

November 3, 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
Second 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 June 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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USEPA Region 5
November 3, 2023
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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: August 3, 2023

Subject: Data Validation Report
VOC Groundwater Samples/Sentinel Wells: 2nd Quarter 2023
Lemberger Landfill and Lemberger Transport and Recycling/Franklin, Wisconsin
Laboratory Project Number 40264607

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 June 25, 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 40264607.

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 issue was 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).

SAMPLES

Samples included in this review are listed below.

- RM-002D
- RM-210D
- FDUP-001¹
- RM-003D
- RM-401XXD
- FB-001
- RM-003XXD
- RM-403XD
- TB-001

¹ Field duplicate of RM-401XXD

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 exception.

- The laboratory only spiked a subset of the VOCs which were reported in the samples in the LCS and MS/MSD. Thus, accuracy and/or precision could not be evaluated for select VOCs. 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.

Note that samples were received by the laboratory 10 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, correlation coefficients, and relative response factors (RRFs) were within the laboratory acceptance criteria in the initial calibration.

All RRFs and percent differences (%Ds) were within the acceptance criteria in the continuing calibration.

Blanks

Target analytes were not detected in the trip blank, field blank or method blank.

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-403XD. All criteria were met.

Note that the laboratory only spiked a subset of the VOCs which were reported in the samples in the MS/MSD; 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-401XXD 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 $\leq 30\%$ 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 the 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-401XXD (µg/L)	FDUP-001 (µg/L)	RPD (%) or AbsD (µg/L)	Validation Actions
1,1-Dichloroethane	1.0	2.4	2.4	AbsD: 0.0	None. All criteria were met.
1,1-Dichloroethene	1.0	1.3	1.2	AbsD: 0.1	
cis-1,2-Dichloroethene	1.0	3.5	3.6	AbsD: 0.1	
1,1,1-Trichloroethane	1.0	3.4	3.2	AbsD: 0.2	
Trichloroethene	1.0	0.79 J	0.74 J	AbsD: 0.05	
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-401XXD

Lab Name: Pace Analytical - Green Bay
Date Received: 07/05/2023 07:10
Date Extracted: 07/08/2023 01:13
Date Analyzed: 07/08/2023 01:13
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
Matrix: Water SDG No.: 40264607
Lab Sample ID: 40264607001
Lab File ID: 07072023.B\07072359.D
Instrument: 40MSV3 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	2.4	
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	1.3	
156-59-2	cis-1,2-Dichloroethene	3.5	
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	3.4	
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	0.79	J
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-403XD

Lab Name: Pace Analytical - Green Bay
 Date Received: 07/05/2023 07:10
 Date Extracted: 07/07/2023 20:59
 Date Analyzed: 07/07/2023 20:59
 Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
 Matrix: Water SDG No.: 40264607
 Lab Sample ID: 40264607002
 Lab File ID: 07072023.B\07072346.D
 Instrument: 40MSV3 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	46.2	
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	5.2	
156-59-2	cis-1,2-Dichloroethene	14.0	
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	0.86	J
108-88-3	Toluene	<0.29	U
71-55-6	1,1,1-Trichloroethane	79.9	
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	13.8	
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-003D

Lab Name: Pace Analytical - Green Bay
 Date Received: 07/05/2023 07:10
 Date Extracted: 07/07/2023 22:37
 Date Analyzed: 07/07/2023 22:37
 Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
 Matrix: Water SDG No.: 40264607
 Lab Sample ID: 40264607003
 Lab File ID: 07072023.B\07072351.D
 Instrument: 40MSV3 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	9.7	
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	1.8	
156-59-2	cis-1,2-Dichloroethene	3.7	
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	15.2	
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	2.5	
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: 07/05/2023 07:10
 Date Extracted: 07/08/2023 01:33
 Date Analyzed: 07/08/2023 01:33
 Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
 Matrix: Water SDG No.: 40264607
 Lab Sample ID: 40264607004
 Lab File ID: 07072023.B\07072360.D
 Instrument: 40MSV3 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	3.9	
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	1.3	
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
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	6.4	
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	1.8	
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: 07/05/2023 07:10
Date Extracted: 07/07/2023 22:56
Date Analyzed: 07/07/2023 22:56
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
Matrix: Water SDG No.: 40264607
Lab Sample ID: 40264607005
Lab File ID: 07072023.B\07072352.D
Instrument: 40MSV3 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	3.0	
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	0.59	J
156-59-2	cis-1,2-Dichloroethene	1.6	
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	5.4	
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	1.2	
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.

FDUP-001

Lab Name: Pace Analytical - Green Bay
Date Received: 07/05/2023 07:10
Date Extracted: 07/08/2023 00:14
Date Analyzed: 07/08/2023 00:14
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
Matrix: Water SDG No.: 40264607
Lab Sample ID: 40264607006
Lab File ID: 07072023.B\07072356.D
Instrument: 40MSV3 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	2.4	
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	1.2	
156-59-2	cis-1,2-Dichloroethene	3.6	
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	3.2	
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	0.74	J
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-002D

Lab Name: Pace Analytical - Green Bay
 Date Received: 07/05/2023 07:10
 Date Extracted: 07/07/2023 23:16
 Date Analyzed: 07/07/2023 23:16
 Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
 Matrix: Water SDG No.: 40264607
 Lab Sample ID: 40264607007
 Lab File ID: 07072023.B\07072353.D
 Instrument: 40MSV3 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	3.4	
107-06-2	1,2-Dichloroethane	<0.29	U
75-35-4	1,1-Dichloroethene	0.65	J
156-59-2	cis-1,2-Dichloroethene	0.97	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	4.9	
79-00-5	1,1,2-Trichloroethane	<0.34	U
79-01-6	Trichloroethene	1.5	
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.

FB-001

Lab Name: Pace Analytical - Green Bay
Date Received: 07/05/2023 07:10
Date Extracted: 07/07/2023 20:20
Date Analyzed: 07/07/2023 20:20
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
Matrix: Water SDG No.: 40264607
Lab Sample ID: 40264607008
Lab File ID: 07072023.B\07072344.D
Instrument: 40MSV3 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	<0.29	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.

TB-001

Lab Name: Pace Analytical - Green Bay
 Date Received: 07/05/2023 07:10
 Date Extracted: 07/07/2023 20:39
 Date Analyzed: 07/07/2023 20:39
 Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
 Matrix: Water SDG No.: 40264607
 Lab Sample ID: 40264607009
 Lab File ID: 07072023.B\07072345.D
 Instrument: 40MSV3 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	<0.29	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

07/10/2023 3:57



Memorandum

To: Meredith Westover

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

Date: August 8, 2023

Subject: Data Validation Report
VOC Groundwater Samples/Plume Wells: 2nd Quarter 2023
Lemberger Landfill and Lemberger Transport and Recycling/Franklin, Wisconsin
Laboratory Project Number 40264606 (Revised 08/07/2023)

SUMMARY

Limited validation (level III) was performed on the data for 6 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 June 28-29, 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 40264606.

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 sample LH-03 due to continuing calibration nonconformances. These results were qualified as estimated (UJ).

SAMPLES

Samples included in this review are listed below.

- LH-01
- RM-005S
- FDUP-002¹
- LH-03
- RM-206S
- FB-002
- LW-07
- RM-207S
- TB-001

¹ FDUP-002: Field duplicate of RM-005S

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 exception.

- 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.
- The laboratory did not report the correct tune and CCV associated with sample LH-03. The laboratory was contacted about this issue and provided a revised report on 08/08/2023.

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.

Samples were received by the laboratory between 6-7 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 difference (%D) which was outside of the laboratory acceptance criteria in one of the CCs, the associated samples and validation actions.

CC	Analyte	%D	Associated Sample	Validation Actions
40MSVB 07/13/23 @08:04	Acetone	27.5648	LH-03	The nondetect result for the listed VOC was qualified as estimated (UJ) in the associated sample.
	Bromomethane	-41.3344		
	2-Butanone (MEK)	25.2083		
	Chloromethane	-20.7263		
	2-Hexanone	34.1116		
	4-Methyl-2-pentanone	23.8811		
	1,1,2,2-Tetrachloroethane	21.1038		

Blanks

Target analytes were not detected in the trip blank or method blanks. Toluene (0.61 J 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-207S. The %R of styrene (135%) was above the acceptance criteria (70-132%) in the MSD analysis. Qualification of the data was not required since styrene was not detected in sample RM-207S.

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. The %R of styrene (133%) was above the acceptance criteria (70-130%) in LCS 2580985 associated with samples FB-002, TB-001, RM-207S, and LW-07. Qualification of the data was not required since styrene was not detected in the associated samples.

Note that the laboratory only spiked a subset of the VOCs that were reported in the samples in the LCSs. 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-005S 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 result, the AbsD value for the detected analyte, and the resulting validation action. As shown in the table, criteria were met.

Analyte	QL (µg/L)	RM-005S (µg/L)	FDUP-002 (µg/L)	RPD (%) or AbsD (µg/L)	Validation Actions
Trichloroethene	1.0	0.36 J	ND	AbsD: 0.64	None. All criteria were met.
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

Analyte	Affected Samples	WAC Chapter NR 140 PAL (µg/L)	WAC Chapter NR 140 ES (µg/L)	Laboratory LOD (µg/L)
* Laboratory LOD is below the action limit.				

QUALIFIED FORM 1s

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

SAMPLE NO.

RM-206S

Lab Name: Pace Analytical - Green Bay
Date Received: 07/05/2023 07:10
Date Extracted: 07/07/2023 21:57
Date Analyzed: 07/07/2023 21:57
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
Matrix: Water SDG No.: 40264606
Lab Sample ID: 40264606001
Lab File ID: 07072023.B\07072349.D
Instrument: 40MSV3 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	<0.29	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

07/13/2023 5:48

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

SAMPLE NO.

RM-005S

Lab Name: Pace Analytical - Green Bay
Date Received: 07/05/2023 07:10
Date Extracted: 07/07/2023 22:17
Date Analyzed: 07/07/2023 22:17
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
Matrix: Water SDG No.: 40264606
Lab Sample ID: 40264606002
Lab File ID: 07072023.B\07072350.D
Instrument: 40MSV3 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	<0.29	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	0.36	J
75-01-4	Vinyl chloride	<0.17	U
1330-20-7	Xylene (Total)	<1.0	U

07/13/2023 5:48

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

SAMPLE NO.

LH-01

Lab Name: Pace Analytical - Green Bay
Date Received: 07/05/2023 07:10
Date Extracted: 07/08/2023 00:54
Date Analyzed: 07/08/2023 00:54
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
Matrix: Water SDG No.: 40264606
Lab Sample ID: 40264606003
Lab File ID: 07072023.B\07072358.D
Instrument: 40MSV3 Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U
71-43-2	Benzene	4.9	
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	1.1	
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	0.63	J
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.

FDUP-002

Lab Name: Pace Analytical - Green Bay
Date Received: 07/05/2023 07:10
Date Extracted: 07/07/2023 23:55
Date Analyzed: 07/07/2023 23:55
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
Matrix: Water SDG No.: 40264606
Lab Sample ID: 40264606004
Lab File ID: 07072023.B\07072355.D
Instrument: 40MSV3 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	<0.29	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-207S

Lab Name: Pace Analytical - Green Bay
 Date Received: 07/05/2023 07:10
 Date Extracted: 07/10/2023 20:26
 Date Analyzed: 07/10/2023 20:26
 Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
 Matrix: Water SDG No.: 40264606
 Lab Sample ID: 40264606005
 Lab File ID: 07102023.B\07102333.D
 Instrument: 40MSVB Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U
71-43-2	Benzene	0.41	J
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.

LW-07

Lab Name: Pace Analytical - Green Bay
Date Received: 07/05/2023 07:10
Date Extracted: 07/10/2023 20:46
Date Analyzed: 07/10/2023 20:46
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
Matrix: Water SDG No.: 40264606
Lab Sample ID: 40264606006
Lab File ID: 07102023.B\07102334.D
Instrument: 40MSVB Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U
71-43-2	Benzene	10.5	
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	1.7	J
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	0.39	J
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)	2.4	J

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

SAMPLE NO.

LH-03

Lab Name: Pace Analytical - Green Bay
Date Received: 07/05/2023 07:10
Date Extracted: 07/13/2023 09:38
Date Analyzed: 07/13/2023 09:38
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
Matrix: Water SDG No.: 40264606
Lab Sample ID: 40264606007
Lab File ID: 07132023.B\07132307.D
Instrument: 40MSVB Percent Moisture:

CAS NO.	COMPOUND	CONCENTRATION UNITS: ug/L	Q
67-64-1	Acetone	<8.6	U
71-43-2	Benzene	2.0	
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	3.0	
56-23-5	Carbon tetrachloride	<0.37	U
108-90-7	Chlorobenzene	2.0	
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.

FB-002

Lab Name: Pace Analytical - Green Bay
Date Received: 07/05/2023 07:10
Date Extracted: 07/10/2023 19:44
Date Analyzed: 07/10/2023 19:44
Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
Matrix: Water SDG No.: 40264606
Lab Sample ID: 40264606008
Lab File ID: 07102023.B\07102331.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	<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	0.61	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: 07/05/2023 07:10
 Date Extracted: 07/10/2023 20:05
 Date Analyzed: 07/10/2023 20:05
 Initial wt/vol: 5 mL Final wt/vol: 5 mL Dilution: 1

Contract: 525156.0000PH3 LEMBERGER LF
 Matrix: Water SDG No.: 40264606
 Lab Sample ID: 40264606009
 Lab File ID: 07102023.B\07102332.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	<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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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
JUNE 2023

PARAMETER	UNITS	LH-01	LH-03	LW-07	RM-002D	RM-003D	RM-003XXD	RM-005S	RM-005S DUP
		6/28/2023 40264606003	6/29/2023 40264606007	6/29/2023 40264606006	6/25/2023 40264607007	6/25/2023 40264607003	6/25/2023 40264607004	6/28/2023 40264606002	6/28/2023 40264606004
1,1,1-TRICHLOROETHANE	UG/L	< 0.30	< 0.30	< 0.30	4.9	15.2	6.4	< 0.30	< 0.30
1,1,2,2-TETRACHLOROETHANE	UG/L	< 0.38	< 0.38 uj	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38
1,1,2-TRICHLOROETHANE	UG/L	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34
1,1-DICHLOROETHANE	UG/L	1.1	< 0.30	0.39 J	3.4	9.7	3.9	< 0.30	< 0.30
1,1-DICHLOROETHENE	UG/L	< 0.58	< 0.58	< 0.58	0.65 J	1.8	< 0.58	< 0.58	< 0.58
1,2-DICHLOROETHANE	UG/L	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29
1,2-DICHLOROPROPANE	UG/L	0.63 J	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45
2-BUTANONE	UG/L	< 6.5	< 6.5 uj	< 6.5	< 6.5	< 6.5	< 6.5	< 6.5	< 6.5
2-HEXANONE	UG/L	< 6.3	< 6.3 uj	< 6.3	< 6.3	< 6.3	< 6.3	< 6.3	< 6.3
4-METHYL-2-PENTANONE	UG/L	< 6.0	< 6.0 uj	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
ACETONE	UG/L	< 8.6	< 8.6 uj	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6
BENZENE	UG/L	4.9	2.0	10.5	< 0.30	< 0.30	< 0.30	< 0.30	< 0.30
BROMODICHLOROMETHANE	UG/L	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42
BROMOFORM	UG/L	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43
BROMOMETHANE	UG/L	< 1.2	< 1.2 uj	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
CARBON DISULFIDE	UG/L	< 0.65	3.0	< 0.65	< 0.65	< 0.65	< 0.65	< 0.65	< 0.65
CARBON TETRACHLORIDE	UG/L	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37
CHLORO BENZENE	UG/L	< 0.86	2.0	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86
CHLORODIBROMOMETHANE	UG/L	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6
CHLOROETHANE	UG/L	< 1.4	< 1.4	1.7 J	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
CHLOROFORM	UG/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROMETHANE	UG/L	< 1.6	< 1.6 uj	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
CIS-1,2-DICHLOROETHENE	UG/L	< 0.47	< 0.47	< 0.47	0.97 J	3.7	1.3	< 0.47	< 0.47
CIS-1,3-DICHLOROPROPENE	UG/L	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24
ETHYLBENZENE	UG/L	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33
METHYLENE CHLORIDE	UG/L	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32
STYRENE	UG/L	< 0.36	< 0.36	< 0.36 L1	< 0.36	< 0.36	< 0.36	< 0.36	< 0.36
TETRACHLOROETHENE	UG/L	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41
TOLUENE	UG/L	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29
TRANS-1,2-DICHLOROETHENE	UG/L	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53
TRANS-1,3-DICHLOROPROPENE	UG/L	< 0.27	< 0.27	< 0.27	< 0.27	< 0.27	< 0.27	< 0.27	< 0.27
TRICHLOROETHENE	UG/L	< 0.32	< 0.32	< 0.32	1.5	2.5	1.8	0.36 J	< 0.32
VINYL CHLORIDE	UG/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
XYLENE, TOTAL	UG/L	< 1.0	< 1.0	2.4 J	< 1.0	< 1.0	< 1.0	< 1.0	< 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 VOLATILE ORGANIC ANALYSIS RESULTS
JUNE 2023

PARAMETER	UNITS	RM-206S	RM-207S	RM-210D	RM-401XXD	RM-401XXD DUP	RM-403XD
		6/28/2023 40264606001	6/29/2023 40264606005	6/25/2023 40264607005	6/25/2023 40264607001	6/25/2023 40264607006	6/25/2023 40264607002
1,1,1-TRICHLOROETHANE	UG/L	< 0.30	< 0.30	5.4	3.4	3.2	79.9
1,1,2,2-TETRACHLOROETHANE	UG/L	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38	< 0.38
1,1,2-TRICHLOROETHANE	UG/L	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34	< 0.34
1,1-DICHLOROETHANE	UG/L	< 0.30	< 0.30	3.0	2.4	2.4	46.2
1,1-DICHLOROETHENE	UG/L	< 0.58	< 0.58	0.59 J	1.3	1.2	5.2
1,2-DICHLOROETHANE	UG/L	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29
1,2-DICHLOROPROPANE	UG/L	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45	< 0.45
2-BUTANONE	UG/L	< 6.5	< 6.5	< 6.5	< 6.5	< 6.5	< 6.5
2-HEXANONE	UG/L	< 6.3	< 6.3	< 6.3	< 6.3	< 6.3	< 6.3
4-METHYL-2-PENTANONE	UG/L	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0	< 6.0
ACETONE	UG/L	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6	< 8.6
BENZENE	UG/L	< 0.30	0.41 J	< 0.30	< 0.30	< 0.30	< 0.30
BROMODICHLOROMETHANE	UG/L	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42	< 0.42
BROMOFORM	UG/L	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43	< 0.43
BROMOMETHANE	UG/L	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2	< 1.2
CARBON DISULFIDE	UG/L	< 0.65	< 0.65	< 0.65	< 0.65	< 0.65	< 0.65
CARBON TETRACHLORIDE	UG/L	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37	< 0.37
CHLOROBENZENE	UG/L	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86	< 0.86
CHLORODIBROMOMETHANE	UG/L	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6	< 2.6
CHLOROETHANE	UG/L	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4	< 1.4
CHLOROFORM	UG/L	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50	< 0.50
CHLOROMETHANE	UG/L	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6	< 1.6
CIS-1,2-DICHLOROETHENE	UG/L	< 0.47	< 0.47	1.6	3.5	3.6	14.0
CIS-1,3-DICHLOROPROPENE	UG/L	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24	< 0.24
ETHYLBENZENE	UG/L	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33	< 0.33
METHYLENE CHLORIDE	UG/L	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32	< 0.32
STYRENE	UG/L	< 0.36	< 0.36 M0,L1	< 0.36	< 0.36	< 0.36	< 0.36
TETRACHLOROETHENE	UG/L	< 0.41	< 0.41	< 0.41	< 0.41	< 0.41	0.86 J
TOLUENE	UG/L	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29	< 0.29
TRANS-1,2-DICHLOROETHENE	UG/L	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53	< 0.53
TRANS-1,3-DICHLOROPROPENE	UG/L	< 0.27	< 0.27	< 0.27	< 0.27	< 0.27	< 0.27
TRICHLOROETHENE	UG/L	< 0.32	< 0.32	1.2	0.79 J	0.74 J	13.8
VINYL CHLORIDE	UG/L	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17	< 0.17
XYLENE, TOTAL	UG/L	< 1.0	< 1.0	< 1.0	< 1.0	< 1.0	< 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
JUNE 2023

PARAMETER	UNITS	LH-01	LH-03	LH-06	LW-07	RM-002D	RM-003D	RM-003XXD	RM-004D	RM-005S
		6/28/2023 40264606003	6/29/2023 40264606007	6/28/2023 40264606X02	6/29/2023 40264606006	6/25/2023 40264607007	6/25/2023 40264607003	6/25/2023 40264607004	6/25/2023 W230625001	6/28/2023 40264606002
COLOR, FIELD		NONE	NONE		NONE	NONE	NONE	NONE		NONE
CONDUCTANCE, SPECIFIC	UMHOS/CM	3347	1120		1814	580	749	732		764
DEPTH TO LEACHATE	FEET	32.53	35.17		8.82					
DEPTH TO WATER	FEET					23.54	16.93	14.65	54.84	7.67
DISSOLVED OXYGEN, FIELD	MG/L	0.76	0.35		1.15	1.04	1.10	2.38		0.64
LEACHATE HEAD ELEVATION	FEET	836.25	836.94		834.52					
LEACHATE VOLUME PUMPED	1000 GAL									
ODOR, FIELD		NONE	NONE		NONE	NONE	NONE	NONE		NONE
OXIDATION REDUCTION POTENTIAL	MV	-201	-127		-134	110	90	153		5
PH, FIELD	SU	6.52	7.10		6.56	7.32	7.26	7.35		7.14
TEMPERATURE	DEG C	10.5	11.4		10.2	10.2	10.0	9.5		9.9
TURBIDITY, FIELD NTU	NTU	6	3		14	6	0	0		5
WATER ELEVATION	FEET					792.17	803.2	806.88	804.25	836.34
WELL DRY				00000						

**LEMBERGER LANDFILL
MONITORING WELL INDICATOR PARAMETERS AND FIELD DATA
JUNE 2023**

PARAMETER	UNITS	RM-010D	RM-206S	RM-207S	RM-208S	RM-210D	RM-301S	RM-302S	RM-305D	RM-401XXD	RM-403XD
		6/25/2023 W230625002	6/28/2023 40264606001	6/29/2023 40264606005	6/28/2023 40264606X01	6/25/2023 40264607005	6/25/2023 W230625003	6/25/2023 W230625004	6/25/2023 W230625005	6/25/2023 40264607001	6/25/2023 40264607002
COLOR, FIELD			NONE	NONE		NONE				NONE	NONE
CONDUCTANCE, SPECIFIC	UMHOS/CM		831	664		739				738	935
DEPTH TO LEACHATE	FEET										
DEPTH TO WATER	FEET	45.39	11.77	9.30		30.36	9.27	4.25	53.52	26.07	37.62
DISSOLVED OXYGEN, FIELD	MG/L		1.96	0.27		2.00				2.20	2.28
LEACHATE HEAD ELEVATION	FEET										
LEACHATE VOLUME PUMPED	1000 GAL										
ODOR, FIELD			NONE	NONE		NONE				NONE	NONE
OXIDATION REDUCTION POTENTIAL	MV		168	-94		164				159	212
PH, FIELD	SU		7.46	7.39		7.60				7.37	7.10
TEMPERATURE	DEG C		11.2	7.7		10.1				9.1	9.4
TURBIDITY, FIELD NTU	NTU		18	7		7				0	0
WATER ELEVATION	FEET	804.18	833.35	830.64		797.5	852.38	850.82	814.43	806.78	806.88
WELL DRY					00000						

Attachment 4
Laboratory Data Qualifiers for Monitoring Wells



QUALIFIERS

Project: 525156.0000PH3 LEMBERGER LF

Pace Project No.: 40264607

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.

REPORT OF LABORATORY ANALYSIS

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without the written consent of Pace Analytical Services, LLC.



QUALIFIERS

Project: 525156.0000PH3 LEMBERGER LF

Pace Project No.: 40264606

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

L1 Analyte recovery in the laboratory control sample (LCS) was above QC limits. Results may be biased high.

M0 Matrix spike recovery and/or matrix spike duplicate recovery was outside laboratory control limits.

REPORT OF LABORATORY ANALYSIS

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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
2nd Quarter 2023**

Well ID	Parameter	Result	Data Qualifiers	Units	Standard ¹		Well Location
					ES ²	PAL ³	
RM-002D	TRICHLOROETHENE	1.5		UG/L		X	2,900' northwest of LL site
RM-003D	1,1-DICHLOROETHENE	1.8		UG/L		X	1,000' west of LL site
RM-003D	TRICHLOROETHENE	2.5		UG/L		X	1,000' west of LL site
RM-003XXD	TRICHLOROETHENE	1.8		UG/L		X	1,000' west of LL site
RM-210D	TRICHLOROETHENE	1.2		UG/L		X	3,600' north of LL site
RM-401XXD	1,1-DICHLOROETHENE	1.3		UG/L		X	400' Northwest of LL Site
RM-401XXD	TRICHLOROETHENE	0.79	J	UG/L		X	400' Northwest of LL Site
RM-401XXD DUP	1,1-DICHLOROETHENE	1.2		UG/L		X	400' Northwest of LL Site
RM-401XXD DUP	TRICHLOROETHENE	0.74	J	UG/L		X	400' Northwest of LL Site
RM-403XD	1,1,1-TRICHLOROETHANE	79.9		UG/L		X	400' West of LTR site
RM-403XD	1,1-DICHLOROETHENE	5.2		UG/L		X	400' West of LTR site
RM-403XD	CIS-1,2-DICHLOROETHENE	14		UG/L		X	400' West of LTR site
RM-403XD	TETRACHLOROETHENE	0.86	J	UG/L		X	400' West of LTR site
RM-403XD	TRICHLOROETHENE	13.8		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.

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) 4/30, 5/31, 6/25, 6/28-6/30, 2023	The enclosed results are for sampling required in the month(s) of: (e.g., June 2003) April, May, June 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?

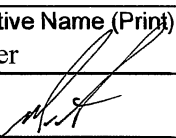
- No. No groundwater standards or explosive gas limits were exceeded.
- Yes, a notification of values exceeding a groundwater standard is attached. It includes a list of monitoring points, dates, sample values, groundwater standard and preliminary analysis of the cause and significance of any concentration.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



10/27/2023
Date Signed (mm/dd/yyyy)

For DNR Use Only

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

- Found uploading problems on _____ Initials _____
- Notified contact of problems on _____ Uploaded data successfully on _____
- EDD format(s): Diskette CD (initial submittal and follow-up) E-mail (follow-up only) Other: _____