	2.88	21	
1,1,1,2-Tetrachloroethane	485.0	10.0	ug/L	503	ND	96.3	77-121	2.87	25	
Ethylbenzene	534.5	10.0	ug/L	502	ND	107	73-124	3.49	20	
Xylenes, total	1587	20.0	ug/L	1510	ND	105	75-123	3.03	20	
Styrene	541.1	10.0	ug/L	504	ND	107	70-120	2.19	23	
Bromoform	501.6	10.0	ug/L	501	ND	100	70-124	0.477	22	
1,2,3-Trichloropropane	469.1	10.0	ug/L	503	ND	93.2	62-135	4.51	28	
trans-1,4-Dichloro-2-butene	948.8	50.0	ug/L	1000	ND	94.9	50-120	6.78	26	
1,1,2,2-Tetrachloroethane	506.5	10.0	ug/L	501	ND	101	63-126	9.16	24	
1,4-Dichlorobenzene	479.3	10.0	ug/L	501	ND	95.6	72-119	8.32	24	
1,2-Dichlorobenzene	470.6	10.0	ug/L	501	ND	93.9	71-117	9.45	24	
1,2-Dibromo-3-chloropropane	429.1	50.0	ug/L	501	ND	85.6	49-134	8.14	28	
Surrogate: Dibromofluoromethane	*539*		ug/L	*502*		*107*	*57-134*			
Surrogate: Dibromofluoromethane	*539*		ug/L	*502*		*107*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*525*		ug/L	*501*		*105*	*53-140*			
Surrogate: 1,2-Dichloroethane-d4	*525*		ug/L	*501*		*105*	*61-142*			
Surrogate: Toluene-d8	*519*		ug/L	*504*		*103*	*86-114*			
Surrogate: Toluene-d8	*519*		ug/L	*504*		*103*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*496*		ug/L	*501*		*99.0*	*78-121*			
Surrogate: 4-Bromofluorobenzene	*496*		ug/L	*501*		*99.0*	*80-116*			

Definitions

R1: Duplicate RPD is outside acceptance criteria.
RL: Reporting Limit
RPD: Relative Percent Difference

Cooler Receipt Log

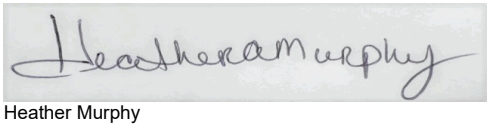
Cooler ID: Default Cooler Temp: 1.6°C

Cooler Inspection Checklist

Custody Seals	No	Containers Intact	Yes
COC/Labels Agree	Yes	Preservation Confirmed	No
Received On Ice	Yes		

Report Comments

Reviewed and Approved By:



Heather Murphy
Customer Relationship Specialist
heather.murphy@microbac.com
04/10/25 11:58

CHAIN OF CUS

MICROBAC®
600 East 17th Street Souti
Newton, IA 50208
641-792-8451

1 I D 0 7 7 3

HLW Engineering
PM: Heather Murphy

www.keystonelabs.com

SITE INFORMATION

Sampler: TODD WHIPPLE
Project: Cedar Co. - New Regs
Appendix Sampling

REPORT TO

Todd Whipple
HLW Engineering
204 West Broad St
Story City, IA 50248

INVOICE TO

Gary Crock
Cedar County Solid Waste Commission
1202 240th St
Tipton, IA 52772

SPECIAL INSTRUCTIONS

None

Turn Around Time

☐ Standard ☐ RUSH, need by ___/___/___

LAB USE ONLY

Work Order 1ID0773
Temperature 1.0
Turn-Cooler: No

- ☐ Custody Seal
- ☒ Containers Intact
- ☒ COC/Labels Agree
- ☐ Preservation Confirmed
- ☒ Received on Ice

Number	Sample Identification / Client ID	Matrix	Sample Type	Date	Time	Number of Containers	Analyses	Lab Sample Number
-001	MW-23	Aqueous	GRAB	4/3/25	7:42	6	landfill-appI-voc-group	01

Todd Whipple 4/4/25
Relinquished By Date/Time

Received By Date/Time

Relinquished By Date/Time

Received for Lab By 4/4/25 10:33 Date/Time

Original - Lab Copy Yellow - Sampler Copy

Remarks:

CEDAR COUNTY SANITARY LANDFILL
PERMIT # 16-SDP-1-76C

Date: October 3, 2025 Sampled by: Glenn Hunter Weather: Sunny, 74-89 F

Well # Ground Water

	TOC	Depth	2" dia.	Time	Depth	Elevation	Gallons	# of Vol.	Dry?	NTU
MW-3A (dg)	794.12	37.00	Static gw level		19.97	774.15				
	Capped	YES	After Pumping				Bailer for metals			
	Standing Water	NO					Dedicated Waterra Inertia pumped			
	Litter	NO	Comments: -- Gas 0%							

	TOC	Depth	2" dia.	Time	Depth	Elevation	Gallons	# of Vol.	Dry?	NTU
MW-16 (dg)	813.35	30.81	Static gw level		25.92	787.43				
	Capped	NO	After Pumping				Bailer for metals			
	Standing Water	NO					Dedicated Waterra Inertia pumped			
	Litter	NO	Comments: -- Gas 0%							

	TOC	Depth	2" dia.	Time	Depth	Elevation	Gallons	# of Vol.	Dry?	NTU
MW-17 (dg)	818.11	29.91	Static gw level		23.32	794.79				
	Capped	YES	After Pumping				Bailer for metals			
	Standing Water	NO					Dedicated Waterra Inertia pumped			
	Litter	NO	Comments: -- Gas 2.6%							

	TOC	Depth	2" dia.	Time	Depth	Elevation	Gallons	# of Vol.	Dry?	NTU
MW-18 (dg)	822.50	30.41	Static gw level		24.14	798.36				
	Capped	YES	After Pumping				Bailer for metals			
	Standing Water	NO					Dedicated Waterra Inertia pumped			
	Litter	NO	Comments: -- Gas 0%							

	TOC	Depth	2" dia.	Time	Depth	Elevation	Gallons	# of Vol.	Dry?	NTU
MW-23 (dg)	826.94	37.45	Static gw level	10:31	34.57	792.37			No	
	Capped	YES	After Pumping				Bailer for metals			
	Standing Water	NO					Dedicated Waterra Inertia pumped			
	Litter	NO	Comments: Dead ants, 0% gas							

	TOC	Depth	2" dia.	Time	Depth	Elevation	Gallons	# of Vol.	Dry?	NTU
MW-26 (dg)	814.57	30.45	Static gw level		16.42	798.15				
	Capped	YES	After Pumping				Bailer for metals			
	Standing Water	NO					Dedicated Waterra Inertia pumped			
	Litter	NO	Comments: -- Gas 0%							

Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IJ0951

Project Description

Appendix Sampling

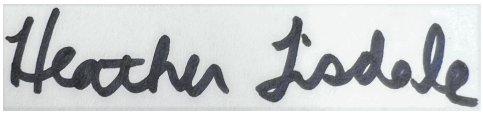
For:

Todd Whipple

HLW Engineering

204 West Broad St

Story City, IA 50248



Heather Tisdale

Customer Relationship Specialist

Tuesday, October 21, 2025

Please find enclosed the analytical results for the samples you submitted to Microbac Laboratories. Review and compilation of your report was completed by Microbac Laboratories, Inc., Newton. If you have any questions, comments, or require further assistance regarding this report, please contact your service representative listed above.

I certify that all test results meet all of the requirements of the accrediting authority listed within this report. Analytical results are reported on a 'as received' basis unless specified otherwise. Analytical results for solids with units ending in (dry) are reported on a dry weight basis. A statement of uncertainty for each analysis is available upon request. This laboratory report shall not be reproduced, except in full, without the written approval of Microbac Laboratories. The reported results are related only to the samples analyzed as received.

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Microbac Laboratories, Inc., Newton

CERTIFICATE OF ANALYSIS

1IJ0951

HLW Engineering

Todd Whipple
204 West Broad St
Story City, IA 50248

Project Name: Appendix Sampling

Project / PO Number: N/A
Received: 10/08/2025
Reported: 10/21/2025

Sample Summary Report

Sample Name	Laboratory ID	Client Matrix	Sample Type	Sample Begin	Sample Taken	Lab Received
MW-23	1IJ0951-01	Aqueous	GRAB		10/03/25 10:31	10/08/25 09:45

CERTIFICATE OF ANALYSIS

1IJ0951

Analytical Testing Parameters

Client Sample ID:	MW-23		
Sample Matrix:	Aqueous	**Collected By:**	Unknown
Lab Sample ID:	1IJ0951-01	**Collection Date:**	10/03/2025 10:31

Determination of Volatile Organic Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
EPA 5030B/EPA 8260D							
Chloromethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Vinyl Chloride	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Bromomethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Chloroethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Trichlorofluoromethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,1-Dichloroethylene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Acetone	<10.0	10.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Methyl Iodide	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Carbon Disulfide	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Methylene Chloride	<5.0	5.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Acrylonitrile	<5.0	5.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,1-Dichloroethane	**8.1**	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Vinyl Acetate	<5.0	5.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
cis-1,2-Dichloroethylene	**12.6**	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
2-Butanone (MEK)	<10.0	10.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Bromochloromethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Chloroform	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,1,1-Trichloroethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Carbon Tetrachloride	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Benzene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,2-Dichloroethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Trichloroethylene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,2-Dichloropropane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Dibromomethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Bromodichloromethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
cis-1,3-Dichloropropene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Toluene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
trans-1,3-Dichloropropene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,1,2-Trichloroethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Tetrachloroethylene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
2-Hexanone (MBK)	<5.0	5.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Dibromochloromethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,2-Dibromoethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Chlorobenzene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Ethylbenzene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Xylenes, total	<2.0	2.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Styrene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF

CERTIFICATE OF ANALYSIS

1IJ0951

Client Sample ID: MW-23
Sample Matrix: Aqueous
Lab Sample ID: 1IJ0951-01
Collected By: Unknown
Collection Date: 10/03/2025 10:31

Determination of Volatile Organic Compounds	Result	RL	Units	Note	Prepared	Analyzed	Analyst
Bromoform	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,2,3-Trichloropropane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,4-Dichlorobenzene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,2-Dichlorobenzene	<1.0	1.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L		10/10/25 0000	10/10/25 1607	RAF
Surrogate: Dibromofluoromethane	90.4	Limit: 57-128	% Rec		10/10/25 0000	10/10/25 1607	RAF
Surrogate: Dibromofluoromethane	90.4	Limit: 75-136	% Rec		10/10/25 0000	10/10/25 1607	RAF
Surrogate: 1,2-Dichloroethane-d4	80.6	Limit: 61-142	% Rec		10/10/25 0000	10/10/25 1607	RAF
Surrogate: 1,2-Dichloroethane-d4	80.6	Limit: 49-135	% Rec		10/10/25 0000	10/10/25 1607	RAF
Surrogate: Toluene-d8	96.6	Limit: 82-116	% Rec		10/10/25 0000	10/10/25 1607	RAF
Surrogate: Toluene-d8	96.6	Limit: 82-121	% Rec		10/10/25 0000	10/10/25 1607	RAF
Surrogate: 4-Bromofluorobenzene	96.7	Limit: 80-116	% Rec		10/10/25 0000	10/10/25 1607	RAF
Surrogate: 4-Bromofluorobenzene	96.7	Limit: 77-114	% Rec		10/10/25 0000	10/10/25 1607	RAF

CERTIFICATE OF ANALYSIS

1IJ0951

Batch Log Summary

Method	Batch	Laboratory ID	Client / Source ID
EPA 8260D	1IJ0685	1IJ0685-BS1	
		1IJ0685-BSD1	
		1IJ0685-BLK1	
		1IJ0951-01	MW-23
		1IJ0685-MS1	1IJ1035-02
		1IJ0685-MSD1	1IJ1035-02

Batch Quality Control Summary: Microbac Laboratories, Inc., Newton

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ0685 - EPA 5030B - EPA 8260D										
Blank (1IJ0685-BLK1)	Prepared: 10/10/25 00:00 Analyzed: 10/10/25 11:19									
Chloromethane	<1.0	1.0	ug/L							
Vinyl Chloride	<1.0	1.0	ug/L							
Bromomethane	<1.0	1.0	ug/L							
Chloroethane	<1.0	1.0	ug/L							
Trichlorofluoromethane	<1.0	1.0	ug/L							
1,1-Dichloroethylene	<1.0	1.0	ug/L							
Acetone	<10.0	10.0	ug/L							
Methyl Iodide	<1.0	1.0	ug/L							
Carbon Disulfide	<1.0	1.0	ug/L							
Methylene Chloride	<5.0	5.0	ug/L							
Acrylonitrile	<5.0	5.0	ug/L							
trans-1,2-Dichloroethylene	<1.0	1.0	ug/L							
1,1-Dichloroethane	<1.0	1.0	ug/L							
Vinyl Acetate	<5.0	5.0	ug/L							
cis-1,2-Dichloroethylene	<1.0	1.0	ug/L							
2-Butanone (MEK)	<10.0	10.0	ug/L							
Bromochloromethane	<1.0	1.0	ug/L							
Chloroform	<1.0	1.0	ug/L							
1,1,1-Trichloroethane	<1.0	1.0	ug/L							
Carbon Tetrachloride	<1.0	1.0	ug/L							
Benzene	<1.0	1.0	ug/L							
1,2-Dichloroethane	<1.0	1.0	ug/L							
Trichloroethylene	<1.0	1.0	ug/L							
1,2-Dichloropropane	<1.0	1.0	ug/L							
Dibromomethane	<1.0	1.0	ug/L							
Bromodichloromethane	<1.0	1.0	ug/L							
cis-1,3-Dichloropropene	<1.0	1.0	ug/L							
4-Methyl-2-pentanone (MIBK)	<5.0	5.0	ug/L							
Toluene	<1.0	1.0	ug/L							
trans-1,3-Dichloropropene	<1.0	1.0	ug/L							
1,1,2-Trichloroethane	<1.0	1.0	ug/L							
Tetrachloroethylene	<1.0	1.0	ug/L							

CERTIFICATE OF ANALYSIS

1IJ0951

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ0685 - EPA 5030B - EPA 8260D										
Blank (1IJ0685-BLK1)			Prepared: 10/10/25 00:00 Analyzed: 10/10/25 11:19							
2-Hexanone (MBK)	<5.0	5.0	ug/L							
Dibromochloromethane	<1.0	1.0	ug/L							
1,2-Dibromoethane	<1.0	1.0	ug/L							
Chlorobenzene	<1.0	1.0	ug/L							
1,1,1,2-Tetrachloroethane	<1.0	1.0	ug/L							
Ethylbenzene	<1.0	1.0	ug/L							
Xylenes, total	<2.0	2.0	ug/L							
Styrene	<1.0	1.0	ug/L							
Bromoform	<1.0	1.0	ug/L							
1,2,3-Trichloropropane	<1.0	1.0	ug/L							
trans-1,4-Dichloro-2-butene	<5.0	5.0	ug/L							
1,1,2,2-Tetrachloroethane	<1.0	1.0	ug/L							
1,4-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dichlorobenzene	<1.0	1.0	ug/L							
1,2-Dibromo-3-chloropropane	<5.0	5.0	ug/L							
Surrogate: Dibromofluoromethane	*45.7*		ug/L	*50.2*		*91.0*	*57-128*			
Surrogate: Dibromofluoromethane	*45.7*		ug/L	*50.2*		*91.0*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*41.3*		ug/L	*50.4*		*82.1*	*49-135*			
Surrogate: 1,2-Dichloroethane-d4	*41.3*		ug/L	*50.4*		*82.1*	*61-142*			
Surrogate: Toluene-d8	*48.8*		ug/L	*50.5*		*96.6*	*82-116*			
Surrogate: Toluene-d8	*48.8*		ug/L	*50.5*		*96.6*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*48.0*		ug/L	*50.2*		*95.6*	*77-114*			
Surrogate: 4-Bromofluorobenzene	*48.0*		ug/L	*50.2*		*95.6*	*80-116*			
LCS (1IJ0685-BS1)			Prepared: 10/10/25 00:00 Analyzed: 10/10/25 10:05							
Chloromethane	25.66	1.0	ug/L	30.3		84.6	63-155			
Vinyl Chloride	27.69	1.0	ug/L	30.2		91.5	70-154			
Bromomethane	28.09	1.0	ug/L	30.1		93.3	52-176			
Chloroethane	25.64	1.0	ug/L	30.3		84.6	72-148			
Trichlorofluoromethane	25.25	1.0	ug/L	30.3		83.3	70-152			
1,1-Dichloroethylene	42.40	1.0	ug/L	50.1		84.6	70-148			
Acetone	79.65	10.0	ug/L	100		79.6	43-172			
Methyl Iodide	94.10	1.0	ug/L	100		94.1	69-170			
Carbon Disulfide	89.58	1.0	ug/L	100		89.6	72-162			
Methylene Chloride	46.82	5.0	ug/L	50.1		93.4	68-142			
Acrylonitrile	39.55	5.0	ug/L	50.4		78.6	33-163			
trans-1,2-Dichloroethylene	41.49	1.0	ug/L	50.1		82.8	66-148			
1,1-Dichloroethane	41.50	1.0	ug/L	50.1		82.8	66-143			
Vinyl Acetate	134.2	5.0	ug/L	142		94.2	43-153			
cis-1,2-Dichloroethylene	44.18	1.0	ug/L	50.4		87.7	71-149			
2-Butanone (MEK)	84.95	10.0	ug/L	100		85.0	52-159			
Bromochloromethane	44.93	1.0	ug/L	50.4		89.1	69-143			
Chloroform	40.96	1.0	ug/L	50.1		81.8	69-144			
1,1,1-Trichloroethane	43.25	1.0	ug/L	50.1		86.3	62-129			

CERTIFICATE OF ANALYSIS

1IJ0951

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ0685 - EPA 5030B - EPA 8260D										
LCS (1IJ0685-BS1)	Prepared: 10/10/25 00:00 Analyzed: 10/10/25 10:05									
Carbon Tetrachloride	44.19	1.0	ug/L	50.1		88.2	63-141			
Benzene	46.63	1.0	ug/L	50.4		92.5	71-134			
1,2-Dichloroethane	40.14	1.0	ug/L	50.1		80.1	72-132			
Trichloroethylene	48.03	1.0	ug/L	50.1		95.9	71-135			
1,2-Dichloropropane	45.25	1.0	ug/L	50.1		90.3	69-136			
Dibromomethane	43.78	1.0	ug/L	50.4		86.9	73-147			
Bromodichloromethane	44.08	1.0	ug/L	50.1		88.0	68-129			
cis-1,3-Dichloropropene	47.14	1.0	ug/L	50.1		94.1	65-134			
4-Methyl-2-pentanone (MIBK)	90.71	5.0	ug/L	100		90.7	58-147			
Toluene	47.44	1.0	ug/L	50.5		94.0	72-133			
trans-1,3-Dichloropropene	46.12	1.0	ug/L	50.1		92.1	67-130			
1,1,2-Trichloroethane	45.88	1.0	ug/L	50.1		91.6	69-135			
Tetrachloroethylene	50.02	1.0	ug/L	50.1		99.8	69-130			
2-Hexanone (MBK)	88.11	5.0	ug/L	100		88.1	55-144			
Dibromochloromethane	46.61	1.0	ug/L	50.1		93.1	73-127			
1,2-Dibromoethane	48.07	1.0	ug/L	50.2		95.7	67-132			
Chlorobenzene	47.18	1.0	ug/L	50.1		94.2	72-123			
1,1,1,2-Tetrachloroethane	46.96	1.0	ug/L	50.3		93.3	73-127			
Ethylbenzene	48.92	1.0	ug/L	50.2		97.5	71-127			
Xylenes, total	147.8	2.0	ug/L	151		97.8	74-127			
Styrene	50.71	1.0	ug/L	50.4		101	66-126			
Bromoform	45.72	1.0	ug/L	50.1		91.2	68-130			
1,2,3-Trichloropropane	43.73	1.0	ug/L	50.3		86.9	63-136			
trans-1,4-Dichloro-2-butene	85.01	5.0	ug/L	100		85.0	54-134			
1,1,2,2-Tetrachloroethane	45.78	1.0	ug/L	50.1		91.4	61-131			
1,4-Dichlorobenzene	46.88	1.0	ug/L	50.1		93.5	70-129			
1,2-Dichlorobenzene	47.65	1.0	ug/L	50.1		95.1	69-126			
1,2-Dibromo-3-chloropropane	41.94	5.0	ug/L	50.1		83.7	50-143			
Surrogate: Dibromofluoromethane	*43.7*		ug/L	*50.2*		*87.0*	*57-128*			
Surrogate: Dibromofluoromethane	*43.7*		ug/L	*50.2*		*87.0*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*40.1*		ug/L	*50.4*		*79.5*	*49-135*			
Surrogate: 1,2-Dichloroethane-d4	*40.1*		ug/L	*50.4*		*79.5*	*61-142*			
Surrogate: Toluene-d8	*49.1*		ug/L	*50.5*		*97.2*	*82-116*			
Surrogate: Toluene-d8	*49.1*		ug/L	*50.5*		*97.2*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*48.7*		ug/L	*50.2*		*97.1*	*77-114*			
Surrogate: 4-Bromofluorobenzene	*48.7*		ug/L	*50.2*		*97.1*	*80-116*			
LCS Dup (1IJ0685-BSD1)	Prepared: 10/10/25 00:00 Analyzed: 10/10/25 10:30									
Chloromethane	25.01	1.0	ug/L	30.3		82.5	63-155	2.57	24	
Vinyl Chloride	27.22	1.0	ug/L	30.2		90.0	70-154	1.71	25	
Bromomethane	27.60	1.0	ug/L	30.1		91.6	52-176	1.76	27	
Chloroethane	25.31	1.0	ug/L	30.3		83.5	72-148	1.30	25	
Trichlorofluoromethane	25.35	1.0	ug/L	30.3		83.6	70-152	0.395	26	
1,1-Dichloroethylene	42.50	1.0	ug/L	50.1		84.8	70-148	0.236	24	

CERTIFICATE OF ANALYSIS

1IJ0951

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ0685 - EPA 5030B - EPA 8260D										
LCS Dup (1IJ0685-BSD1)	Prepared: 10/10/25 00:00 Analyzed: 10/10/25 10:30									
Acetone	82.23	10.0	ug/L	100		82.2	43-172	3.19	30	
Methyl Iodide	94.72	1.0	ug/L	100		94.7	69-170	0.657	30	
Carbon Disulfide	89.01	1.0	ug/L	100		89.0	72-162	0.638	24	
Methylene Chloride	47.47	5.0	ug/L	50.1		94.7	68-142	1.38	21	
Acrylonitrile	40.36	5.0	ug/L	50.4		80.2	33-163	2.03	28	
trans-1,2-Dichloroethylene	41.21	1.0	ug/L	50.1		82.3	66-148	0.677	27	
1,1-Dichloroethane	41.20	1.0	ug/L	50.1		82.2	66-143	0.726	24	
Vinyl Acetate	137.8	5.0	ug/L	142		96.7	43-153	2.71	30	
cis-1,2-Dichloroethylene	43.88	1.0	ug/L	50.4		87.1	71-149	0.681	26	
2-Butanone (MEK)	87.44	10.0	ug/L	100		87.4	52-159	2.89	27	
Bromochloromethane	45.02	1.0	ug/L	50.4		89.3	69-143	0.200	23	
Chloroform	41.05	1.0	ug/L	50.1		82.0	69-144	0.219	23	
1,1,1-Trichloroethane	43.18	1.0	ug/L	50.1		86.2	62-129	0.162	24	
Carbon Tetrachloride	43.93	1.0	ug/L	50.1		87.7	63-141	0.590	25	
Benzene	46.54	1.0	ug/L	50.4		92.3	71-134	0.193	24	
1,2-Dichloroethane	39.87	1.0	ug/L	50.1		79.6	72-132	0.675	24	
Trichloroethylene	48.16	1.0	ug/L	50.1		96.1	71-135	0.270	24	
1,2-Dichloropropane	45.58	1.0	ug/L	50.1		91.0	69-136	0.727	24	
Dibromomethane	43.78	1.0	ug/L	50.4		86.9	73-147	0.00	25	
Bromodichloromethane	44.51	1.0	ug/L	50.1		88.9	68-129	0.971	22	
cis-1,3-Dichloropropene	47.67	1.0	ug/L	50.1		95.2	65-134	1.12	23	
4-Methyl-2-pentanone (MIBK)	93.12	5.0	ug/L	100		93.1	58-147	2.62	27	
Toluene	47.21	1.0	ug/L	50.5		93.5	72-133	0.486	24	
trans-1,3-Dichloropropene	46.48	1.0	ug/L	50.1		92.8	67-130	0.778	24	
1,1,2-Trichloroethane	47.17	1.0	ug/L	50.1		94.2	69-135	2.77	23	
Tetrachloroethylene	50.71	1.0	ug/L	50.1		101	69-130	1.37	25	
2-Hexanone (MBK)	91.17	5.0	ug/L	100		91.2	55-144	3.41	25	
Dibromochloromethane	47.21	1.0	ug/L	50.1		94.3	73-127	1.28	22	
1,2-Dibromoethane	48.57	1.0	ug/L	50.2		96.7	67-132	1.03	24	
Chlorobenzene	47.98	1.0	ug/L	50.1		95.8	72-123	1.68	23	
1,1,1,2-Tetrachloroethane	47.63	1.0	ug/L	50.3		94.6	73-127	1.42	24	
Ethylbenzene	49.42	1.0	ug/L	50.2		98.5	71-127	1.02	26	
Xylenes, total	150.0	2.0	ug/L	151		99.3	74-127	1.50	25	
Styrene	51.32	1.0	ug/L	50.4		102	66-126	1.20	23	
Bromoform	47.27	1.0	ug/L	50.1		94.3	68-130	3.33	23	
1,2,3-Trichloropropane	44.65	1.0	ug/L	50.3		88.7	63-136	2.08	24	
trans-1,4-Dichloro-2-butene	87.36	5.0	ug/L	100		87.4	54-134	2.73	27	
1,1,2,2-Tetrachloroethane	46.94	1.0	ug/L	50.1		93.7	61-131	2.50	29	
1,4-Dichlorobenzene	46.88	1.0	ug/L	50.1		93.5	70-129	0.00	24	
1,2-Dichlorobenzene	48.05	1.0	ug/L	50.1		95.9	69-126	0.836	26	
1,2-Dibromo-3-chloropropane	42.22	5.0	ug/L	50.1		84.2	50-143	0.665	30	
Surrogate: Dibromofluoromethane	*43.6*		ug/L	*50.2*		*86.8*	*57-128*			

CERTIFICATE OF ANALYSIS

1IJ0951

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ0685 - EPA 5030B - EPA 8260D										
LCS Dup (1IJ0685-BSD1)			Prepared: 10/10/25 00:00 Analyzed: 10/10/25 10:30							
Surrogate: Dibromofluoromethane	*43.6*		ug/L	*50.2*		*86.8*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*40.0*		ug/L	*50.4*		*79.5*	*49-135*			
Surrogate: 1,2-Dichloroethane-d4	*40.0*		ug/L	*50.4*		*79.5*	*61-142*			
Surrogate: Toluene-d8	*48.7*		ug/L	*50.5*		*96.6*	*82-116*			
Surrogate: Toluene-d8	*48.7*		ug/L	*50.5*		*96.6*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*49.3*		ug/L	*50.2*		*98.2*	*77-114*			
Surrogate: 4-Bromofluorobenzene	*49.3*		ug/L	*50.2*		*98.2*	*80-116*			
Matrix Spike (1IJ0685-MS1)		**Source: 1IJ1035-02**	Prepared: 10/10/25 00:00 Analyzed: 10/10/25 19:04							
Chloromethane	242.5	10.0	ug/L	303	ND	80.0	61-152			
Vinyl Chloride	264.0	10.0	ug/L	302	ND	87.3	66-149			
Bromomethane	265.6	10.0	ug/L	301	ND	88.2	43-171			
Chloroethane	250.2	10.0	ug/L	303	ND	82.5	69-148			
Trichlorofluoromethane	252.4	10.0	ug/L	303	ND	83.3	62-163			
1,1-Dichloroethylene	419.3	10.0	ug/L	501	ND	83.7	70-148			
Acetone	828.1	100	ug/L	1000	ND	82.8	45-173			
Methyl Iodide	866.1	10.0	ug/L	1000	ND	86.6	62-167			
Carbon Disulfide	860.5	10.0	ug/L	1000	ND	86.0	71-163			
Methylene Chloride	455.4	50.0	ug/L	501	ND	90.9	69-140			
Acrylonitrile	392.7	50.0	ug/L	504	ND	78.0	32-159			
trans-1,2-Dichloroethylene	406.4	10.0	ug/L	501	ND	81.1	69-144			
1,1-Dichloroethane	403.6	10.0	ug/L	501	ND	80.6	70-138			
Vinyl Acetate	1283	50.0	ug/L	1420	ND	90.1	58-142			
cis-1,2-Dichloroethylene	426.0	10.0	ug/L	504	ND	84.6	68-151			
2-Butanone (MEK)	778.2	100	ug/L	1000	ND	77.8	50-160			
Bromochloromethane	436.7	10.0	ug/L	504	ND	86.6	65-143			
Chloroform	405.4	10.0	ug/L	501	ND	80.9	71-143			
1,1,1-Trichloroethane	429.2	10.0	ug/L	501	ND	85.6	63-133			
Carbon Tetrachloride	438.0	10.0	ug/L	501	ND	87.4	63-142			
Benzene	460.8	10.0	ug/L	504	ND	91.4	69-133			
1,2-Dichloroethane	404.4	10.0	ug/L	501	ND	80.7	63-138			
Trichloroethylene	474.2	10.0	ug/L	501	ND	94.7	71-133			
1,2-Dichloropropane	440.8	10.0	ug/L	501	ND	88.0	69-132			
Dibromomethane	431.4	10.0	ug/L	504	ND	85.7	70-147			
Bromodichloromethane	440.7	10.0	ug/L	501	ND	88.0	67-130			
cis-1,3-Dichloropropene	457.6	10.0	ug/L	501	ND	91.4	61-126			
4-Methyl-2-pentanone (MIBK)	906.6	50.0	ug/L	1000	ND	90.7	55-147			
Toluene	466.7	10.0	ug/L	505	ND	92.5	71-133			
trans-1,3-Dichloropropene	452.2	10.0	ug/L	501	ND	90.3	63-124			
1,1,2-Trichloroethane	462.0	10.0	ug/L	501	ND	92.2	69-133			
Tetrachloroethylene	489.7	10.0	ug/L	501	ND	97.7	70-124			
2-Hexanone (MBK)	891.5	50.0	ug/L	1000	ND	89.2	53-141			
Dibromochloromethane	460.0	10.0	ug/L	501	ND	91.9	74-122			
1,2-Dibromoethane	472.1	10.0	ug/L	502	ND	94.0	66-127			

CERTIFICATE OF ANALYSIS

1IJ0951

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ0685 - EPA 5030B - EPA 8260D										
Matrix Spike (1IJ0685-MS1)	**Source: 1IJ1035-02**	Prepared: 10/10/25 00:00 Analyzed: 10/10/25 19:04								
Chlorobenzene	468.6	10.0	ug/L	501	ND	93.6	76-116			
1,1,1,2-Tetrachloroethane	469.5	10.0	ug/L	503	ND	93.3	77-121			
Ethylbenzene	484.7	10.0	ug/L	502	ND	96.6	73-124			
Xylenes, total	1473	20.0	ug/L	1510	ND	97.5	75-123			
Styrene	499.4	10.0	ug/L	504	ND	99.1	70-120			
Bromoform	464.9	10.0	ug/L	501	ND	92.8	70-124			
1,2,3-Trichloropropane	444.0	10.0	ug/L	503	ND	88.2	62-135			
trans-1,4-Dichloro-2-butene	846.7	50.0	ug/L	1000	ND	84.7	50-120			
1,1,2,2-Tetrachloroethane	453.8	10.0	ug/L	501	ND	90.6	63-126			
1,4-Dichlorobenzene	455.2	10.0	ug/L	501	ND	90.8	72-119			
1,2-Dichlorobenzene	470.1	10.0	ug/L	501	ND	93.8	71-117			
1,2-Dibromo-3-chloropropane	417.2	50.0	ug/L	501	ND	83.2	49-134			
Surrogate: Dibromofluoromethane	*438*		ug/L	*502*		*87.3*	*57-128*			
Surrogate: Dibromofluoromethane	*438*		ug/L	*502*		*87.3*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*406*		ug/L	*504*		*80.6*	*49-135*			
Surrogate: 1,2-Dichloroethane-d4	*406*		ug/L	*504*		*80.6*	*61-142*			
Surrogate: Toluene-d8	*493*		ug/L	*505*		*97.7*	*82-116*			
Surrogate: Toluene-d8	*493*		ug/L	*505*		*97.7*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*499*		ug/L	*502*		*99.4*	*77-114*			
Surrogate: 4-Bromofluorobenzene	*499*		ug/L	*502*		*99.4*	*80-116*			
Matrix Spike Dup (1IJ0685-MSD1)	**Source: 1IJ1035-02**	Prepared: 10/10/25 00:00 Analyzed: 10/10/25 19:29								
Chloromethane	232.9	10.0	ug/L	303	ND	76.8	61-152	4.04	26	
Vinyl Chloride	254.2	10.0	ug/L	302	ND	84.0	66-149	3.78	23	
Bromomethane	264.3	10.0	ug/L	301	ND	87.7	43-171	0.491	29	
Chloroethane	242.1	10.0	ug/L	303	ND	79.9	69-148	3.29	25	
Trichlorofluoromethane	241.3	10.0	ug/L	303	ND	79.6	62-163	4.50	25	
1,1-Dichloroethylene	412.5	10.0	ug/L	501	ND	82.3	70-148	1.64	22	
Acetone	839.6	100	ug/L	1000	ND	84.0	45-173	1.38	30	
Methyl Iodide	902.7	10.0	ug/L	1000	ND	90.3	62-167	4.14	24	
Carbon Disulfide	839.1	10.0	ug/L	1000	ND	83.9	71-163	2.52	22	
Methylene Chloride	455.6	50.0	ug/L	501	ND	90.9	69-140	0.0439	19	
Acrylonitrile	389.7	50.0	ug/L	504	ND	77.4	32-159	0.767	30	
trans-1,2-Dichloroethylene	399.9	10.0	ug/L	501	ND	79.8	69-144	1.61	22	
1,1-Dichloroethane	402.3	10.0	ug/L	501	ND	80.3	70-138	0.323	20	
Vinyl Acetate	1307	50.0	ug/L	1420	ND	91.7	58-142	1.81	24	
cis-1,2-Dichloroethylene	424.7	10.0	ug/L	504	ND	84.3	68-151	0.306	22	
2-Butanone (MEK)	853.1	100	ug/L	1000	ND	85.3	50-160	9.18	23	
Bromochloromethane	437.8	10.0	ug/L	504	ND	86.9	65-143	0.252	22	
Chloroform	399.2	10.0	ug/L	501	ND	79.7	71-143	1.54	21	
1,1,1-Trichloroethane	418.5	10.0	ug/L	501	ND	83.5	63-133	2.52	23	
Carbon Tetrachloride	426.5	10.0	ug/L	501	ND	85.1	63-142	2.66	22	
Benzene	451.0	10.0	ug/L	504	ND	89.4	69-133	2.15	18	
1,2-Dichloroethane	399.2	10.0	ug/L	501	ND	79.7	63-138	1.29	20	

CERTIFICATE OF ANALYSIS

1IJ0951

Determination of Volatile Organic Compounds	Result	RL	Units	Spike Level	Source Result	%REC	%REC Limits	RPD	RPD Limit	Notes
Batch 1IJ0685 - EPA 5030B - EPA 8260D										
Matrix Spike Dup (1IJ0685-MSD1)	**Source: 1IJ1035-02**	Prepared: 10/10/25 00:00 Analyzed: 10/10/25 19:29								
Trichloroethylene	464.3	10.0	ug/L	501	ND	92.7	71-133	2.11	23	
1,2-Dichloropropane	435.7	10.0	ug/L	501	ND	87.0	69-132	1.16	20	
Dibromomethane	429.2	10.0	ug/L	504	ND	85.2	70-147	0.511	22	
Bromodichloromethane	441.2	10.0	ug/L	501	ND	88.1	67-130	0.113	21	
cis-1,3-Dichloropropene	453.4	10.0	ug/L	501	ND	90.5	61-126	0.922	21	
4-Methyl-2-pentanone (MIBK)	898.9	50.0	ug/L	1000	ND	89.9	55-147	0.853	23	
Toluene	456.7	10.0	ug/L	505	ND	90.5	71-133	2.17	19	
trans-1,3-Dichloropropene	447.5	10.0	ug/L	501	ND	89.4	63-124	1.04	21	
1,1,2-Trichloroethane	464.7	10.0	ug/L	501	ND	92.8	69-133	0.583	19	
Tetrachloroethylene	482.7	10.0	ug/L	501	ND	96.4	70-124	1.44	24	
2-Hexanone (MBK)	898.2	50.0	ug/L	1000	ND	89.8	53-141	0.749	24	
Dibromochloromethane	464.0	10.0	ug/L	501	ND	92.7	74-122	0.866	21	
1,2-Dibromoethane	469.8	10.0	ug/L	502	ND	93.5	66-127	0.488	23	
Chlorobenzene	461.1	10.0	ug/L	501	ND	92.1	76-116	1.61	21	
1,1,1,2-Tetrachloroethane	458.0	10.0	ug/L	503	ND	91.0	77-121	2.48	25	
Ethylbenzene	476.5	10.0	ug/L	502	ND	95.0	73-124	1.71	20	
Xylenes, total	1446	20.0	ug/L	1510	ND	95.7	75-123	1.88	20	
Styrene	492.1	10.0	ug/L	504	ND	97.7	70-120	1.47	23	
Bromoform	465.4	10.0	ug/L	501	ND	92.9	70-124	0.107	22	
1,2,3-Trichloropropane	447.5	10.0	ug/L	503	ND	88.9	62-135	0.785	28	
trans-1,4-Dichloro-2-butene	838.8	50.0	ug/L	1000	ND	83.9	50-120	0.937	26	
1,1,2,2-Tetrachloroethane	454.1	10.0	ug/L	501	ND	90.6	63-126	0.0661	24	
1,4-Dichlorobenzene	457.5	10.0	ug/L	501	ND	91.3	72-119	0.504	24	
1,2-Dichlorobenzene	470.2	10.0	ug/L	501	ND	93.9	71-117	0.0213	24	
1,2-Dibromo-3-chloropropane	403.8	50.0	ug/L	501	ND	80.6	49-134	3.26	28	
Surrogate: Dibromofluoromethane	*439*		ug/L	*502*		*87.4*	*57-128*			
Surrogate: Dibromofluoromethane	*439*		ug/L	*502*		*87.4*	*75-136*			
Surrogate: 1,2-Dichloroethane-d4	*407*		ug/L	*504*		*80.9*	*49-135*			
Surrogate: 1,2-Dichloroethane-d4	*407*		ug/L	*504*		*80.9*	*61-142*			
Surrogate: Toluene-d8	*486*		ug/L	*505*		*96.4*	*82-116*			
Surrogate: Toluene-d8	*486*		ug/L	*505*		*96.4*	*82-121*			
Surrogate: 4-Bromofluorobenzene	*490*		ug/L	*502*		*97.6*	*77-114*			
Surrogate: 4-Bromofluorobenzene	*490*		ug/L	*502*		*97.6*	*80-116*			

Definitions

RL: Reporting Limit
RPD: Relative Percent Difference

Cooler Receipt Log

Cooler ID: Default Cooler Temp: 9.2°C

CERTIFICATE OF ANALYSIS

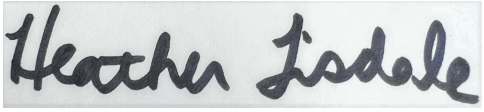
1IJ0951

Cooler Inspection Checklist

Custody Seals	No	Containers Intact	Yes
COC/Labels Agree	Yes	Preservation Confirmed	No
Received On Ice	Yes		

Report Comments

Reviewed and Approved By:



Heather Tisdale
Customer Relationship Specialist
10/21/25 16:43

CHAIN OF CUSTODY RECORD

MICROBAC
600 East 17th Street South
Newton, IA 50208
Phone: 641-792-8451

SITE INFORMATION

Sampler:

Project: Cedar Co. - New Regs
Appendix Sampling

REPORT TO

Todd Whipple
HLW Engineering
204 West Broad St
Story City, IA 50248

INVOICE TO

Gary Crock
Cedar County Solid Waste Commission
1202 240th St
Tipton, IA 52772

SPECIAL INSTRUCTIONS

None

Turn Around Time
☒ Standard ☐ RUSH, need by ___/___/___

LAB USE ONLY

1IJ0951
HLW Engineering
PM: Heather Murphy

Temperature: 9.2 ice ✓ oC

Number	Sample Identification / Client ID	Matrix	Sample Type	Date	Time	# Containers	Analyses	Lab Sample Number
05-001	**MW-23**	Aqueous	GRAB	10/5/25	10:31	6	lndfill-app1-voc-group	01

J. Wright 10/7/25
Relinquished By Date/Time

Received By Date/Time

Relinquished By Date/Time

Received for Lab By 10-8-25 9:45 Date/Time

Remarks:

ATTACHMENT B

Gas Monitoring Results 2020 – 2025

Cedar County Landfill Well & Gas Monitoring – May 11, 2020

Well	Screened Interval	Static Water Level	WL vs screen position	Methane reading (LEL)
MW-3A	16.40-36.40	15.92	Above	<1.0%
MW-4	21.50-30.10	20.57	Above	<1.0%
MW-14	16.20-36.20	20.56	Within	3.2%
MW-15	11.30-26.65	12.28	Within	<1.0%
MW-16	15.00-30.81	20.53	Within	100%
MW-17	15.00-29.91	20.30	Within	43.0%
MW-18	10.10-30.41	19.21	Within	60.0%
MW-19	11.80-27.45	17.13	Within	<1.0%
MW-20	12.00-27.00	9.03	Above	<1.0%
MW-23	16.10-37.45	24.99	Within	2.0%
MW-26	8.50-30.45	13.82	Within	<1.0%

Cedar County Landfill Well & Gas Monitoring – September 21, 2020

Well	Screened Interval	Static Water Level	WL vs screen position	Methane reading (LEL)
MW-3A	16.40-36.40	19.37	Within	<1.0%
MW-4	21.50-30.10	25.24	Within	<1.0%
MW-14	16.20-36.20	22.24	Within	100.0%
MW-15	11.30-26.65	15.14	Within	<1.0%
MW-16	15.00-30.81	22.78	Within	<1.0%
MW-17	15.00-29.91	21.67	Within	26.0%
MW-18	10.10-30.41	21.79	Within	<1.0%
MW-19	11.80-27.45	20.53	Within	<1.0%
MW-20	12.00-27.00	15.13	Within	<1.0%
MW-23	16.10-37.45	25.39	Within	<1.0%
MW-26	8.50-30.45	12.60	Within	<1.0%

Cedar County Landfill Well & Gas Monitoring – April 22, 2021

Well	Screened Interval	Static Water Level	WL vs screen position	Methane reading (LEL)
MW-3A	16.40-36.40	13.49	Above	<1.0%
MW-4	21.50-30.10	18.18	Above	<1.0%
MW-14	16.20-36.20	19.38	Within	25%
MW-15	11.30-26.65	9.26	Above	<1.0%
MW-16	15.00-30.81	20.09	Within	100%
MW-17	15.00-29.91	19.65	Within	30.0%
MW-18	10.10-30.41	18.44	Within	7.0%
MW-19	11.80-27.45	15.43	Within	<1.0%
MW-20	12.00-27.00	7.72	Above	<1.0%
MW-23	16.10-37.45	25.21	Within	<1.0%
MW-26	8.50-30.45	11.70	Within	<1.0%

Cedar County Landfill Well & Gas Monitoring – September 13, 2021

Well	Screened Interval	Static Water Level	WL vs screen position	Methane reading (LEL)
MW-3A	16.40-36.40	20.79	Within	<1.0%
MW-4	21.50-30.10	26.98	Within	<1.0%
MW-14	16.20-36.20	22.48	Within	80.0%
MW-15	11.30-26.65	17.54	Within	<1.0%
MW-16	15.00-30.81	23.46	Within	<1.0%
MW-17	15.00-29.91	22.16	Within	18%
MW-18	10.10-30.41	22.27	Within	<1.0%
MW-19	11.80-27.45	22.04	Within	<1.0%
MW-20	12.00-27.00	17.84	Within	<1.0%
MW-23	16.10-37.45	26.45	Within	<1.0%
MW-26	8.50-30.45	15.79	Within	<1.0%

Cedar County Landfill Well & Gas Monitoring – May 18, 2022

Well	Screened Interval	Static Water Level	WL vs screen position	Methane reading (LEL)
MW-3A	16.40-36.40	15.05	Above	<1.0%
MW-4	21.50-30.10	23.17	Within	<1.0%
MW-14	16.20-36.20	21.97	Within	48.0%
MW-15	11.30-26.65	11.99	Within	<1.0%
MW-16	15.00-30.81	22.98	Within	79.2%
MW-17	15.00-29.91	22.55	Within	17.8%
MW-18	10.10-30.41	22.74	Within	72.7%
MW-19	11.80-27.45	18.91	Within	<1.0%
MW-20	12.00-27.00	8.73	Above	<1.0%
MW-23	16.10-37.45	27.34	Within	<1.0%
MW-26	8.50-30.45	13.05	Within	<1.0%

Cedar County Landfill Well & Gas Monitoring – October 19, 2023

Well	Screened Interval	Static Water Level	WL vs screen position	Methane reading (LEL)
MW-3A	16.40-36.40	23.82	Above	<1.0%
MW-4	21.50-30.10	27.40	Within	<1.0%
MW-14	16.20-36.20	26.09	Within	<1.0%
MW-15	11.30-26.65	19.48	Within	<1.0%
MW-16	15.00-30.81	26.13	Within	<1.0%
MW-17	15.00-29.91	23.93	Within	<1.0%
MW-18	10.10-30.41	24.49	Within	<1.0%
MW-19	11.80-27.45	26.95	Within	<1.0%
MW-20	12.00-27.00	22.52	Within	<1.0%
MW-23	16.10-37.45	31.90	Within	<1.0%
MW-26	8.50-30.45	18.82	Within	<1.0%

Cedar County Landfill Well & Gas Monitoring – May 29, 2024

Well	Screened Interval	Static Water Level	WL vs screen position	Methane reading (LEL)
MW-3A	16.40-36.40	14.10	Above	<1.0%
MW-4	21.50-30.10	26.58	Within	<1.0%
MW-14	16.20-36.20	23.99	Within	<1.0%
MW-15	11.30-26.65	13.38	Within	<1.0%
MW-16	15.00-30.81	22.79	Within	**17.0%**
MW-17	15.00-29.91	21.34	Within	<1.0%
MW-18	10.10-30.41	23.04	Within	**43.0%**
MW-19	11.80-27.45	22.75	Within	<1.0%
MW-20	12.00-27.00	9.57	Above	<1.0%
MW-23	16.10-37.45	32.06	Within	<1.0%
MW-26	8.50-30.45	11.15	Within	<1.0%

Cedar County Landfill Well & Gas Monitoring – October 11, 2024

Well	Screened Interval	Static Water Level	WL vs screen position	Methane reading (LEL)
MW-3A	16.40-36.40	20.04	Within	<1.0%
MW-4	21.50-30.10	27.29	Within	<1.0%
MW-14	16.20-36.20	25.34	Within	<1.0%
MW-15	11.30-26.65	17.04	Within	<1.0%
MW-16	15.00-30.81	24.91	Within	<1.0%
MW-17	15.00-29.91	22.74	Within	<1.0%
MW-18	10.10-30.41	24.07	Within	<1.0%
MW-19	11.80-27.45	26.78	Within	<1.0%
MW-20	12.00-27.00	16.56	Within	<1.0%
MW-23	16.10-37.45	33.14	Within	<1.0%
MW-26	8.50-30.45	15.35	Within	<1.0%

Cedar County Landfill Well & Gas Monitoring – April 3, 2025

Well	Screened Interval	Static Water Level	WL vs screen position	Methane reading (LEL)
MW-3A	16.40-36.40	12.83	Above	<1.0%
MW-4	21.50-30.10	22.72	Within	<1.0%
MW-14	16.20-36.20	25.24	Within	<1.0%
MW-15	11.30-26.65	8.88	Above	<1.0%
MW-16	15.00-30.81	23.95	Within	<1.0%
MW-17	15.00-29.91	20.45	Within	<1.0%
MW-18	10.10-30.41	24.82	Within	<1.0%
MW-19	11.80-27.45	23.41	Within	<1.0%
MW-20	12.00-27.00	10.20	Above	<1.0%
MW-23	16.10-37.45	33.43	Within	<1.0%
MW-26	8.50-30.45	10.9	Within	<1.0%

Cedar County Landfill Well & Gas Monitoring – July 2, 2025

Well	Screened Interval	Static Water Level	WL vs screen position	Methane reading (LEL)
MW-3A	16.40-36.40	14.85	Above	<1.0%
MW-4	21.50-30.10	27.00	Within	<1.0%
MW-14	16.20-36.20	24.87	Within	**50.0%**
MW-15	11.30-26.65			
MW-16	15.00-30.81	25.19	Within	**65.0%**
MW-17	15.00-29.91	22.47	Within	**41.2%**
MW-18	10.10-30.41	23.40	Within	**27.1%**
MW-19	11.80-27.45	23.32	Within	<1.0%
MW-20	12.00-27.00	10.23	Above	<1.0%
MW-23	16.10-37.45	32.11	Within	<1.0%
MW-26	8.50-30.45	13.61	Within	<1.0%

Cedar County Landfill Well & Gas Monitoring – October 3, 2025

Well	Screened Interval	Static Water Level	WL vs screen position	Methane reading (LEL)
MW-3A	16.40-36.40	19.97	Within	<1.0%
MW-4	21.50-30.10	28.00	Within	<1.0%
MW-14	16.20-36.20	26.38	Within	<1.0%
MW-15	11.30-26.65	17.62	Within	<1.0%
MW-16	15.00-30.81	25.92	Within	<1.0%
MW-17	15.00-29.91	23.32	Within	**2.6%**
MW-18	10.10-30.41	24.14	Within	<1.0%
MW-19	11.80-27.45	26.30	Within	<1.0%
MW-20	12.00-27.00	18.90	Within	<1.0%
MW-23	16.10-37.45	34.57	Within	<1.0%
MW-26	8.50-30.45	16.42	Within	<1.0%

ATTACHMENT C

Gas Monitoring Results GV-1 through GV-10

Landfill Gas Venting Evaluation Report
Cedar County Sanitary Landfill

Readings are % LEL	Date							
Location	**3-Oct-25**							
GV-1	0							
GV-2	0							
GV-3	0							
GV-4	0							
GV-5	0							
GV-6	0							
GV-7	0							
GV-8	0							
GV-9	0							
GV-10	0							