

October 12, 2023

Ms. Demaree Collier
Remedial Project Manager
USEPA Region 5
77 West Jackson Boulevard
Chicago, IL 60604

Subject: Transmittal of Data
Residential, Plume Monitoring, and Background Wells
Lemberger Landfill Sites
First Quarter 2023

Dear Ms. Collier:

On behalf of the Lemberger Site Remediation Group (LSRG), and in accordance with the Environmental Monitoring Plan (EMP), Revision 5 (February 2021), and the subsequent monitoring program revisions as approved by the United States Environmental Protection Agency (USEPA) and the Wisconsin Department of Natural Resources (WDNR), TRC Environmental Corporation (TRC) is submitting the following data:

- Attachment 1: Data Validation Comments and Qualified Form 1s For All Wells
- Attachment 2: Table of Wisconsin Administrative Code Chapter NR 140 Groundwater Quality Standards (Enforcement Standards [ESs], Preventive Action Limits [PALs], Maximum Contaminant Levels [MCLs], and Secondary Maximum Contaminant Levels [SMCLs]) for the Pertinent Parameters
- Attachment 3: Tabular Summary of Analytical Results at Each Monitoring Well
- Attachment 4: Laboratory Data Qualifiers for Monitoring Wells
- Attachment 5: Tabular Summary of Groundwater Standard Exceedances at Plume Monitoring Wells

A CD containing field and laboratory data in an approved WDNR format has been attached to the copies provided to the WDNR and the USEPA, for their use. Groundwater samples were collected during March and April 2023, in accordance with the February 2021 EMP, revision 5.

Please call if you have questions.

Sincerely,

TRC



Kristopher D. Krause, P.E.
Senior Project Manager



Meredith Westover, P.G.
Senior Hydrogeologist

Attachments

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cc: B.J. LeRoy – WDNR
Brian Potts – Perkins Coie, LLP
Kristin Jones – Newell Rubbermaid
Troy Adams – Manitowoc Public Utilities
Scott Karbon – Manitowoc Public Utilities
James Wallner – Red Arrow Products
James Cook – Manitowoc Cranes
Dan Koski – City of Manitowoc
Jane Rhode – City of Manitowoc
Eric Nycz – City of Manitowoc
Felicie Chaume – City of Manitowoc
Dominique Sorel – SS. Papadopoulos & Associates, Inc.
John Lang – EHS Support, LLC
Tom Sullivan – EHS Support, LLC
GEMS Data Submittal Contact (w/diskette)

Attachment 1

Data Validation Comments and Qualified Form 1s For All Wells



Memorandum

To: Meredith Westover

From: David DiGena-Segal (Data Reviewer)
Elizabeth Denly (Peer Reviewer)

Date: July 11, 2023

Subject: Data Validation Report
VOC Groundwater Samples/Plume Wells: 1st Quarter 2023
Lemberger Landfill and Lemberger Transport and Recycling/Franklin, Wisconsin
Laboratory Project Number 40260906 (Revised 06/27/23)

SUMMARY

Limited validation (level III) was performed on the data for 10 groundwater samples, one field duplicate, one field blank, and one trip blank collected at the Lemberger Landfill and Lemberger Transport and Recycling Site in Franklin, Wisconsin. The samples were collected April 7-9, 2023. Samples were submitted to Pace Analytical Services, LLC in Green Bay, Wisconsin for analysis. The samples were analyzed for volatile organic compounds (VOCs) using SW-846 method 8260B. The laboratory reported the results under laboratory project number 40260906.

The sample results were assessed using the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review (EPA-540-R-20-005)*, November 2020 and the project-specific quality assurance project plan (QAPP), dated October 2022, Revision 0.

In general, the data are valid as reported and may be used for decision-making purposes. The following issues were noted which may have a minor impact on the data usability:

- Select results were reported which were below the lowest calibration standard and quantitation limit (QL); these results were qualified by the laboratory as estimated (J).
- Potential uncertainty exists for the nondetect results for select VOCs in certain samples due to continuing calibration nonconformances. These results were qualified as estimated (UJ).
- Samples RM-007XD, RM-005D, RM-208D, FDUP-002, TB-002, RM-211D, RM-008D, RM-402XXD, RM-402XD, and RM-204D had minor headspace in the vials used for analysis; all results in these samples were qualified as estimated with potential low bias (J-/UJ). It should be noted that the positive results for 1,1-dichloroethane and 1,1,1-trichloroethane in sample RM-211D, tetrachloroethene in sample RM-008D, and 1,1-dichloroethene in sample RM-204D were also qualified as estimated (J) due to detection below the QL; the overall qualification for these compounds in these samples was J.

SAMPLES

Samples included in this review are listed below.

- RM-005D
- RM-204D
- RM-307D
- RM-007XD
- RM-208D
- RM-401XD
- RM-008D
- RM-211D
- RM-402XD

- RM-402XXD
- TB-002
- FDUP-002¹
- FB-002

¹ FDUP-002: Field duplicate of RM-208D

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Data completeness
- Holding times and sample preservation
- Gas chromatography/mass spectrometry (GC/MS) tunes
- Initial and continuing calibrations
- Blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Internal standard performance
- Field duplicate results
- Quantitation limits and sample results

DISCUSSION

Agreement of Analyses Conducted with Chain-of-Custody Requests

The sample report was checked to verify that the results corresponded to analytical requests as designated on the COC. The samples in this data set were analyzed for VOCs using SW-846 Method 8260B; according to the QAPP, the samples should have been analyzed for VOCs using SW-846 Method 8260D. No validation actions were taken based on this issue.

Data Completeness

The data package was found to be complete as received from the laboratory with the following exceptions.

- The laboratory only spiked a subset of the VOCs which were reported in the samples in the LCS and MS/MSD analyses. Thus, accuracy and/or precision could not be evaluated for select VOCs.
- Select samples were improperly marked for headspace; the laboratory was contacted about this issue and provided a revised report on 06/27/23.

No validation actions were taken on the basis of this issue.

Holding Times and Sample Preservation

All holding time and sample preservation criteria were met with the following exception: samples RM-007XD, RM-005D, RM-208D, FDUP-002, TB-002, RM-211D, RM-008D, RM-402XXD, RM-402XD,

and RM-204D had headspace observed upon receipt by the laboratory. The positive and nondetect result for all VOCs in samples RM-007XD, RM-005D, RM-208D, FDUP-002, TB-002, RM-211D, RM-008D, RM-402XXD, RM-402XD, and RM-204D were qualified as estimated (J-/UJ) with a potential low bias due to the headspace. It should be noted that the positive results for 1,1-dichloroethane and 1,1,1-trichloroethane in sample RM-211D, tetrachloroethene in sample RM-008D, and 1,1-dichloroethene in sample RM-204D were also qualified as estimated (J) due to detection below the QL; the overall qualification for these compounds in these samples was J.

Samples were received by the laboratory between 9-11 days after collection. Samples were stored in coolers, on ice, in a locked former treatment building at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept on ice prior to delivery to the laboratory and were received on ice and at acceptable cooler temperatures by the laboratory.

GC/MS Tunes

The frequency and abundance of all bromofluorobenzene tunes were within the acceptance criteria.

Initial and Continuing Calibrations

The coefficients of determination, percent relative standard deviations, and relative response factors (RRFs) for all target compounds were within the laboratory acceptance criteria in the initial calibrations.

All RRFs were within the acceptance criteria in the continuing calibrations (CCs). The following table summarizes the percent differences (%Ds) which were outside of the laboratory acceptance criteria in the CCs, the associated samples and validation actions.

CC	Analyte	%D	Associated Sample(s)	Validation Actions
40MSV8 04/20/23 @08:57	Acetone	34.8983	RM-007XD, RM-008D, RM-208D, RM-211D, RM-401XD, RM-402XD, RM-402XXD, FDUP-002, TB-002	The nondetect results for the listed VOCs were qualified as estimated (UJ) in the associated samples.
	Chloromethane	-23.4771		
	2-Hexanone	28.4237		
	4-Methyl-2-pentanone (MIBK)	22.9508		
40MSV8 04/21/2023 @07:00	Acetone	24.5672	RM-204D, FB-002	
	2-Hexanone	26.0794		
	4-Methyl-2-pentanone (MIBK)	23.7070		

Blanks

Target analytes were not detected in the trip blank or method blanks. Toluene (0.63 ug/L) was detected in the field blank, FB-002, associated with all samples. Qualification of the data was not required since toluene was not detected in the associated samples.

Surrogate Spike Recoveries

The percent recoveries (%Rs) of the surrogates were within the laboratory acceptance criteria for all samples.

MS/MSD Results

MS/MSD analyses were performed on sample RM-005D. All criteria were met.

Note that the laboratory only spiked a subset of the VOCs which were reported in the samples in the MS/MSDs; thus, accuracy and precision could not be evaluated for the following VOCs (which were not spiked) in the MS/MSD analyses: acetone, 2-butanone, 2-hexanone, and 4-methyl-2-pentanone. No validation action was taken on this basis.

LCS Results

An LCS was performed on each day of analysis. All criteria were met.

Note that the laboratory only spiked a subset of the VOCs that were reported in the samples in the LCS. Thus, accuracy could not be evaluated for the following VOCs (which were not spiked) in the LCS analyses: acetone, 2-butanone, 2-hexanone, and 4-methyl-2-pentanone. No validation action was taken on this basis.

Internal Standard Performance

Internal standards were within the method acceptance criteria in all sample analyses.

Field Duplicate Results

The samples listed below were submitted as the field duplicate pair with this data set.

- RM-208D and FDUP-002

The relative percent difference (RPD) is not applicable for comparison of results if either concentration is <5x the QL; comparison in this case is based on the absolute difference (AbsD) between the results. The acceptance limits for field duplicates in aqueous media is $\leq 30\%$ for the RPD and $< QL$ for the AbsD. For analytes that are detected in one sample and nondetect in the other, the QL is used to represent the nondetect result in the AbsD calculation. The following table summarizes the detected results, the RPD or AbsD values (as applicable) for the detected analytes in each field duplicate pair, and the resulting validation actions. As shown in the table, criteria were met for all detected analytes.

Analyte	QL (µg/L)	RM-208D (µg/L)	FDUP-002 (µg/L)	RPD (%) or AbsD (µg/L)	Validation Actions
1,1,1-Trichloroethane	1.0	5.4	5.3	RPD: 1.9	None. All criteria were met.
1,1-Dichloroethane	1.0	3.6	3.5	AbsD = 0.1	
1,1-Dichloroethene	1.0	1.5	1.3	AbsD: 0.2	
Trichloroethene	1.0	1.6	1.6	AbsD: 0.0	
cis-1,2-Dichloroethene	1.0	3.4	3.4	AbsD: 0.0	
Criteria: RPD $\leq 30\%$; AbsD $< QL$					

Quantitation Limits and Sample Results

Sample calculations were spot-checked; there were no errors noted. No dilutions were performed in the VOC analyses of these samples.

Select results were reported which were below the lowest calibration standard level and QL (or limit of quantitation [LOQ]). These results were qualified as estimated (J) by the laboratory.

The laboratory's limit of detection (LOD) for select VOCs was above one or both of the project action limits specified in the QAPP; the affected VOCs, project action limits, and current laboratory LODs are summarized in the table below.

Analyte	Affected Samples	WAC Chapter NR 140 PAL (µg/L)	WAC Chapter NR 140 ES (µg/L)	Laboratory LOD (µg/L)
1,1,2,2-Tetrachloroethane	All samples in this data set	0.02	0.2	0.38
Bromodichloromethane		0.06	0.6*	0.42
Bromomethane		1	10*	1.2
cis-1,3-Dichloropropene		0.04	0.4*	0.24
trans-1,3-Dichloropropene		0.04	0.4*	0.27
Vinyl chloride		0.02	0.2*	0.17
* Laboratory LOD is below the action limit.				

QUALIFIED FORM 1s

MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-307D

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 20:24
Date Analyzed: 04/20/2023 20:24
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
Matrix: Water SDG No.: 40260906
Lab Sample ID: 40260906001
Lab File ID: 04202023.B\04202363.D
Instrument: 40MSVB Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	16.1	
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	3.3	
156-59-2	cis-1,2-Dichloroethene	3.1	
156-60-5	trans-1,2-Dichloroethene	<0.53	U
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	0.73	J
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	61.6	
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	7.5	
75-01-4	Vinyl chloride	<0.17	U
1330-20-7	Xylene (Total)	<1.0	U

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-007XD

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 19:18
Date Analyzed: 04/20/2023 19:18
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
Matrix: Water SDG No.: 40260906
Lab Sample ID: 40260906002
Lab File ID: 04202023.B\04202334.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	169	J-
107-06-2	1,2-Dichloroethane	<0.29	U UJ
75-35-4	1,1-Dichloroethene	36.8	J-
156-59-2	cis-1,2-Dichloroethene	84.9	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U UJ
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	1.9	J-
108-88-3	Toluene	<0.29	U UJ
71-55-6	1,1,1-Trichloroethane	200	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U UJ
79-01-6	Trichloroethene	43.4	J-
75-01-4	Vinyl chloride	<0.17	U UJ
1330-20-7	Xylene (Total)	<1.0	U UJ

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-401XD

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 19:38
Date Analyzed: 04/20/2023 19:38
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
Matrix: Water SDG No.: 40260906
Lab Sample ID: 40260906003
Lab File ID: 04202023.B\04202335.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U UJ
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	7.9	
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	2.3	
156-59-2	cis-1,2-Dichloroethene	4.3	
156-60-5	trans-1,2-Dichloroethene	<0.53	U
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U UJ
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U UJ
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	11.4	
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	2.2	
75-01-4	Vinyl chloride	<0.17	U
1330-20-7	Xylene (Total)	<1.0	U

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-005D

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 20:04
Date Analyzed: 04/20/2023 20:04
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
Matrix: Water SDG No.: 40260906
Lab Sample ID: 40260906004
Lab File ID: 04202023.B\04202362.D
Instrument: 40MSVB Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U ↓
75-34-3	1,1-Dichloroethane	9.7	J-
107-06-2	1,2-Dichloroethane	<0.29	U UJ
75-35-4	1,1-Dichloroethene	2.4	J-
156-59-2	cis-1,2-Dichloroethene	5.5	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U UJ
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U ↓
71-55-6	1,1,1-Trichloroethane	11.3	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U UJ
79-01-6	Trichloroethene	2.5	J-
75-01-4	Vinyl chloride	<0.17	U UJ
1330-20-7	Xylene (Total)	<1.0	U UJ

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-208D

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 19:57
Date Analyzed: 04/20/2023 19:57
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
Matrix: Water SDG No.: 40260906
Lab Sample ID: 40260906005
Lab File ID: 04202023.B\04202336.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	3.6	J-
107-06-2	1,2-Dichloroethane	<0.29	U UJ
75-35-4	1,1-Dichloroethene	1.5	J-
156-59-2	cis-1,2-Dichloroethene	3.4	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U UJ
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	5.4	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U UJ
79-01-6	Trichloroethene	1.6	J-
75-01-4	Vinyl chloride	<0.17	U UJ
1330-20-7	Xylene (Total)	<1.0	U UJ

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

FDUP-002

Lab Name: Pace Analytical - Green Bay
 Date Received: 04/18/2023 13:30
 Date Extracted: 04/20/2023 20:16
 Date Analyzed: 04/20/2023 20:16
 Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
 Matrix: Water SDG No.: 40260906
 Lab Sample ID: 40260906006
 Lab File ID: 04202023.B\04202337.D
 Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U ↓
75-34-3	1,1-Dichloroethane	3.5	J-
107-06-2	1,2-Dichloroethane	<0.29	U UJ
75-35-4	1,1-Dichloroethene	1.3	J-
156-59-2	cis-1,2-Dichloroethene	3.4	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U UJ
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U ↓
71-55-6	1,1,1-Trichloroethane	5.3	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U UJ
79-01-6	Trichloroethene	1.6	J-
75-01-4	Vinyl chloride	<0.17	U UJ
1330-20-7	Xylene (Total)	<1.0	U UJ

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

FB-002

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/21/2023 07:58
Date Analyzed: 04/21/2023 07:58
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
Matrix: Water SDG No.: 40260906
Lab Sample ID: 40260906007
Lab File ID: 04212023.B\04212306.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	<0.30	U
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	<0.58	U
156-59-2	cis-1,2-Dichloroethene	<0.47	U
156-60-5	trans-1,2-Dichloroethene	<0.53	U
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	0.63	J
71-55-6	1,1,1-Trichloroethane	<0.30	U
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	<0.32	U
75-01-4	Vinyl chloride	<0.17	U
1330-20-7	Xylene (Total)	<1.0	U

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

TB-002

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 14:27
Date Analyzed: 04/20/2023 14:27
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
Matrix: Water SDG No.: 40260906
Lab Sample ID: 40260906008
Lab File ID: 04202023.B\04202319.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	<0.30	U
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	<0.58	U
156-59-2	cis-1,2-Dichloroethene	<0.47	U
156-60-5	trans-1,2-Dichloroethene	<0.53	U
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	<0.30	U
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	<0.32	U
75-01-4	Vinyl chloride	<0.17	U
1330-20-7	Xylene (Total)	<1.0	U ↓

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-211D

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 17:03
Date Analyzed: 04/20/2023 17:03
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
Matrix: Water SDG No.: 40260906
Lab Sample ID: 40260906009
Lab File ID: 04202023.B\04202327.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U JJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	0.41	J J
107-06-2	1,2-Dichloroethane	<0.29	U JJ
75-35-4	1,1-Dichloroethene	<0.58	U
156-59-2	cis-1,2-Dichloroethene	<0.47	U
156-60-5	trans-1,2-Dichloroethene	<0.53	U
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	0.68	J J
79-00-5	1,1,2-Trichloroethane	<0.34	U JJ
79-01-6	Trichloroethene	<0.32	U
75-01-4	Vinyl chloride	<0.17	U
1330-20-7	Xylene (Total)	<1.0	U

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-008D

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 17:22
Date Analyzed: 04/20/2023 17:22
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
Matrix: Water SDG No.: 40260906
Lab Sample ID: 40260906010
Lab File ID: 04202023.B\04202328.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	26.6	J-
107-06-2	1,2-Dichloroethane	<0.29	U UJ
75-35-4	1,1-Dichloroethene	2.1	J-
156-59-2	cis-1,2-Dichloroethene	14.0	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U UJ
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	0.48	J J
108-88-3	Toluene	<0.29	U UJ
71-55-6	1,1,1-Trichloroethane	46.2	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U UJ
79-01-6	Trichloroethene	15.1	J-
75-01-4	Vinyl chloride	<0.17	U UJ
1330-20-7	Xylene (Total)	<1.0	U UJ

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-402XXD

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 17:42
Date Analyzed: 04/20/2023 17:42
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
Matrix: Water SDG No.: 40260906
Lab Sample ID: 40260906011
Lab File ID: 04202023.B\04202329.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U JJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U ↓
75-34-3	1,1-Dichloroethane	31.9	J-
107-06-2	1,2-Dichloroethane	<0.29	U JJ
75-35-4	1,1-Dichloroethene	5.3	J-
156-59-2	cis-1,2-Dichloroethene	17.7	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U JJ
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U ↓
71-55-6	1,1,1-Trichloroethane	47.2	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U JJ
79-01-6	Trichloroethene	12.4	J-
75-01-4	Vinyl chloride	<0.17	U JJ
1330-20-7	Xylene (Total)	<1.0	U JJ

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-402XD

Lab Name: Pace Analytical - Green Bay
 Date Received: 04/18/2023 13:30
 Date Extracted: 04/20/2023 18:01
 Date Analyzed: 04/20/2023 18:01
 Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
 Matrix: Water SDG No.: 40260906
 Lab Sample ID: 40260906012
 Lab File ID: 04202023.B\04202330.D
 Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U ↓
75-34-3	1,1-Dichloroethane	30.5	J-
107-06-2	1,2-Dichloroethane	<0.29	U UJ
75-35-4	1,1-Dichloroethene	15.8	J-
156-59-2	cis-1,2-Dichloroethene	14.2	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U UJ
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U ↓
71-55-6	1,1,1-Trichloroethane	77.4	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U UJ
79-01-6	Trichloroethene	10	J-
75-01-4	Vinyl chloride	<0.17	U UJ
1330-20-7	Xylene (Total)	<1.0	U UJ

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-204D

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/21/2023 08:18
Date Analyzed: 04/21/2023 08:18
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-PL
Matrix: Water SDG No.: 40260906
Lab Sample ID: 40260906013
Lab File ID: 04212023.B\04212307.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	6.9	J-
107-06-2	1,2-Dichloroethane	<0.29	U UJ
75-35-4	1,1-Dichloroethene	0.93	J J
156-59-2	cis-1,2-Dichloroethene	1.8	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U UJ
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	11.6	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U UJ
79-01-6	Trichloroethene	1.9	J-
75-01-4	Vinyl chloride	<0.17	U UJ
1330-20-7	Xylene (Total)	<1.0	U UJ

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Memorandum

To: Meredith Westover

From: David DiGena-Segal (Data Reviewer)
Elizabeth Denly (Peer Reviewer)

Date: June 30, 2023

Subject: Data Validation Report
VOC Groundwater Samples/Sentinel Wells: 1st Quarter 2023
Lemberger Landfill and Lemberger Transport and Recycling/Franklin, Wisconsin
Laboratory Project Number 40260905 (Revised 06/27/23)

SUMMARY

Full validation (stage IV) was performed on the data for six groundwater samples, one field duplicate, one trip blank, and one field blank collected from sentinel wells at the Lemberger Landfill and Lemberger Transport and Recycling Site in Franklin, Wisconsin. The samples were collected on April 7, 8, and 9, 2023. Samples were submitted to Pace Analytical Services, LLC in Green Bay, Wisconsin for analysis. The samples were analyzed for volatile organic compounds (VOCs) using SW-846 Method 8260B. The laboratory reported the results under laboratory project number 40260905.

The sample results were assessed using the *USEPA National Functional Guidelines for Organic Superfund Methods Data Review (EPA-540-R-20-005)*, November 2020 and the project-specific quality assurance project plan (QAPP), dated October 2022, Revision 0.

In general, the data are valid as reported and may be used for decision-making purposes. The following issues were noted which have a minor impact on the data usability:

- Select results were reported which were below the lowest calibration standard and quantitation limit (QL); these results were qualified as estimated (J).
- Potential uncertainty exists for the nondetect results for select VOCs in all samples due to continuing calibration nonconformances. These results were qualified as estimated (UJ).
- Samples RM-003XXD, RM-003D, FDUP-001, RM-210D, RM-401XXD, and TB-001 had minor headspace in the vials used for analysis; all results in these samples were qualified as estimated with potential low bias (J-/UJ). It should be noted that the positive results for 1,1-dichloroethene in sample RM-210D and trichloroethene in sample RM-401XXD were also qualified as estimated (J) due to detection below the QL; the overall qualification for these compounds in these samples was J.

SAMPLES

Samples included in this review are listed below.

- RM-002D
- RM-003D
- RM-003XXD
- RM-210D
- RM-401XXD
- RM-403XD

- FDUP-001¹
- FB-001
- TB-001

¹ Field duplicate of RM-003D

REVIEW ELEMENTS

Sample data were reviewed for the following parameters:

- Agreement of analyses conducted with chain-of-custody (COC) requests
- Data completeness
- Holding times and sample preservation
- Gas chromatography/mass spectrometry (GC/MS) tunes
- Initial and continuing calibrations
- Blanks
- Surrogate spike recoveries
- Matrix spike/matrix spike duplicate (MS/MSD) results
- Laboratory control sample (LCS) results
- Internal standard performance
- Field duplicate results
- Quantitation limits (QLs) and sample results
- Target compound identification

DISCUSSION

Agreement of Analyses Conducted with Chain-of-Custody Requests

Sample reports were checked to verify that the results corresponded to analytical requests as designated on the COC. The samples in this data set were analyzed for VOCs using SW-846 Method 8260B; according to the QAPP, the samples should have been analyzed for VOCs using SW-846 Method 8260D. No validation actions were taken based on this issue.

Data Completeness

The data package was found to be complete as received from the laboratory with the following exceptions.

- The laboratory only spiked a subset of the VOCs which were reported in the samples in the LCS and MS/MSDs. Thus, accuracy and/or precision could not be evaluated for select VOCs. No validation actions were taken on the basis of this issue.
- Select samples were improperly marked for headspace; the laboratory was contacted about this issue and provided a revised report on 06/27/23.

Holding Times and Sample Preservation

All holding time and sample preservation criteria were met with the following exception: samples RM-003XXD, RM-003D, FDUP-001, RM-210D, RM-401XXD, and TB-001 had headspace observed upon receipt by the laboratory. The positive and nondetect results for all VOCs in samples RM-003XXD, RM-003D, FDUP-001, RM-210D, RM-401XXD, and TB-001 were qualified as estimated (J-

/UJ) with a potential low bias due to the headspace. It should be noted that the positive results for 1,1-dichloroethene in sample RM-210D and trichloroethene in sample RM-401XXD were also qualified as estimated (J) due to detection below the QL; the overall qualification for these compounds in these samples was J.

Note that samples were received by the laboratory 9 to 11 days after collection. Samples were stored in coolers, on ice, in a locked former treatment building at the site until delivery to the laboratory. No validation actions were required on this basis since the samples were kept on ice prior to delivery to the laboratory and were received on ice by the laboratory.

GC/MS Tunes

The frequency and abundance of all bromofluorobenzene tunes were within the acceptance criteria.

Initial and Continuing Calibrations

The percent relative standard deviations and relative response factors (RRFs) were within the laboratory acceptance criteria in the initial calibration.

All RRFs were within the acceptance criteria in the continuing calibration (CC). The following table summarizes the percent differences (%Ds) which were outside of the laboratory acceptance criteria in the CC, the associated samples and validation actions.

CC	Analyte	%D	Associated Sample(s)	Validation Actions
40MSV8 04/20/23 @08:57	Acetone	34.8983	All samples in this data set	The nondetect results for the listed VOCs were qualified as estimated (UJ) in the associated samples.
	Chloromethane	-23.4771		
	2-Hexanone	28.4237		
	4-Methyl-2-pentanone (MIBK)	22.9508		

Blanks

Target analytes were not detected in the trip blank or method blank. The following table summarizes the compound that was detected in the field blank and the resulting validation actions.

Blank ID	Compound	Blank Concentration (µg/L)	2x Blank Concentration (µg/L)	QL (µg/L)	Validation Action
FB-001	Toluene	0.40 J	0.8 J	1.0	Qualification was not required since toluene was nondetect in the associated samples.
Associated samples: All samples in this data set					

Surrogate Spike Recoveries

The percent recoveries (%Rs) of the surrogates were within the laboratory acceptance criteria for all samples.

MS/MSD Results

MS/MSD analyses were performed on sample RM-003XXD. All criteria were met.

Note that the laboratory only spiked a subset of the VOCs which were reported in the samples in the MS/MSDs; thus, accuracy and precision could not be evaluated for the following VOCs (which were not spiked) in the MS/MSD analyses: acetone, 2-butanone, 2-hexanone, and 4-methyl-2-pentanone. No validation action was taken on this basis.

LCS Results

An LCS was performed on each day of analysis. All criteria were met.

Note that the laboratory only spiked a subset of the VOCs that were reported in the samples in the LCS. Thus, accuracy could not be evaluated for the following VOCs (which were not spiked) in the LCS analyses: acetone, 2-butanone, 2-hexanone, and 4-methyl-2-pentanone. No validation action was taken on this basis.

Internal Standard Performance

Internal standards were within the method acceptance criteria in all sample analyses.

Field Duplicate Results

The following samples were submitted as the field duplicate pair with this data set:

- RM-003D and FDUP-001

The relative percent difference (RPD) is not applicable for comparison of results if either concentration is <5x the QL; comparison in this case is based on the absolute difference (AbsD) between the results. The acceptance limits for field duplicates in aqueous media is ≤30% for the RPD and <QL for the AbsD. For analytes that are detected in one sample and nondetect in the other, the QL is used to represent the nondetect result in the AbsD calculation. The following table summarizes the detected results, the RPD or AbsD values (as applicable) for the detected analytes in each field duplicate pair, and the resulting validation actions. As shown in the table, criteria were met for all detected analytes.

Analyte	QL (µg/L)	RM-003D (µg/L)	FDUP-001 (µg/L)	RPD (%) or AbsD (µg/L)	Validation Actions
1,1,1-Trichloroethane	1.0	11.4	11.4	RPD: 0.0	None. All criteria were met.
1,1-Dichloroethane	1.0	6.6	6.6	RPD: 0.0	
1,1-Dichloroethene	1.0	1.1	1.2	AbsD: 0.1	
Trichloroethene	1.0	1.9	2.1	AbsD: 0.2	
cis-1,2-Dichloroethene	1.0	1.8	1.9	AbsD: 0.1	
Criteria: RPD ≤ 30%; AbsD < QL					

Quantitation Limits and Sample Results

Sample calculations were spot-checked; there were no errors noted. No dilutions were performed in the VOC analyses of these samples.

Select results were reported which were below the lowest calibration standard level and QL (or limit of quantitation [LOQ]). These results were qualified as estimated (J) by the laboratory.

The laboratory's limit of detection (LOD) for select VOCs was above one or both of the project action limits specified in the QAPP; the affected VOCs, project action limits, and current laboratory LODs are summarized in the table below.

Analyte	Affected Samples	WAC Chapter NR 140 PAL (µg/L)	WAC Chapter NR 140 ES (µg/L)	Laboratory LOD (µg/L)
1,1,2,2-Tetrachloroethane	All samples in this data set	0.02	0.2	0.38
Bromodichloromethane		0.06	0.6*	0.42
Bromomethane		1	10*	1.2
cis-1,3-Dichloropropene		0.04	0.4*	0.24
trans-1,3-Dichloropropene		0.04	0.4*	0.27
Vinyl chloride		0.02	0.2*	0.17
* Laboratory LOD is below the action limit.				

Target Compound Identification

All criteria were met.

QUALIFIED FORM 1s

MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-403XD

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 18:21
Date Analyzed: 04/20/2023 18:21
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-SE
Matrix: Water SDG No.: 40260905
Lab Sample ID: 40260905001
Lab File ID: 04202023.B\04202331.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U JJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U JJ
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	36.6	
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	6.3	
156-59-2	cis-1,2-Dichloroethene	5.9	
156-60-5	trans-1,2-Dichloroethene	<0.53	U
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U JJ
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U JJ
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	0.56	J
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	58.2	
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	7.5	
75-01-4	Vinyl chloride	<0.17	U
1330-20-7	Xylene (Total)	<1.0	U

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-003XXD

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 15:06
Date Analyzed: 04/20/2023 15:06
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-SE
Matrix: Water SDG No.: 40260905
Lab Sample ID: 40260905002
Lab File ID: 04202023.B\04202321.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U U J
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	5.5	J-
107-06-2	1,2-Dichloroethane	<0.29	U U J
75-35-4	1,1-Dichloroethene	0.81	J
156-59-2	cis-1,2-Dichloroethene	1.7	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U U J
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	7.1	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U U J
79-01-6	Trichloroethene	2.2	J-
75-01-4	Vinyl chloride	<0.17	U U J
1330-20-7	Xylene (Total)	<1.0	U U J

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-003D

Lab Name: Pace Analytical - Green Bay
 Date Received: 04/18/2023 13:30
 Date Extracted: 04/20/2023 15:25
 Date Analyzed: 04/20/2023 15:25
 Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-SE
 Matrix: Water SDG No.: 40260905
 Lab Sample ID: 40260905003
 Lab File ID: 04202023.B\04202322.D
 Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	6.6	J-
107-06-2	1,2-Dichloroethane	<0.29	U UJ
75-35-4	1,1-Dichloroethene	1.1	J-
156-59-2	cis-1,2-Dichloroethene	1.8	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U UJ
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	11.4	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U UJ
79-01-6	Trichloroethene	1.9	J-
75-01-4	Vinyl chloride	<0.17	U UJ
1330-20-7	Xylene (Total)	<1.0	U UJ

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

FDUP-001

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 18:40
Date Analyzed: 04/20/2023 18:40
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-SE
Matrix: Water SDG No.: 40260905
Lab Sample ID: 40260905004
Lab File ID: 04202023.B\04202332.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U ↓
75-34-3	1,1-Dichloroethane	6.6	J-
107-06-2	1,2-Dichloroethane	<0.29	U UJ
75-35-4	1,1-Dichloroethene	1.2	J-
156-59-2	cis-1,2-Dichloroethene	1.9	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U UJ
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U ↓
71-55-6	1,1,1-Trichloroethane	11.4	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U UJ
79-01-6	Trichloroethene	2.1	J-
75-01-4	Vinyl chloride	<0.17	U UJ
1330-20-7	Xylene (Total)	<1.0	U UJ

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-002D

Lab Name: Pace Analytical - Green Bay
 Date Received: 04/18/2023 13:30
 Date Extracted: 04/20/2023 16:24
 Date Analyzed: 04/20/2023 16:24
 Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-SE
 Matrix: Water SDG No.: 40260905
 Lab Sample ID: 40260905005
 Lab File ID: 04202023.B\04202325.D
 Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	3.6	
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	<0.58	U
156-59-2	cis-1,2-Dichloroethene	0.89	J
156-60-5	trans-1,2-Dichloroethene	<0.53	U
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	5.1	
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	1.4	
75-01-4	Vinyl chloride	<0.17	U
1330-20-7	Xylene (Total)	<1.0	U

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-210D

Lab Name: Pace Analytical - Green Bay
 Date Received: 04/18/2023 13:30
 Date Extracted: 04/20/2023 16:43
 Date Analyzed: 04/20/2023 16:43
 Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-SE
 Matrix: Water SDG No.: 40260905
 Lab Sample ID: 40260905006
 Lab File ID: 04202023.B\04202326.D
 Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U U
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U ↓
75-34-3	1,1-Dichloroethane	3.7	J-
107-06-2	1,2-Dichloroethane	<0.29	U U
75-35-4	1,1-Dichloroethene	0.90	J
156-59-2	cis-1,2-Dichloroethene	1.6	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U U
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U ↓
71-55-6	1,1,1-Trichloroethane	6.2	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U U
79-01-6	Trichloroethene	1.4	J-
75-01-4	Vinyl chloride	<0.17	U U
1330-20-7	Xylene (Total)	<1.0	U U

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

RM-401XXD

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 18:59
Date Analyzed: 04/20/2023 18:59
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-SE
Matrix: Water SDG No.: 40260905
Lab Sample ID: 40260905007
Lab File ID: 04202023.B\04202333.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	3.1	J-
107-06-2	1,2-Dichloroethane	<0.29	U UJ
75-35-4	1,1-Dichloroethene	1.8	J-
156-59-2	cis-1,2-Dichloroethene	4.2	J-
156-60-5	trans-1,2-Dichloroethene	<0.53	U UJ
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	3.6	J-
79-00-5	1,1,2-Trichloroethane	<0.34	U UJ
79-01-6	Trichloroethene	0.81	J
75-01-4	Vinyl chloride	<0.17	U UJ
1330-20-7	Xylene (Total)	<1.0	U UJ

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

FB-001

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 14:46
Date Analyzed: 04/20/2023 14:46
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-SE
Matrix: Water SDG No.: 40260905
Lab Sample ID: 40260905008
Lab File ID: 04202023.B\04202320.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U UJ
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U UJ
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	<0.30	U
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	<0.58	U
156-59-2	cis-1,2-Dichloroethene	<0.47	U
156-60-5	trans-1,2-Dichloroethene	<0.53	U
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U UJ
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U UJ
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	0.40	J
71-55-6	1,1,1-Trichloroethane	<0.30	U
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	<0.32	U
75-01-4	Vinyl chloride	<0.17	U
1330-20-7	Xylene (Total)	<1.0	U

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MSV - FORM I VOA-1
VOLATILE ORGANICS ANALYSIS DATA SHEET

SAMPLE NO.

TB-001

Lab Name: Pace Analytical - Green Bay
Date Received: 04/18/2023 13:30
Date Extracted: 04/20/2023 14:07
Date Analyzed: 04/20/2023 14:07
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH2 LEMBERGER LF-SE
Matrix: Water SDG No.: 40260905
Lab Sample ID: 40260905009
Lab File ID: 04202023.B\04202318.D
Instrument: 40MSV8 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U U
71-43-2	Benzene	<0.30	U
75-27-4	Bromodichloromethane	<0.42	U
75-25-2	Bromoform	<0.43	U
74-83-9	Bromomethane	<1.2	U
78-93-3	2-Butanone (MEK)	<6.5	U
75-15-0	Carbon disulfide	<0.65	U
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	<0.86	U
75-00-3	Chloroethane	<1.4	U
67-66-3	Chloroform	<0.50	U
74-87-3	Chloromethane	<1.6	U
124-48-1	Dibromochloromethane	<2.6	U
75-34-3	1,1-Dichloroethane	<0.30	U
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	<0.58	U
156-59-2	cis-1,2-Dichloroethene	<0.47	U
156-60-5	trans-1,2-Dichloroethene	<0.53	U
78-87-5	1,2-Dichloropropane	<0.45	U
10061-01-5	cis-1,3-Dichloropropene	<0.24	U
10061-02-6	trans-1,3-Dichloropropene	<0.27	U
100-41-4	Ethylbenzene	<0.33	U
591-78-6	2-Hexanone	<6.3	U
75-09-2	Methylene Chloride	<0.32	U
108-10-1	4-Methyl-2-pentanone (MIBK)	<6.0	U
100-42-5	Styrene	<0.36	U
79-34-5	1,1,2,2-Tetrachloroethane	<0.38	U
127-18-4	Tetrachloroethene	<0.41	U
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	<0.30	U
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	<0.32	U
75-01-4	Vinyl chloride	<0.17	U
1330-20-7	Xylene (Total)	<1.0	U V

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Attachment 2

Table of Wisconsin Administrative Code Chapter NR 140 Groundwater Quality Standards (Enforcement Standards [ESs], Preventive Action Limits [PALs], Maximum Contaminant Levels [MCLs], and Secondary Maximum Contaminant Levels [SMCLs]) for the Pertinent Parameters

**Attachment 2
Groundwater Quality Standards**

Parameter Name	Units	MCL	SMCL	NR PAL	NR ES
1,1,1,2-Tetrachloroethane	µg/L			7	70
1,1,1-Trichloroethane	µg/L	200		40	200
1,1,2-Trichloroethane	µg/L	5		0.5	5
1,1-Dichloroethene	µg/L	7		0.7	7
1,2,3-Trichloropropane	µg/L			12	60
1,2,4-Trichlorobenzene	µg/L	70		14	70
1,2-Dichlorobenzene	µg/L	600		60	600
1,2-Dichloroethane	µg/L	5		0.5	5
1,2-Dichloropropane	µg/L	5		0.5	5
1,4-Dichlorobenzene	µg/L	75		15	75
2,3,7,8-TCDD	ng/L	0.03		0.003	0.03
Alpha-chlordane	µg/L	2		0.2	2
Anthracene	µg/L			600	3000
Antimony, dissolved	µg/L	6		1.2	6
Antimony, total	µg/L	6		1.2	6
Aroclor-1016	µg/L	0.5		0.003	0.03
Aroclor-1221	µg/L	0.5		0.003	0.03
Aroclor-1232	µg/L	0.5		0.003	0.03
Aroclor-1242	µg/L	0.5		0.003	0.03
Aroclor-1248	µg/L	0.5		0.003	0.03
Aroclor-1254	µg/L	0.5		0.003	0.03
Aroclor-1260	µg/L	0.5		0.003	0.03
Arsenic, dissolved	µg/L	10		1	10
Arsenic, total	µg/L	10		1	10
Barium, dissolved	µg/L	2000		400	2000
Barium, total	µg/L	2000		400	2000
Bentazon	µg/L			60	300
Benzene	µg/L	5		0.5	5
Benzo(a)pyrene	µg/L	0.2		0.02	0.2
Benzo(b)fluoranthene	µg/L			0.02	0.2
Beryllium, dissolved	µg/L	4		0.4	4
Beryllium, total	µg/L	4		0.4	4
bis(2-ethylhexyl)Phthalate	µg/L	6		0.6	6
Cadmium, dissolved	µg/L	5		0.5	5
Cadmium, total	µg/L	5		0.5	5

**Attachment 2 (continued)
Groundwater Quality Standards**

Parameter Name	Units	MCL	SMCL	NR PAL	NR ES
Carbon disulfide	µg/L			200	1000
Carbon tetrachloride	µg/L	5		0.5	5
Chlordane, technical	µg/L	2		0.2	2
Chloride	mg/L		250	125	250
Chlorobenzene	µg/L	100		20	100
Chromium, dissolved	µg/L	100		10	100
Chromium, total	µg/L	100		10	100
Chrysene	µg/L			0.02	0.2
cis-1,2-Dichloroethene	µg/L	70		7	70
Cobalt, dissolved	µg/L			8	40
Cobalt, total	µg/L			8	40
Copper, dissolved	µg/L	1300	1000	130	1300
Copper, total	µg/L	1300	1000	130	1300
Cyanazine	µg/L			0.1	1
Cyanide, total	mg/L	0.2		0.04	0.2
Di-n-butylphthalate	µg/L			100	1000
Endrin	µg/L	2		0.4	2
Ethylbenzene	µg/L	700		140	700
Fluoranthene	µg/L			80	400
Gamma-BHC (lindane)	µg/L	0.2		0.02	0.2
Gamma-chlordane	µg/L	2		0.2	2
Heptachlor	µg/L	0.4		0.04	0.4
Heptachlor epoxide	µg/L	0.2		0.02	0.2
Hexachlorobenzene	µg/L	1		0.1	1
Hydrogen sulfide	µg/L			6	30
Iron, dissolved	µg/L		300	150	300
Iron, total	µg/L		300	150	300
Lead, dissolved	µg/L	15		1.5	15
Lead, total	µg/L	15		1.5	15
Manganese, dissolved	µg/L		50	60	300
Manganese, total	µg/L		50	60	300
Mercury, dissolved	µg/L	2		0.2	2
Mercury, total	µg/L	2		0.2	2
Methanol	µg/L			1000	5000
Methoxychlor	µg/L	40		4	40
Methylene chloride	µg/L	5		0.5	5

**Attachment 2 (continued)
Groundwater Quality Standards**

Parameter Name	Units	MCL	SMCL	NR PAL	NR ES
N-hexane	µg/L			120	600
Nickel, dissolved	µg/L			20	100
Nickel, total	µg/L			20	100
Nitrogen, ammonia	mg/L			0.97	9.7
N-nitrosodiphenylamine	µg/L			0.7	7
Pentachlorophenol	µg/L	1		0.1	1
Prometon	µg/L			20	100
Pyrene	µg/L			50	250
Pyridine	µg/L			2	10
Selenium, dissolved	µg/L	50		10	50
Selenium, total	µg/L	50		10	50
Silver, dissolved	µg/L		100	10	50
Silver, total	µg/L		100	10	50
Styrene	µg/L	100		10	100
Tetrachloroethene	µg/L	5		0.5	5
Thallium, dissolved	µg/L	2		0.4	2
Thallium, total	µg/L	2		0.4	2
Toluene	µg/L	1000		160	800
Toxaphene	µg/L	3		0.3	3
trans-1,2-Dichloroethene	µg/L	100		20	100
Trichloroethene	µg/L	5		0.5	5
Trimethylbenzenes, total	µg/L			96	480
Vanadium, dissolved	µg/L			6	30
Vanadium, total	µg/L			6	30
Vinyl chloride	µg/L	2		0.02	0.2
Xylenes, total	µg/L	10000		400	2000
Zinc, dissolved	µg/L		5000	2500	5000
Zinc, total	µg/L		5000	2500	5000

Note:
Table updated February 2021 to reflect January 2020 register (WDNR) and latest USEPA MCLs.

Attachment 3

Tabular Summary of Analytical Results at Each Monitoring Well

**LEMBERGER LANDFILL
MONITORING WELL VOLATILE ORGANIC ANALYSIS RESULTS
MARCH/APRIL 2023**

PARAMETER	UNITS	RM-002D	RM-003D	RM-003D DUP	RM-003XXD	RM-005D	RM-007XD	RM-008D	RM-204D
		4/8/2023	4/7/2023	4/7/2023	4/7/2023	4/9/2023	4/9/2023	4/8/2023	4/8/2023
		40260905005	40260905003	40260905004	40260905002	40260906004	40260906002	40260906010	40260906013
1,1,1-TRICHLOROETHANE	UG/L	5.1	11.4 j-	11.4 j-	7.1 j-	11.3 j-	200 j-	46.2 j-	11.6 j-
1,1,2,2-TETRACHLOROETHANE	UG/L	< 0.38	< 0.38 uj	< 0.38 uj	< 0.38 uj	< 0.38 uj	< 0.38 uj	< 0.38 uj	< 0.38 uj
1,1,2-TRICHLOROETHANE	UG/L	< 0.34	< 0.34 uj	< 0.34 uj	< 0.34 uj	< 0.34 uj	< 0.34 uj	< 0.34 uj	< 0.34 uj
1,1-DICHLOROETHANE	UG/L	3.6	6.6 j-	6.6 j-	5.5 j-	9.7 j-	169 j-	26.6 j-	6.9 j-
1,1-DICHLOROETHENE	UG/L	< 0.58	1.1 j-	1.2 j-	0.81 J	2.4 j-	36.8 j-	2.1 j-	0.93 Jj
1,2-DICHLOROETHANE	UG/L	< 0.29	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29 uj
1,2-DICHLOROPROPANE	UG/L	< 0.45	< 0.45 uj	< 0.45 uj	< 0.45 uj	< 0.45 uj	< 0.45 uj	< 0.45 uj	< 0.45 uj
2-BUTANONE	UG/L	< 6.5	< 6.5 uj	< 6.5 uj	< 6.5 uj	< 6.5 uj	< 6.5 uj	< 6.5 uj	< 6.5 uj
2-HEXANONE	UG/L	< 6.3 uj	< 6.3 uj	< 6.3 uj	< 6.3 uj	< 6.3 uj	< 6.3 uj	< 6.3 uj	< 6.3 uj
4-METHYL-2-PENTANONE	UG/L	< 6.0 uj	< 6.0 uj	< 6.0 uj	< 6.0 uj	< 6.0 uj	< 6.0 uj	< 6.0 uj	< 6.0 uj
ACETONE	UG/L	< 8.6 uj	< 8.6 uj	< 8.6 uj	< 8.6 uj	< 8.6 uj	< 8.6 uj	< 8.6 uj	< 8.6 uj
BENZENE	UG/L	< 0.30	< 0.30 uj	< 0.30 uj	< 0.30 uj	< 0.30 uj	< 0.30 uj	< 0.30 uj	< 0.30 uj
BROMODICHLOROMETHANE	UG/L	< 0.42	< 0.42 uj	< 0.42 uj	< 0.42 uj	< 0.42 uj	< 0.42 uj	< 0.42 uj	< 0.42 uj
BROMOFORM	UG/L	< 0.43	< 0.43 uj	< 0.43 uj	< 0.43 uj	< 0.43 uj	< 0.43 uj	< 0.43 uj	< 0.43 uj
BROMOMETHANE	UG/L	< 1.2	< 1.2 uj	< 1.2 uj	< 1.2 uj	< 1.2 uj	< 1.2 uj	< 1.2 uj	< 1.2 uj
CARBON DISULFIDE	UG/L	< 0.65	< 0.65 uj	< 0.65 uj	< 0.65 uj	< 0.65 uj	< 0.65 uj	< 0.65 uj	< 0.65 uj
CARBON TETRACHLORIDE	UG/L	< 0.37	< 0.37 uj	< 0.37 uj	< 0.37 uj	< 0.37 uj	< 0.37 uj	< 0.37 uj	< 0.37 uj
CHLOROBENZENE	UG/L	< 0.86	< 0.86 uj	< 0.86 uj	< 0.86 uj	< 0.86 uj	< 0.86 uj	< 0.86 uj	< 0.86 uj
CHLORODIBROMOMETHANE	UG/L	< 2.6	< 2.6 uj	< 2.6 uj	< 2.6 uj	< 2.6 uj	< 2.6 uj	< 2.6 uj	< 2.6 uj
CHLOROETHANE	UG/L	< 1.4	< 1.4 uj	< 1.4 uj	< 1.4 uj	< 1.4 uj	< 1.4 uj	< 1.4 uj	< 1.4 uj
CHLOROFORM	UG/L	< 0.50	< 0.50 uj	< 0.50 uj	< 0.50 uj	< 0.50 uj	< 0.50 uj	< 0.50 uj	< 0.50 uj
CHLOROMETHANE	UG/L	< 1.6 uj	< 1.6 uj	< 1.6 uj	< 1.6 uj	< 1.6 uj	< 1.6 uj	< 1.6 uj	< 1.6 uj
CIS-1,2-DICHLOROETHENE	UG/L	0.89 J	1.8 j-	1.9 j-	1.7 j-	5.5 j-	84.9 j-	14.0 j-	1.8 j-
CIS-1,3-DICHLOROPROPENE	UG/L	< 0.24	< 0.24 uj	< 0.24 uj	< 0.24 uj	< 0.24 uj	< 0.24 uj	< 0.24 uj	< 0.24 uj
ETHYLBENZENE	UG/L	< 0.33	< 0.33 uj	< 0.33 uj	< 0.33 uj	< 0.33 uj	< 0.33 uj	< 0.33 uj	< 0.33 uj
METHYLENE CHLORIDE	UG/L	< 0.32	< 0.32 uj	< 0.32 uj	< 0.32 uj	< 0.32 uj	< 0.32 uj	< 0.32 uj	< 0.32 uj
STYRENE	UG/L	< 0.36	< 0.36 uj	< 0.36 uj	< 0.36 uj	< 0.36 uj	< 0.36 uj	< 0.36 uj	< 0.36 uj
TETRACHLOROETHENE	UG/L	< 0.41	< 0.41 uj	< 0.41 uj	< 0.41 uj	< 0.41 uj	1.9 j-	0.48 Jj	< 0.41 uj
TOLUENE	UG/L	< 0.29	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29 uj
TRANS-1,2-DICHLOROETHENE	UG/L	< 0.53	< 0.53 uj	< 0.53 uj	< 0.53 uj	< 0.53 uj	< 0.53 uj	< 0.53 uj	< 0.53 uj
TRANS-1,3-DICHLOROPROPENE	UG/L	< 0.27	< 0.27 uj	< 0.27 uj	< 0.27 uj	< 0.27 uj	< 0.27 uj	< 0.27 uj	< 0.27 uj
TRICHLOROETHENE	UG/L	1.4	1.9 j-	2.1 j-	2.2 j-	2.5 j-	43.4 j-	15.1 j-	1.9 j-
VINYL CHLORIDE	UG/L	< 0.17	< 0.17 uj	< 0.17 uj	< 0.17 uj	< 0.17 uj	< 0.17 uj	< 0.17 uj	< 0.17 uj
XYLENE, TOTAL	UG/L	< 1.0	< 1.0 uj	< 1.0 uj	< 1.0 uj	< 1.0 uj	< 1.0 uj	< 1.0 uj	< 1.0 uj

NOTES:

Laboratory data qualifiers are included in Attachment 4. See specific laboratory report for Sample Delivery Group (SDG) definition.

Non-detect results are reported as "< Limit of Detection (LOD)"

Data Validation Qualifiers:

u = data validation rules result as not detected

j = the result is estimated

j+ = the result is estimated with a positive bias.

j- = the result is estimated with a negative bias.

**LEMBERGER LANDFILL
MONITORING WELL VOLATILE ORGANIC ANALYSIS RESULTS
MARCH/APRIL 2023**

PARAMETER	UNITS	RM-208D	RM-208D DUP	RM-210D	RM-211D	RM-307D	RM-401XD	RM-401XXD	RM-402XD	RM-402XXD	RM-403XD
		4/9/2023	4/9/2023	4/8/2023	4/7/2023	4/9/2023	4/9/2023	4/9/2023	4/8/2023	4/8/2023	4/7/2023
		40260906005	40260906006	40260905006	40260906009	40260906001	40260906003	40260905007	40260906012	40260906011	40260905001
1,1,1-TRICHLOROETHANE	UG/L	5.4 j-	5.3 j-	6.2 j-	0.68 Jj	61.6	11.4	3.6 j-	77.4 j-	47.2 j-	58.2
1,1,2,2-TETRACHLOROETHANE	UG/L	< 0.38 uj	< 0.38 uj	< 0.38 uj	< 0.38 uj	< 0.38	< 0.38	< 0.38 uj	< 0.38 uj	< 0.38 uj	< 0.38
1,1,2-TRICHLOROETHANE	UG/L	< 0.34 uj	< 0.34 uj	< 0.34 uj	< 0.34 uj	< 0.34	< 0.34	< 0.34 uj	< 0.34 uj	< 0.34 uj	< 0.34
1,1-DICHLOROETHANE	UG/L	3.6 j-	3.5 j-	3.7 j-	0.41 Jj	16.1	7.9	3.1 j-	30.5 j-	31.9 j-	36.6
1,1-DICHLOROETHENE	UG/L	1.5 j-	1.3 j-	0.90 J	< 0.58 uj	3.3	2.3	1.8 j-	15.8 j-	5.3 j-	6.3
1,2-DICHLOROETHANE	UG/L	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29	< 0.29	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29
1,2-DICHLOROPROPANE	UG/L	< 0.45 uj	< 0.45 uj	< 0.45 uj	< 0.45 uj	< 0.45	< 0.45	< 0.45 uj	< 0.45 uj	< 0.45 uj	< 0.45
2-BUTANONE	UG/L	< 6.5 uj	< 6.5 uj	< 6.5 uj	< 6.5 uj	< 6.5	< 6.5	< 6.5 uj	< 6.5 uj	< 6.5 uj	< 6.5
2-HEXANONE	UG/L	< 6.3 uj	< 6.3 uj	< 6.3 uj	< 6.3 uj	< 6.3	< 6.3 uj	< 6.3 uj	< 6.3 uj	< 6.3 uj	< 6.3 uj
4-METHYL-2-PENTANONE	UG/L	< 6.0 uj	< 6.0 uj	< 6.0 uj	< 6.0 uj	< 6.0	< 6.0 uj	< 6.0 uj	< 6.0 uj	< 6.0 uj	< 6.0 uj
ACETONE	UG/L	< 8.6 uj	< 8.6 uj	< 8.6 uj	< 8.6 uj	< 8.6	< 8.6 uj	< 8.6 uj	< 8.6 uj	< 8.6 uj	< 8.6 uj
BENZENE	UG/L	< 0.30 uj	< 0.30 uj	< 0.30 uj	< 0.30 uj	< 0.30	< 0.30	< 0.30 uj	< 0.30 uj	< 0.30 uj	< 0.30
BROMODICHLOROMETHANE	UG/L	< 0.42 uj	< 0.42 uj	< 0.42 uj	< 0.42 uj	< 0.42	< 0.42	< 0.42 uj	< 0.42 uj	< 0.42 uj	< 0.42
BROMOFORM	UG/L	< 0.43 uj	< 0.43 uj	< 0.43 uj	< 0.43 uj	< 0.43	< 0.43	< 0.43 uj	< 0.43 uj	< 0.43 uj	< 0.43
BROMOMETHANE	UG/L	< 1.2 uj	< 1.2 uj	< 1.2 uj	< 1.2 uj	< 1.2	< 1.2	< 1.2 uj	< 1.2 uj	< 1.2 uj	< 1.2
CARBON DISULFIDE	UG/L	< 0.65 uj	< 0.65 uj	< 0.65 uj	< 0.65 uj	< 0.65	< 0.65	< 0.65 uj	< 0.65 uj	< 0.65 uj	< 0.65
CARBON TETRACHLORIDE	UG/L	< 0.37 uj	< 0.37 uj	< 0.37 uj	< 0.37 uj	< 0.37	< 0.37	< 0.37 uj	< 0.37 uj	< 0.37 uj	< 0.37
CHLOROBENZENE	UG/L	< 0.86 uj	< 0.86 uj	< 0.86 uj	< 0.86 uj	< 0.86	< 0.86	< 0.86 uj	< 0.86 uj	< 0.86 uj	< 0.86
CHLORODIBROMOMETHANE	UG/L	< 2.6 uj	< 2.6 uj	< 2.6 uj	< 2.6 uj	< 2.6	< 2.6	< 2.6 uj	< 2.6 uj	< 2.6 uj	< 2.6
CHLOROETHANE	UG/L	< 1.4 uj	< 1.4 uj	< 1.4 uj	< 1.4 uj	< 1.4	< 1.4	< 1.4 uj	< 1.4 uj	< 1.4 uj	< 1.4
CHLOROFORM	UG/L	< 0.50 uj	< 0.50 uj	< 0.50 uj	< 0.50 uj	< 0.50	< 0.50	< 0.50 uj	< 0.50 uj	< 0.50 uj	< 0.50
CHLOROMETHANE	UG/L	< 1.6 uj	< 1.6 uj	< 1.6 uj	< 1.6 uj	< 1.6	< 1.6 uj	< 1.6 uj	< 1.6 uj	< 1.6 uj	< 1.6 uj
CIS-1,2-DICHLOROETHENE	UG/L	3.4 j-	3.4 j-	1.6 j-	< 0.47 uj	3.1	4.3	4.2 j-	14.2 j-	17.7 j-	5.9
CIS-1,3-DICHLOROPROPENE	UG/L	< 0.24 uj	< 0.24 uj	< 0.24 uj	< 0.24 uj	< 0.24	< 0.24	< 0.24 uj	< 0.24 uj	< 0.24 uj	< 0.24
ETHYLBENZENE	UG/L	< 0.33 uj	< 0.33 uj	< 0.33 uj	< 0.33 uj	< 0.33	< 0.33	< 0.33 uj	< 0.33 uj	< 0.33 uj	< 0.33
METHYLENE CHLORIDE	UG/L	< 0.32 uj	< 0.32 uj	< 0.32 uj	< 0.32 uj	< 0.32	< 0.32	< 0.32 uj	< 0.32 uj	< 0.32 uj	< 0.32
STYRENE	UG/L	< 0.36 uj	< 0.36 uj	< 0.36 uj	< 0.36 uj	< 0.36	< 0.36	< 0.36 uj	< 0.36 uj	< 0.36 uj	< 0.36
TETRACHLOROETHENE	UG/L	< 0.41 uj	< 0.41 uj	< 0.41 uj	< 0.41 uj	0.73 J	< 0.41	< 0.41 uj	< 0.41 uj	< 0.41 uj	0.56 J
TOLUENE	UG/L	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29	< 0.29	< 0.29 uj	< 0.29 uj	< 0.29 uj	< 0.29
TRANS-1,2-DICHLOROETHENE	UG/L	< 0.53 uj	< 0.53 uj	< 0.53 uj	< 0.53 uj	< 0.53	< 0.53	< 0.53 uj	< 0.53 uj	< 0.53 uj	< 0.53
TRANS-1,3-DICHLOROPROPENE	UG/L	< 0.27 uj	< 0.27 uj	< 0.27 uj	< 0.27 uj	< 0.27	< 0.27	< 0.27 uj	< 0.27 uj	< 0.27 uj	< 0.27
TRICHLOROETHENE	UG/L	1.6 j-	1.6 j-	1.4 j-	< 0.32 uj	7.5	2.2	0.81 J	10 j-	12.4 j-	7.5
VINYL CHLORIDE	UG/L	< 0.17 uj	< 0.17 uj	< 0.17 uj	< 0.17 uj	< 0.17	< 0.17	< 0.17 uj	< 0.17 uj	< 0.17 uj	< 0.17
XYLENE, TOTAL	UG/L	< 1.0 uj	< 1.0 uj	< 1.0 uj	< 1.0 uj	< 1.0	< 1.0	< 1.0 uj	< 1.0 uj	< 1.0 uj	< 1.0

NOTES:

Laboratory data qualifiers are included in Attachment 4. See specific laboratory report for Sample Delivery Group (SDG) definition.

Non-detect results are reported as "< Limit of Detection (LOD)"

Data Validation Qualifiers:

u = data validation rules result as not detected

j = the result is estimated

j+ = the result is estimated with a positive bias.

j- = the result is estimated with a negative bias.

LEMBERGER LANDFILL
MONITORING WELL INDICATOR PARAMETERS AND FIELD DATA
MARCH/APRIL 2023

PARAMETER	UNITS	RM-002D	RM-003D	RM-003XXD	RM-005D	RM-007XD	RM-008D	RM-204D	RM-208D
		4/8/2023 40260905005	4/7/2023 40260905003	4/7/2023 40260905002	4/9/2023 40260906004	4/9/2023 40260906002	4/8/2023 40260906010	4/8/2023 40260906013	4/9/2023 40260906005
COLOR, FIELD		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
CONDUCTANCE, SPECIFIC	UMHOS/CM	594	725	771	783	906	935	730	739
DEPTH TO WATER	FEET	22.91	16.76	12.28	41.60	33.31	32.74	28.87	37.93
DISSOLVED OXYGEN, FIELD	MG/L	1.17	1.13	2.75	1.13	1.44	1.72	0.50	1.86
ODOR, FIELD		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
OXIDATION REDUCTION POTENTIAL	MV	121	145	141	149	153	97	73	114
PH, FIELD	SU	7.24	7.30	7.32	7.26	7.15	7.18	7.34	7.34
TEMPERATURE	DEG C	8.8	9.4	9.0	9.9	9.6	9.0	9.2	9.9
TURBIDITY, FIELD NTU	NTU	7	0	0	0	0	0	6	0
WATER ELEVATION	FEET	792.8	803.37	809.25	801.48	810.88	812.74	799.61	801.98

**LEMBERGER LANDFILL
MONITORING WELL INDICATOR PARAMETERS AND FIELD DATA
MARCH/APRIL 2023**

		RM-210D 4/8/2023 40260905006	RM-211D 4/7/2023 40260906009	RM-307D 4/9/2023 40260906001	RM-401XD 4/9/2023 40260906003	RM-401XXD 4/9/2023 40260905007	RM-402XD 4/8/2023 40260906012	RM-402XXD 4/8/2023 40260906011	RM-403XD 4/7/2023 40260905001
PARAMETER	UNITS								
COLOR, FIELD		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
CONDUCTANCE, SPECIFIC	UMHOS/CM	742	702	748	757	750	1119	902	747
DEPTH TO WATER	FEET	30.23	14.72	42.50	30.83	23.83	31.81	32.20	34.94
DISSOLVED OXYGEN, FIELD	MG/L	1.80	3.73	5.34	1.56	2.19	1.11	2.07	2.45
ODOR, FIELD		NONE	NONE	NONE	NONE	NONE	NONE	NONE	NONE
OXIDATION REDUCTION POTENTIAL	MV	171	133	180	145	145	156	126	200
PH, FIELD	SU	7.49	7.34	7.18	7.32	7.37	7.21	7.21	7.25
TEMPERATURE	DEG C	8.9	9.5	8.9	9.0	9.0	8.4	9.0	9.3
TURBIDITY, FIELD NTU	NTU	7	0	7	0	0	0	0	0
WATER ELEVATION	FEET	797.63	805.63	811.44	802.77	809.02	810.26	810.02	809.56

Attachment 4
Laboratory Data Qualifiers for Monitoring Wells

QUALIFIERS

Project: 525156.0000PH2 LEMBERGER LF-SE

Pace Project No.: 40260905

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

DL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

HS Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
without the written consent of Pace Analytical Services, LLC.

QUALIFIERS

Project: 525156.0000PH2 LEMBERGER LF-PL

Pace Project No.: 40260906

DEFINITIONS

DF - Dilution Factor, if reported, represents the factor applied to the reported data due to dilution of the sample aliquot.

ND - Not Detected at or above LOD.

J - Estimated concentration at or above the LOD and below the LOQ.

LOD - Limit of Detection adjusted for dilution factor, percent moisture, initial weight and final volume.

LOQ - Limit of Quantitation adjusted for dilution factor, percent moisture, initial weight and final volume.

DL - Adjusted Method Detection Limit.

S - Surrogate

1,2-Diphenylhydrazine decomposes to and cannot be separated from Azobenzene using Method 8270. The result for each analyte is a combined concentration.

Consistent with EPA guidelines, unrounded data are displayed and have been used to calculate % recovery and RPD values.

LCS(D) - Laboratory Control Sample (Duplicate)

MS(D) - Matrix Spike (Duplicate)

DUP - Sample Duplicate

RPD - Relative Percent Difference

NC - Not Calculable.

SG - Silica Gel - Clean-Up

U - Indicates the compound was analyzed for, but not detected at or above the adjusted LOD.

N-Nitrosodiphenylamine decomposes and cannot be separated from Diphenylamine using Method 8270. The result reported for each analyte is a combined concentration.

Pace Analytical is TNI accredited. Contact your Pace PM for the current list of accredited analytes.

TNI - The NELAC Institute.

ANALYTE QUALIFIERS

HS Results are from sample aliquot taken from VOA vial with headspace (air bubble greater than 6 mm diameter).

REPORT OF LABORATORY ANALYSIS

This report shall not be reproduced, except in full,
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Attachment 5

**Tabular Summary of Groundwater Standard Exceedances
at Plume Monitoring Wells**

**Summary of Groundwater Standard Exceedances at Plume Monitoring Wells
Lemberger Landfill Sites
1st Quarter 2023**

Well ID	Parameter	Result	Data Qualifiers	Units	Standard ¹		Well Location
					ES ²	PAL ³	
RM-002D	TRICHLOROETHENE	1.4		UG/L		X	2,900' northwest of LL site
RM-003D	1,1-DICHLOROETHENE	1.1	j-	UG/L		X	1,000' west of LL site
RM-003D	TRICHLOROETHENE	1.9	j-	UG/L		X	1,000' west of LL site
RM-003D DUP	1,1-DICHLOROETHENE	1.2	j-	UG/L		X	1,000' west of LL site
RM-003D DUP	TRICHLOROETHENE	2.1	j-	UG/L		X	1,000' west of LL site
RM-003XXD	1,1-DICHLOROETHENE	0.81	J	UG/L		X	1,000' west of LL site
RM-003XXD	TRICHLOROETHENE	2.2	j-	UG/L		X	1,000' west of LL site
RM-005D	1,1-DICHLOROETHENE	2.4	j-	UG/L		X	Northwest side of LL site
RM-005D	TRICHLOROETHENE	2.5	j-	UG/L		X	Northwest side of LL site
RM-007XD	1,1,1-TRICHLOROETHANE	200	j-	UG/L	X		North side of LTR site
RM-007XD	1,1-DICHLOROETHANE	169	j-	UG/L		X	North side of LTR site
RM-007XD	1,1-DICHLOROETHENE	36.8	j-	UG/L	X		North side of LTR site
RM-007XD	CIS-1,2-DICHLOROETHENE	84.9	j-	UG/L	X		North side of LTR site
RM-007XD	TETRACHLOROETHENE	1.9	j-	UG/L		X	North side of LTR site
RM-007XD	TRICHLOROETHENE	43.4	j-	UG/L	X		North side of LTR site
RM-008D	1,1,1-TRICHLOROETHANE	46.2	j-	UG/L		X	500' south of LL site
RM-008D	1,1-DICHLOROETHENE	2.1	j-	UG/L		X	500' south of LL site
RM-008D	CIS-1,2-DICHLOROETHENE	14	j-	UG/L		X	500' south of LL site
RM-008D	TRICHLOROETHENE	15.1	j-	UG/L	X		500' south of LL site
RM-204D	1,1-DICHLOROETHENE	0.93	Jj	UG/L		X	1,300' north of LL site
RM-204D	TRICHLOROETHENE	1.9	j-	UG/L		X	1,300' north of LL site
RM-208D	1,1-DICHLOROETHENE	1.5	j-	UG/L		X	Southwest side of LL site
RM-208D	TRICHLOROETHENE	1.6	j-	UG/L		X	Southwest side of LL site
RM-208D DUP	1,1-DICHLOROETHENE	1.3	j-	UG/L		X	Southwest side of LL site
RM-208D DUP	TRICHLOROETHENE	1.6	j-	UG/L		X	Southwest side of LL site
RM-210D	1,1-DICHLOROETHENE	0.9	J	UG/L		X	3,600' north of LL site
RM-210D	TRICHLOROETHENE	1.4	j-	UG/L		X	3,600' north of LL site
RM-307D	1,1,1-TRICHLOROETHANE	61.6		UG/L		X	West side of LTR site
RM-307D	1,1-DICHLOROETHENE	3.3		UG/L		X	West side of LTR site
RM-307D	TETRACHLOROETHENE	0.73	J	UG/L		X	West side of LTR site
RM-307D	TRICHLOROETHENE	7.5		UG/L	X		West side of LTR site

**Summary of Groundwater Standard Exceedances at Plume Monitoring Wells
Lemberger Landfill Sites
1st Quarter 2023**

Well ID	Parameter	Result	Data Qualifiers	Units	Standard ¹		Well Location
					ES ²	PAL ³	
RM-401XD	1,1-DICHLOROETHENE	2.3		UG/L		X	400' Northwest of LL Site
RM-401XD	TRICHLOROETHENE	2.2		UG/L		X	400' Northwest of LL Site
RM-401XXD	1,1-DICHLOROETHENE	1.8	j-	UG/L		X	400' Northwest of LL Site
RM-401XXD	TRICHLOROETHENE	0.81	J	UG/L		X	400' Northwest of LL Site
RM-402XD	1,1,1-TRICHLOROETHANE	77.4	j-	UG/L		X	400' Northwest of LTR site
RM-402XD	1,1-DICHLOROETHENE	15.8	j-	UG/L	X		400' Northwest of LTR site
RM-402XD	CIS-1,2-DICHLOROETHENE	14.2	j-	UG/L		X	400' Northwest of LTR site
RM-402XD	TRICHLOROETHENE	10	j-	UG/L	X		400' Northwest of LTR site
RM-402XXD	1,1,1-TRICHLOROETHANE	47.2	j-	UG/L		X	400' Northwest of LTR site
RM-402XXD	1,1-DICHLOROETHENE	5.3	j-	UG/L		X	400' Northwest of LTR site
RM-402XXD	CIS-1,2-DICHLOROETHENE	17.7	j-	UG/L		X	400' Northwest of LTR site
RM-402XXD	TRICHLOROETHENE	12.4	j-	UG/L	X		400' Northwest of LTR site
RM-403XD	1,1,1-TRICHLOROETHANE	58.2		UG/L		X	400' West of LTR site
RM-403XD	1,1-DICHLOROETHENE	6.3		UG/L		X	400' West of LTR site
RM-403XD	TETRACHLOROETHENE	0.56	J	UG/L		X	400' West of LTR site
RM-403XD	TRICHLOROETHENE	7.5		UG/L	X		400' West of LTR site

Notes:

- ¹ Table includes exceedances where the reported concentration is between the Limit of Detection and Limit of Quantitation ("J" data qualifier).
- ² ES =Wisconsin Administrative Code NR140 Enforcement Standard
- ³ PAL =Wisconsin Administrative Code NR140 Preventive Action Limit
- ⁴ LTR = Lemberger Transport and Recycling
- ⁵ LL = Lemberger Landfill

Laboratory qualifiers are included in the sample-specific laboratory reports. See laboratory reports for the SDG-specific definitions.

Environmental Monitoring Data Certification

Form 4400-231 (R 5/17)

Notice: Personally identifiable information collected will be used for program administration and enforcement purposes. The Department may also provide this information to requesters as required under Wisconsin's Open Records law, ss. 19.31 to 19.39, Wis. Stats. When submitting monitoring data, the owner or operator of the facility, practice or activity is required to notify the Department in writing that a groundwater standard or an explosive gas level has been attained or exceeded, as specified in ss. NR 140.24(1)(a); NR 140.26(1)(a); NR 507.30NR 635.14(9)(a); NR 635.18(20) and NR 507.30, Wis. Adm. Code. Failure to report may result in fines, forfeitures or other penalties resulting from enforcement under ss. 289.97, 291.97 or 299.95, Wis. Stats

Instructions:

- Prepare one form for each license or monitoring ID.
- Please type or print legibly.
- Attach a notification of any values that attain or exceed groundwater standards (that is, preventive action limits, enforcement standards or alternative concentration limits). The notification must include a preliminary analysis of the cause and significance of each value.
- Attach a notification of any gas values that attain or exceed explosive gas levels.
- Send the original signed form, any notification, and Electronic Data Deliverable [EDD] to:

GEMS Data Submittal Contact - WA/5
 Wisconsin Department of Natural Resources
 P.O. Box 7921
 Madison, WI 53707-7921

Monitoring Data Submittal Information

Name of entity submitting data (laboratory, consultant, facility owner)

TRC Environmental Corp.

Contact for questions about data formatting. Include data preparer's name, telephone number and Email address:

Name Meredith Westover	Phone No. (include area code) (608) 358-5035
---------------------------	---

Email
mwestover@trccompanies.com

Facility Name
Lemberger Landfill

License # / Monitoring ID 00753	Facility ID (FID) 436016790
------------------------------------	--------------------------------

Actual sampling dates (e.g., July 2-6, 2003) 1/31, 2/28, 3/31, 4/7-4/9, 2023	The enclosed results are for sampling required in the month(s) of: (e.g., June 2003) January, February, March 2023
---	---

Type of Data Submitted (Check all that apply):

- | | |
|---|--|
| <input checked="" type="checkbox"/> Groundwater monitoring data from monitoring wells | <input type="checkbox"/> Gas monitoring data |
| <input type="checkbox"/> Groundwater monitoring data from private water supply wells | <input type="checkbox"/> Air monitoring data |
| <input checked="" type="checkbox"/> Leachate monitoring data | <input type="checkbox"/> Other (specify): |

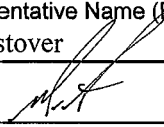
Notification attached?

- No. No groundwater standards or explosive gas limits were exceeded.
- Yes, a notification of values exceeding a groundwater standard is attached. It includes a list of monitoring points, dates, sample values, groundwater standard and preliminary analysis of the cause and significance of any concentration.
- Yes, a notification of values exceeding an explosive gas limit is attached. It includes the monitoring points, dates, sample values and explosive gas limits.

Certification

To the best of my knowledge, the information reported and statements made on this data submittal and attachments are true and correct. Furthermore, I have attached complete notification of any sampling values meeting or exceeding groundwater standards or explosive gas levels, and a preliminary analysis of the cause and significance of concentrations exceeding groundwater standards.

Facility Representative Name (Print) Meredith Westover	Title Database Manager	Phone No. (include area code) (608) 358-5035
---	---------------------------	---

 _____
 Signature Date Signed (mm/dd/yyyy) 09/22/2023

For DNR Use Only

Check action taken, and record date and your initials. Describe on back side if necessary.

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