

# ENVIRONMENTAL SAMPLING CORPORATION

*Dedicated to Environmental Monitoring, Science & Technology*

May 23, 2018

John and Lynn Troka  
N11 W31230 Bunker Hill  
Delafield, WI 53018

**Re: April 2018 Private Well Monitoring Results (PW-11)**

Dear Mr. and Mrs. Troka:

Water samples were collected from your well located at N11 W31230 Bunker Hill on April 27, 2018 as part of the private well monitoring program associated with the closed Delafield Sanitary Transfer and Landfill. The samples were collected by Environmental Sampling Corporation (ESC) personnel and submitted to CT Laboratories, Inc. (WDNR Lab Certification #157066030) for analysis.

The water samples collected from the well were tested for the following semi-annual monitoring parameters: alkalinity, chloride, hardness, sulfate, cyanide, total kjeldahl nitrogen, nitrate, nitrite, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, iron, magnesium, manganese, sodium, lead, antimony, selenium, thallium, zinc, and volatile organic compounds (VOCs). The VOC analysis covers a wide range of compounds that are generally found in household and industrial solvents, degreasers, cleaners, gases and petroleum products. The VOC analysis can detect the presence of more than forty compounds. In addition to the parameters listed above, the sample was tested in the field for pH, temperature, and specific conductance.

The Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (WDNR) have established groundwater quality standards for the protection of human health and the environment. Contaminant concentrations that are detected at levels less than the EPA Maximum Contaminant Level (MCL) and the WDNR Enforcement Standard (ES) are believed to be safe for a water supply. In general, the federal MCL and the Wisconsin ES levels are the same, though for some substances the Wisconsin ES is lower than the MCL. The laboratory results indicate that the concentrations of the analytes in the drinking water sample collected at your residence meet the primary drinking water standards established by the WDNR and EPA.

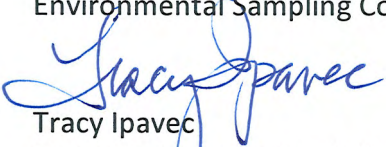
The EPA and WDNR have also established secondary or "aesthetic" standards for select inorganic parameters. These standards are based on the taste and appearance of the water rather than health effects. The laboratory results indicate that the concentration of manganese in the sample collected from your well (86.9 ug/L) exceeded the WDNR and EPA secondary standard of 50 ug/L. The manganese that was detected in your well water sample is

more than likely a result of high manganese levels that are naturally found in the native soils of Southeastern Wisconsin. Included with the letter is the Wisconsin Department of Health publication (P-45103), which provides additional information regarding manganese in drinking water. The concentration of manganese in your sample was less than the WDNR Public Health standard (300 ug/L). The concentrations of the remaining inorganic parameters were less than drinking water standards.

One VOC, chloromethane, was reported at a low level (0.47 ug/L) in the sample collected from your well. This concentration was less than the ES; there is no MCL established for chloromethane. Chloromethane was detected at a concentration between what are known as the laboratory Limit of Detection (LOD) and the Limit of Quantitation (LOQ). Because this concentration between the LOD and LOQ is so low, it cannot be accurately quantified by the laboratory and should be considered an estimate. Chloromethane was reported in the laboratory quality control Method Blank at a concentration of 9.05 ug/L, rather than the control limit of 0.19 ug/L. The presence of chloromethane in the Method Blank is an indication of laboratory contamination. The quality control Method Blank data is provided with this letter for your information. Chloromethane is a common laboratory contaminant; the presence of chloromethane in the sample collected from your well is likely a result of laboratory contamination and does not represent the actual drinking water quality. No additional VOCs were detected at concentrations above the laboratory LOD and therefore, not above an applicable MCL or ES in the samples collected from your well.

A summary of the water quality results and a copy of the CT Laboratories report are provided with this letter. Should you have any questions concerning our work at the landfill or the water quality results you have received, please feel free to call me at 414-427-5033.

Sincerely,  
Environmental Sampling Corporation

  
Tracy Ipavec  
Sr. Environmental Specialist

#### Attachments

cc: Jason Lowery: WDNR, Madison (electronic copy)  
Frank Perugini: ESC

**Environmental Sampling Corporation**

**DELAFIELD LANDFILL  
Private Well Monitoring Data**

11	INORGANIC PARAMETERS (EPA MCL or SMCL / WDNR ES or S)															
	Alkalinity NS mg/L	Hardness NS mg/L	Chloride (250 / 250) mg/L	SO <sub>4</sub> (250 / 250) mg/L	CN (0.2 / 0.2) mg/L	TKN NS mg/L	Nitrate (10 / 10) mg/L	Nitrite (1 / 1) mg/L	As (10 / 10) ug/L	Ba (2000 / 2000) ug/L	Be (4 / 4) ug/L	Cd (5 / 5) ug/L	Ca NS mg/L	Cr (100 / 100) ug/L	Cu (1300 / 1300) ug/L	Fe (300 / 300) ug/L
<b>DATE</b>																
10/30/17	360	392	150	21	<0.0040	<0.52	3.5	<0.040	<0.60	87.7	<0.38	<0.40	90.9	<2.0	108	<59
04/27/18	360.00	345 M	<1.0	19	<0.0030	<0.23	3.5	<0.14	0.66	85.1	<0.38	<0.40	76.8 M	<2.0	80.9	<59

Notes:

Drinking water samples are unfiltered.

mg/L = milligrams per liter

ug/L = micrograms per liter

NS = no standard established

s.u. = standard units

# -Manganese has NR140 standards for both Public Welfare (50 ug/L) and Public Health (300 ug/L).

J=Estimated concentration below laboratory quantitation level.

B=Analyte detected in the associated Method Blank.

EPA MCL: Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL)

EPA SMCL: Environmental Protection Agency (EPA) Secondary Maximum Contaminant Level (SMCL)

WDNR ES: Wisconsin Department of Natural Resources (WDNR) Enforcement Standard (ES)

EPA SMCL Standards / WDNR NR140 Public Welfare Standards: chloride, iron, manganese, sulfate, and zinc.

EPA MCL Standards / WDNR NR140 Public Health Standards: cyanide, nitrate, nitrite, arsenic, barium, beryllium, cadmium, chromium, copper, lead, antimony, selenium, thallium, and VOC's.

**590** = Indicates an MCL, SMCL, or ES exceedance

Analyte abbreviations:

SO <sub>4</sub> : sulfate	Ba: barium	Cr: chromium	Mn: manganese	Se: selenium
CN: cyanide	Be: beryllium	Cu: copper	Na: sodium	Tl: thallium
TKN: total kjeldahl nitrogen	Cd: cadmium	Fe: iron	Pb: lead	Zn: zinc
As: arsenic	Ca: calcium	Mg: magnesium	Sb: antimony	

**Environmental Sampling Corporation**

**DELAFIELD LANDFILL  
Private Well Monitoring Data**

11	INORGANIC PARAMETERS (EPA MCL or SMCL / WDNR ES)								FIELD PARAMETERS			VOCs (EPA MCL / WDNR ES)
	Mg	Mn # (50 / 50)	Na	Pb (15 / 15)	Sb (6 / 6)	Se (50 / 50)	Tl (2 / 2)	Zn (5000 / 5000)	pH	Conductivity	Temp.	Chloromethane (NS / 30)
DATE	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	std. Units	umhos/cm	deg. C	ug/L
N11 W31230 Bunker Hill	NS		NS	(15 / 15)	(6 / 6)	(50 / 50)	(2 / 2)	(5000 / 5000)	NS	NS	NS	(NS / 30)
10/30/17	40.0	7.0 J	70.5	4.8	<0.60	<1.0	<0.19	120	7.41	1,050	10.9	<0.19
04/27/18	37.2 M	86.9	57.9	1.3	<0.60	<1.0	<0.19	50.4	7.60	915	12.7	0.47 J B

Notes:

Drinking water samples are unfiltered.

mg/L = milligrams per liter

ug/L = micrograms per liter

NS = no standard established

s.u. = standard units

# -Manganese has NR140 standards for both Public Welfare (50 ug/L) and Public Health (300 ug/L).

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EPA MCL Standards / WDNR NR140 Public Health Standards: cyanide, nitrate, nitrite, arsenic, barium, beryllium, cadmium, chromium, copper, lead, antimony, selenium, thallium, and VOC's.

**590** = Indicates an MCL, SMCL, or ES exceedance

Analyte abbreviations:

SO <sub>4</sub> : sulfate	Ba: barium	Cr: chromium	Mn: manganese	Se: selenium
CN: cyanide	Be: beryllium	Cu: copper	Na: sodium	Tl: thallium
TKN: total kjeldahl nitrogen	Cd: cadmium	Fe: iron	Pb: lead	Zn: zinc
As: arsenic	Ca: calcium	Mg: magnesium	Sb: antimony	

**ANALYTICAL REPORT**

ENVIRONMENTAL SAMPLING CORP.  
 FRANK PERUGINI  
 W125 S9808 NORTH CAPE ROAD  
 MUSKEGO, WI 53150

Project Name: DELAFIELD LF  
 Project Phase:  
 Project #:  
 Folder #: 135753  
 Purchase Order #:  
 Contract #: 3123

Page 1 of 2  
 Arrival Temperature: See COC  
 Report Date: 05/17/2018  
 Date Received: 04/30/2018  
 Reprint Date: 05/22/2018

CT LAB#: 112485	Sample Description: 11	DNR License/Well #: 00719/235	Sampled: 04/27/2018 1120
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Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
<b>Inorganic Results</b>										
Total Kjeldahl Nitrogen	<0.23	mg/L	0.23	0.76	1	U	05/02/2018 15:00	05/04/2018 14:35	MEZ	EPA 351.2
Nitrate Nitrogen Total	3.5	mg/L	0.12	0.40	1			04/30/2018 15:48	AGK	EPA 300.0
Nitrite Nitrogen Total	<0.14	mg/L	0.14	0.48	1	U		04/30/2018 15:48	AGK	EPA 300.0
Total Chloride	<1.0	mg/L	1.0	3.2	1	U		04/30/2018 15:48	AGK	EPA 300.0
Total Sulfate	19	mg/L	0.80	2.5	1			04/30/2018 15:48	AGK	EPA 300.0



**ANALYTICAL REPORT**

ENVIRONMENTAL SAMPLING CORP.  
 FRANK PERUGINI  
 W125 S9808 NORTH CAPE ROAD  
 MUSKEGO, WI 53150

Project Name: DELAFIELD LF  
 Project Phase:  
 Project #:  
 Folder #: 135753  
 Purchase Order #:  
 Contract #: 3123

Page 1 of 5  
 Arrival Temperature: See COC  
 Report Date: 05/17/2018  
 Date Received: 04/30/2018  
 Reprint Date: 05/22/2018

CT LAB#: 112478 Sample Description: 11

DNR License/Well #: 00719/235

Sampled: 04/27/2018 1120

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
<b>Field Results</b>										
Color (Field)	CLEAR		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Conductivity (Field)	915	umhos/cm	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Odor (Field)	NONE		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
pH (Field)	7.60	S.U.	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Temperature (Field)	12.7	Deg. C	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Turbidity (Field)	NONE		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
<b>Inorganic Results</b>										
Alkalinity	360	mg/L	4.0	4.0	1			05/01/2018 16:30	LJS	SM 2320B
Total Cyanide	<0.0030	mg/L	0.0030	0.0090	1	U M	05/08/2018 08:15	05/08/2018 10:45	MEZ	EPA 335.4
<b>Metals Results</b>										
Total Barium	85.1	ug/L	0.70	2.5	1			05/01/2018 18:22	NAH	EPA 200.7
Total Beryllium	<0.38	ug/L	0.38	1.3	1	U		05/01/2018 18:22	NAH	EPA 200.7
Total Cadmium	<0.40	ug/L	0.40	1.4	1	U		05/01/2018 18:22	NAH	EPA 200.7
Total Calcium	76800	ug/L	31	110	1	M		05/01/2018 18:22	NAH	EPA 200.7
Total Chromium	<2.0	ug/L	2.0	8.0	1	U		05/01/2018 18:22	NAH	EPA 200.7

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112478 Sample Description:11

DNR License/Well #: 00719/235 Sampled: 04/27/2018 1120

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Total Copper	80.9	ug/L	3.9	13	1			05/01/2018 18:22	NAH	EPA 200.7
Total Iron	<59	ug/L	59	200	1	U		05/01/2018 18:22	NAH	EPA 200.7
Total Magnesium	37200	ug/L	25	84	1	M		05/01/2018 18:22	NAH	EPA 200.7
Total Manganese	86.9	ug/L	2.2	7.3	1			05/01/2018 18:22	NAH	EPA 200.7
Total Zinc	50.4	ug/L	2.2	7.3	1			05/01/2018 18:22	NAH	EPA 200.7
Total Antimony	<0.60	ug/L	0.60	1.9	1	U		05/08/2018 15:39	MDS	EPA 200.9
Total Arsenic	0.66	ug/L	0.60	2.1	1	J	05/07/2018 11:10	05/07/2018 15:52	MDS	EPA 200.9
Total Lead	1.3	ug/L	0.43	1.4	1	J		05/01/2018 17:24	MDS	EPA 200.9
Total Selenium	<1.0	ug/L	1.0	3.4	1	U	05/07/2018 11:10	05/09/2018 18:13	MDS	EPA 200.9
Total Thallium	<0.19	ug/L	0.19	0.61	1	U	05/07/2018 09:15	05/09/2018 11:33	MDS	EPA 200.9
Total Sodium	57.90	mg/L	0.030	0.10	1			05/02/2018 11:47	MDS	EPA 200.7
Total Hardness	345	mg/L	0.18	0.61	1	M		05/01/2018 18:22	NAH	SM 2340B/200.7
<b>Organic Results</b>										
1,1,1,2-Tetrachloroethane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,1,1-Trichloroethane	<0.28	ug/L	0.28	0.93	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,1,2,2-Tetrachloroethane	<0.50	ug/L	0.50	1.6	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,1,2-Trichloroethane	<0.40	ug/L	0.40	1.3	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,1-Dichloroethane	<0.28	ug/L	0.28	0.95	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,1-Dichloroethene	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,1-Dichloropropene	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,2,3-Trichlorobenzene	<0.50	ug/L	0.50	1.6	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,2,4-Trichlorobenzene	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,2,4-Trimethylbenzene	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,2-Dichlorobenzene	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 22:27	RLD	EPA 524.2

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CT LAB#: 112478 Sample Description:11

DNR License/Well #: 00719/235 Sampled: 04/27/2018 1120

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2-Dichloroethane	<0.23	ug/L	0.23	0.76	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,2-Dichloropropane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,3,5-Trimethylbenzene	<0.29	ug/L	0.29	0.98	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,3-Dichlorobenzene	<0.26	ug/L	0.26	0.87	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,3-Dichloropropane	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 22:27	RLD	EPA 524.2
1,4-Dichlorobenzene	<0.29	ug/L	0.29	0.98	1	U		05/03/2018 22:27	RLD	EPA 524.2
2,2-Dichloropropane	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 22:27	RLD	EPA 524.2
2-Chlorotoluene	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 22:27	RLD	EPA 524.2
4-Chlorotoluene	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 22:27	RLD	EPA 524.2
Benzene	<0.26	ug/L	0.26	0.87	1	U		05/03/2018 22:27	RLD	EPA 524.2
Bromobenzene	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 22:27	RLD	EPA 524.2
Bromochloromethane	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 22:27	RLD	EPA 524.2
Bromodichloromethane	<0.24	ug/L	0.24	0.81	1	U		05/03/2018 22:27	RLD	EPA 524.2
Bromoform	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 22:27	RLD	EPA 524.2
Bromomethane	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 22:27	RLD	EPA 524.2
Carbon tetrachloride	<0.28	ug/L	0.28	0.94	1	U		05/03/2018 22:27	RLD	EPA 524.2
Chlorobenzene	<0.25	ug/L	0.25	0.84	1	U		05/03/2018 22:27	RLD	EPA 524.2
Chlorodibromomethane	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 22:27	RLD	EPA 524.2
Chloroethane	<0.30	ug/L	0.30	1.3	1	U		05/03/2018 22:27	RLD	EPA 524.2
Chloroform	<0.23	ug/L	0.23	0.78	1	U		05/03/2018 22:27	RLD	EPA 524.2
Chloromethane	0.47	ug/L	0.19	0.63	1	J B		05/03/2018 22:27	RLD	EPA 524.2
cis-1,2-Dichloroethene	<0.28	ug/L	0.28	0.94	1	U		05/03/2018 22:27	RLD	EPA 524.2
cis-1,3-Dichloropropene	<0.22	ug/L	0.22	0.73	1	U		05/03/2018 22:27	RLD	EPA 524.2
Dibromomethane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 22:27	RLD	EPA 524.2
Dichlorodifluoromethane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 22:27	RLD	EPA 524.2
Ethylbenzene	<0.27	ug/L	0.27	0.89	1	U		05/03/2018 22:27	RLD	EPA 524.2

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CT LAB#: 112478 Sample Description:11

DNR License/Well #: 00719/235

Sampled: 04/27/2018 1120

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Hexachlorobutadiene	<0.40	ug/L	0.40	1.4	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
Isopropylbenzene	<0.29	ug/L	0.29	0.98	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
Methyl tert-butyl ether	<0.26	ug/L	0.26	0.86	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
Methylene chloride	<0.30	ug/L	0.30	0.99	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
n-Butylbenzene	<0.30	ug/L	0.30	1.0	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
n-Propylbenzene	<0.26	ug/L	0.26	0.85	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
Naphthalene	<0.50	ug/L	0.50	1.5	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
p-Isopropyltoluene	<0.25	ug/L	0.25	0.82	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
sec-Butylbenzene	<0.26	ug/L	0.26	0.85	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
Styrene	<0.30	ug/L	0.30	1.0	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
tert-Butylbenzene	<0.24	ug/L	0.24	0.80	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
Tetrachloroethene	<0.26	ug/L	0.26	0.87	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
Toluene	<0.25	ug/L	0.25	0.84	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
Total Xylene	<0.26	ug/L	0.26	0.88	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
trans-1,2-Dichloroethene	<0.23	ug/L	0.23	0.75	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
trans-1,3-Dichloropropene	<0.28	ug/L	0.28	0.93	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
Trichloroethene	<0.30	ug/L	0.30	1.0	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
Trichlorofluoromethane	<0.24	ug/L	0.24	0.80	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2
Vinyl chloride	<0.17	ug/L	0.17	0.58	1	U	05/03/2018 22:27	05/03/2018 22:27	RLD	EPA 524.2

Notes: All LOD/LOQs are adjusted to reflect dilution, percent solids, and any differences in the sample weight / volume as compared to standard amounts.  
 "U" qualifier indicates concentration of analyte was below the detection limit. "J" qualifier indicates an estimated value between the LOD and LOQ.

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

Eric T. Korthals  
 Project Manager  
 Submitted by: 608-356-2760

<u>Code</u>	<u>Description</u>	<u>QC Qualifiers</u>
B	Analyte detected in the associated Method Blank.	
C	Toxicity present in BOD sample.	
D	Diluted Out.	
E	Safe, No Total Coliform detected.	
F	Unsafe, Total Coliform detected, no E. Coli detected.	
G	Unsafe, Total Coliform detected and E. Coli detected.	
H	Holding time exceeded.	
I	BOD incubator temperature was outside acceptance limits during test period.	
J	Estimated value.	
L	Significant peaks were detected outside the chromatographic window.	
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.	
N	Insufficient BOD oxygen depletion.	
O	Complete BOD oxygen depletion.	
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.	
Q	Laboratory Control Sample outside acceptance limits.	
R	See Narrative at end of report.	
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.	
T	Sample received with improper preservation or temperature.	
U	Analyte concentration was below detection limit.	
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.	
W	Sample amount received was below program minimum.	
X	Analyte exceeded calibration range.	
Y	Replicate/Duplicate precision outside acceptance limits.	
Z	Specified calibration criteria was not met.	

**Current CT Laboratories Certifications**

Wisconsin (WDNR) Chemistry ID# 157066030  
 Wisconsin (DATCP) Bacteriology ID# 105-289  
 Louisiana NELAP (primary) ID# ACC20160002  
 Illinois NELAP Lab ID# 200073  
 Kansas NELAP Lab ID# E-10368  
 Virginia NELAP Lab ID# 460203  
 Maryland Lab ID# WI00061  
 ISO/IEC 17025-2005 A2LA Cert # 3806.01  
 DoD-ELAP A2LA 3806.01  
 GA EPD Stipulation ID ACC20160002



## MANGANESE

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### WHAT IS MANGANESE?

Manganese is a common element found in minerals, rocks, and soil. It is also a normal part of a healthy diet, but can be harmful if consumed in excess.

### HOW ARE PEOPLE EXPOSED TO MANGANESE?

***Manganese is found in small amounts in meat and vegetables.*** A normal diet provides 2,000 to 5,000 micrograms ( $\mu\text{g}$ ) manganese per day. Mineral supplements may contain as much as 5,000  $\mu\text{g}$  of manganese. As a comparison, drinking 8 cups of water at 300 micrograms per liter ( $\mu\text{g}/\text{L}$ ) would contribute about 600  $\mu\text{g}$  of manganese to one's diet.

***Manganese is found naturally in groundwater.*** Occasionally, manganese contamination can come from industrial activities. Manganese may become noticeable in water at levels greater than 50  $\mu\text{g}/\text{L}$ . At this level, the water will have a brown color and may leave black deposits on bathroom fixtures.

### DO STANDARDS EXIST FOR REGULATING MANGANESE?

Manganese levels are not regulated in public water supplies. However, the Wisconsin Department of Natural Resources does have a groundwater quality enforcement standard (ES) for manganese of 300  $\mu\text{g}/\text{L}$ . The US Environmental Protection Agency (US EPA) has also established a secondary water quality standard of 50  $\mu\text{g}/\text{L}$  to protect against effects on how water looks and tastes. Keeping manganese below 50  $\mu\text{g}/\text{L}$  should prevent the staining of bathroom fixtures and laundry.

### HOW DO I KNOW IF I HAVE MANGANESE IN MY WATER?

Manganese may be in your water if it has a rust color, causes staining of faucets, sinks, or laundry, or has an off taste or odor. If your water is supplied through a municipal water system, contact your water utility directly, or check your most recent Consumer Confidence Report for more information.

If you draw your water from a private well and suspect high manganese in your drinking water, you should have your water tested by a state-certified water testing laboratory. You can find a certified laboratory by searching the telephone directory under "Laboratories-Testing" or by searching the lab lists on the Department of Natural Resources website: <http://dnr.wi.gov/Regulations/labCert/labLists.html>

To help you understand the results, you can contact your local health department (<https://www.dhs.wisconsin.gov/lh-depts/counties/index.htm>) or call the Wisconsin Department of Health Services (DHS) at 608-266-1120.

### WHAT IS A NORMAL AMOUNT OF MANGANESE IN WELL WATER?

Manganese levels in well water vary throughout Wisconsin, and are typically below 50  $\mu\text{g}/\text{L}$ . However, some Wisconsin wells have levels that are above the ES of 300  $\mu\text{g}/\text{L}$ . If your water has an off taste, color, or odor, or causes staining in sinks or on laundry, you should have your water tested.

### HOW MUCH MANGANESE IS TOO MUCH?

Manganese levels below 300  $\mu\text{g}/\text{L}$  are generally not a health concern. People should not drink water that is above the ES of 300  $\mu\text{g}/\text{L}$ . If your water tests higher than the ES, find a different source of safe water to drink. For more information on approved home treatment systems for manganese removal, you can contact the



Wisconsin Department of Safety and Professional Services (DSPS) (see contact information in "For More Information" section below).

#### **WILL EXPOSURE TO MANGANESE RESULT IN HARMFUL HEALTH EFFECTS?**

Many years of exposure to high levels of manganese can cause harm to the nervous system. A disorder similar to Parkinson's disease can result. This type of effect is most likely to occur in the elderly. The ES is intended to protect against this effect.

***Is manganese of concern for infants and young children?*** Yes, especially for bottle-fed infants. Certain baby formulas contain manganese as a nutrient, and if prepared with water that also contains manganese, the infant may get a higher dose than the rest of the family. In addition, young children appear to absorb more and excrete less manganese than older age groups. This adds up to a greater potential for exposure in the very young. Some studies suggest that prenatal and early childhood exposures to manganese can have effects on learning and behavior. Thus, it is very important to know what the manganese levels in drinking water are when using it to make baby formula.

When manganese levels are above 300 µg/L, infants under 6 months should immediately stop consuming the water and formula that was prepared with the water.

#### **HOW CAN I DECREASE MY FAMILY'S EXPOSURE TO MANGANESE?**

If you are concerned about the manganese level in your water, you may want to consider finding a different source of safe water to drink (such as bottled water) or treating your water.

The Department of Safety and Professional Services (DSPS) maintains a list of treatment devices that are certified to reduce manganese levels in water. See below for more information about this list and how to contact DSPS. Manganese treatment devices must be installed by a licensed plumber.

If you are served by a public water system, contact your local utility to learn more about the level of manganese in your drinking water.

#### **FOR MORE INFORMATION:**

- Health Questions
  - Your local health department: <https://www.dhs.wisconsin.gov/lh-depts/counties/index.htm>
  - Division of Public Health, Bureau of Environmental and Occupational Health, 608-266-1120: <https://www.dhs.wisconsin.gov/environmental/index.htm>
- Treatment Options
  - Department of Safety and Professional Services (DSPS), 608-267-1401: List of approved water treatment devices ([http://dsps.wi.gov/php/sb-ppalopp/contam\\_alpha\\_list.php](http://dsps.wi.gov/php/sb-ppalopp/contam_alpha_list.php))
- Manganese in Public and Private Water Supplies; Well testing
  - Department of Natural Resources (DNR), 608-266-0821 <http://dnr.wi.gov/topic/drinkingwater/>

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This fact sheet summarizes information about this chemical and is not a complete listing of all possible effects. It does not refer to work exposure or emergency situations.

*Prepared by the Wisconsin Department of Health Services, Division of Public Health, with funds from the Agency for Toxic Substances and Disease Registry, Public Health Service, U.S. Department of Health and Human Services.*

**CT Laboratories**

**Quality Control  
Method Blank**

**Method Blank Water**

Analytical Run #:	148502	Analysis Date:	05/03/2018	Prep Batch #:	Matrix:	LIQUID
CTLab #:	119429	Analysis Time:	16:49	Prep Date/Time:	Method:	524
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.3	ug/L		U	0		0.3		
1,1,1-Trichloroethane	0.28	ug/L		U	0		0.28		
1,1,2,2-Tetrachloroethane	0.5	ug/L		U	0		0.5		
1,1,2-Trichloroethane	0.4	ug/L		U	0		0.4		
1,1-Dichloroethane	0.28	ug/L		U	0		0.28		
1,1-Dichloroethene	0.3	ug/L		U	0		0.3		
1,1-Dichloropropene	0.3	ug/L		U	0		0.3		
1,2,3-Trichlorobenzene	0.5	ug/L		U	0		0.5		
1,2,3-Trichloropropane	0.25	ug/L		U	0		0.25		
1,2,4-Trichlorobenzene	0.4	ug/L		U	0		0.4		
1,2,4-Trimethylbenzene	0.3	ug/L		U	0		0.3		
1,2-Dichlorobenzene	0.4	ug/L		U	0		0.4		
1,2-Dichlorobenzene-d4	102	% Recovery			100	102	80 --- 120		
1,2-Dichloroethane	0.23	ug/L		U	0		0.23		
1,2-Dichloropropane	0.3	ug/L		U	0		0.3		
1,3,5-Trimethylbenzene	0.29	ug/L		U	0		0.29		
1,3-Dichlorobenzene	0.26	ug/L		U	0		0.26		
1,3-Dichloropropane	0.3	ug/L		U	0		0.3		
1,4-Dichlorobenzene	0.29	ug/L		U	0		0.29		
2,2-Dichloropropane	0.4	ug/L		U	0		0.4		
2-Chlorotoluene	0.3	ug/L		U	0		0.3		
4-Chlorotoluene	0.4	ug/L		U	0		0.4		
Benzene	0.26	ug/L		U	0		0.26		
Bromobenzene	0.4	ug/L		U	0		0.4		
Bromochloromethane	0.4	ug/L		U	0		0.4		
Bromodichloromethane	0.24	ug/L		U	0		0.24		
Bromofluorobenzene	101	% Recovery			100	101	80 --- 120		
Bromoform	0.4	ug/L		U	0		0.4		
Bromomethane	1.26	ug/L			0		0.4		
Carbon tetrachloride	0.28	ug/L		U	0		0.28		
Chlorobenzene	0.25	ug/L		U	0		0.25		
Chlorodibromomethane	0.4	ug/L		U	0		0.4		
Chloroethane	0.4	ug/L		U	0		0.4		
Chloroform	0.23	ug/L		U	0		0.23		
Chloromethane	9.05	ug/L			0		0.19		
cis-1,2-Dichloroethene	0.28	ug/L		U	0		0.28		
cis-1,3-Dichloropropene	0.22	ug/L		U	0		0.22		
Dibromomethane	0.3	ug/L		U	0		0.3		
Dichlorodifluoromethane	0.3	ug/L		U	0		0.3		
Ethylbenzene	0.27	ug/L		U	0		0.27		
Hexachlorobutadiene	0.4	ug/L		U	0		0.4		
Isopropylbenzene	0.29	ug/L		U	0		0.29		



**Method Blank Water**

Analytical Run #:	148502	Analysis Date:	05/03/2018	Prep Batch #:	Matrix:	LIQUID
CTLab #:	119429	Analysis Time:	16:49	Prep Date/Time:	Method:	524
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methyl tert-butyl ether	0.26	ug/L		U	0		0.26		
Methylene chloride	0.30	ug/L		U	0		0.30		
n-Butylbenzene	0.3	ug/L		U	0		0.3		
n-Propylbenzene	0.26	ug/L		U	0		0.26		
Naphthalene	0.5	ug/L		U	0		0.5		
p-Isopropyltoluene	0.25	ug/L		U	0		0.25		
sec-Butylbenzene	0.26	ug/L		U	0		0.26		
Styrene	0.3	ug/L		U	0		0.3		
tert-Butylbenzene	0.24	ug/L		U	0		0.24		
Tetrachloroethene	0.26	ug/L		U	0		0.26		
Toluene	0.25	ug/L		U	0		0.25		
trans-1,2-Dichloroethene	0.23	ug/L		U	0		0.23		
trans-1,3-Dichloropropene	0.28	ug/L		U	0		0.28		
Trichloroethene	0.3	ug/L		U	0		0.3		
Trichlorofluoromethane	0.24	ug/L		U	0		0.24		
Vinyl chloride	0.17	ug/L		U	0		0.17		

# ENVIRONMENTAL SAMPLING CORPORATION

*Dedicated to Environmental Monitoring, Science & Technology*

May 23, 2018

Mr. Ward Gronewold  
W311 N1052 Fairfield Way  
Delafield, WI 53018

**Re: April 2018 Private Well Monitoring Results (PW-13)**

Dear Mr. Gronewold:

Water samples were collected from your well located at W311 N1052 Fairfield Way on April 27, 2018 as part of the private well monitoring program associated with the closed Delafield Sanitary Transfer and Landfill. The samples were collected by Environmental Sampling Corporation (ESC) personnel and submitted to CT Laboratories, Inc. (WDNR Lab Certification #157066030) for analysis.

The water samples collected from the well were tested for the following semi-annual monitoring parameters: alkalinity, chloride, hardness, sulfate, cyanide, total kjeldahl nitrogen, nitrate, nitrite, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, iron, magnesium, manganese, sodium, lead, antimony, selenium, thallium, zinc, and volatile organic compounds (VOCs). The VOC analysis covers a wide range of compounds that are generally found in household and industrial solvents, degreasers, cleaners, gases and petroleum products. The VOC analysis can detect the presence of more than forty compounds. In addition to the parameters listed above, the sample was tested in the field for pH, temperature, and specific conductance.

The Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (WDNR) have established groundwater quality standards for the protection of human health and the environment. Contaminant concentrations that are detected at levels less than the EPA Maximum Contaminant Level (MCL) and the WDNR Enforcement Standard (ES) are believed to be safe for a water supply. In general, the federal MCL and the Wisconsin ES levels are the same, though for some substances the Wisconsin ES is lower than the MCL. The EPA and WDNR have also established secondary or "aesthetic" standards for select inorganic parameters. These standards are based on the taste and appearance of the water rather than health effects.

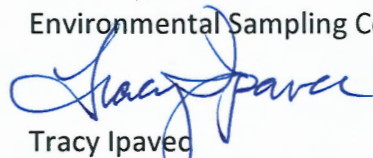
One VOC, chloromethane, was reported at a low level (0.34 ug/L) in the sample collected from your well. This concentration was less than the ES; there is no MCL established for chloromethane. Chloromethane was detected at a concentration between what are known as the laboratory Limit of Detection (LOD) and the Limit of Quantitation (LOQ). Because this concentration between the LOD and LOQ is so low, it cannot be accurately quantified by the

laboratory and should be considered an estimate. Chloromethane was reported in the laboratory quality control Method Blank at a concentration of 9.05 ug/L, rather than the control limit of 0.19 ug/L. The presence of chloromethane in the Method Blank is an indication of laboratory contamination. The quality control Method Blank data is provided with this letter for your information. Chloromethane is a common laboratory contaminant; the presence of chloromethane in the sample collected from your well is likely a result of laboratory contamination and does not represent the actual drinking water quality.

No additional VOCs were detected at concentrations above the laboratory LOD and therefore, not above an applicable MCL or ES in the samples collected from your well. The concentrations of inorganic parameters were less than drinking water standards.

A summary of the water quality results and a copy of the CT Laboratories report are provided with this letter. Should you have any questions concerning our work at the landfill or the water quality results you have received, please feel free to call me at 414-427-5033.

Sincerely,  
Environmental Sampling Corporation



Tracy Ipavec  
Sr. Environmental Specialist

#### Attachments

cc: Jason Lowery: WDNR, Madison (electronic copy)  
Frank Perugini: ESC

**Environmental Sampling Corporation**

**DELAFIELD LANDFILL  
Private Well Monitoring Data**

13	INORGANIC PARAMETERS (EPA MCL or SMCL / WDNR ES or S)																
	W311 N1052 Fairfield Way	Alkalinity NS	Hardness NS	Chloride (250 / 250)	SO <sub>4</sub> (250 / 250)	CN (0.2 / 0.2)	TKN NS	Nitrate (10 / 10)	Nitrite (1 / 1)	As (10 / 10)	Ba (2000 / 2000)	Be (4 / 4)	Cd (5 / 5)	Ca NS	Cr (100 / 100)	Cu (1300 / 1300)	Fe (300 / 300)
DATE	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L
11/01/17	310	303	24	40	<0.0040	<0.52	0.52	<0.040	<0.60	88.7	<0.38	<0.40	60.8	<2.0	115	<b>505</b>	
04/27/18	320	292	15	39	<0.0030	<0.23	0.46	<0.14	<0.60	105	<0.38	<0.40	56.5	<2.0	13.5	<59	

Notes:

Drinking water samples are unfiltered.

mg/L = milligrams per liter

ug/L = micrograms per liter

NS = no standard established

s.u. = standard units

# -Manganese has NR140 standards for both Public Welfare (50 ug/L) and Public Health (300 ug/L).

J=Estimated concentration below laboratory quantitation level.

B=Analyte detected in the associated Method Blank.

EPA MCL: Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL)

EPA SMCL: Environmental Protection Agency (EPA) Secondary Maximum Contaminant Level (SMCL)

WDNR ES: Wisconsin Department of Natural Resources (WDNR) Enforcement Standard (ES)

EPA SMCL Standards / WDNR NR140 Public Welfare Standards: chloride, iron, manganese, sulfate, and zinc.

EPA MCL Standards / WDNR NR140 Public Health Standards: cyanide, nitrate, nitrite, arsenic, barium, beryllium, cadmium, chromium, copper, lead, antimony, selenium, thallium, and VOC's.

**505** = Indicates an MCL, SMCL, or ES exceedance

Analyte abbreviations:

SO<sub>4</sub>: sulfate

Ba: barium

Cr: chromium

Mn: manganese

Se: selenium

CN: cyanide

Be: beryllium

Cu: copper

Na: sodium

Tl: thallium

TKN: total kjeldahl nitrogen

Cd: cadmium

Fe: iron

Pb: lead

Zn: zinc

As: arsenic

Ca: calcium

Mg: magnesium

Sb: antimony

**Environmental Sampling Corporation**

**DELAFIELD LANDFILL  
Private Well Monitoring Data**

13	INORGANIC PARAMETERS (EPA MCL or SMCL / WDNR ES)								FIELD PARAMETERS			VOCs (EPA MCL / WDNR ES)
	Mg	Mn # (50 / 50)	Na	Pb (15 / 15)	Sb (6 / 6)	Se (50 / 50)	Tl (2 / 2)	Zn (5000 / 5000)	pH	Conductivity	Temp.	Chloromethane (NS / 30)
W311 N1052 Fairfield Way	NS		NS						NS	NS	NS	
DATE	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	std. Units	umhos/cm	deg. C	ug/L
11/01/17	36.7	6.1 J	9.75	7.7	<0.60	<1.0	<0.19	113	7.08	673	15.3	<0.19
04/27/18	36.7	<2.2	8.65	1.6	<0.60	<1.0	<0.19	8.3	7.54	599	11.8	0.34 J B

Notes:

Drinking water samples are unfiltered.

mg/L = milligrams per liter

ug/L = micrograms per liter

NS = no standard established

s.u. = standard units

# -Manganese has NR140 standards for both Public Welfare (50 ug/L) and Public Health (300 ug/L).

J=Estimated concentration below laboratory quantitation level.

B=Analyte detected in the associated Method Blank.

EPA MCL: Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL)

EPA SMCL: Environmental Protection Agency (EPA) Secondary Maximum Contaminant Level (SMCL)

WDNR ES: Wisconsin Department of Natural Resources (WDNR) Enforcement Standard (ES)

EPA SMCL Standards / WDNR NR140 Public Welfare Standards: chloride, iron, manganese, sulfate, and zinc.

EPA MCL Standards / WDNR NR140 Public Health Standards: cyanide, nitrate, nitrite, arsenic, barium, beryllium, cadmium, chromium, copper, lead, antimony, selenium, thallium, and VOC's.

**505** = Indicates an MCL, SMCL, or ES exceedance

Analyte abbreviations:

SO <sub>4</sub> : sulfate	Ba: barium	Cr: chromium	Mn: manganese	Se: selenium
CN: cyanide	Be: beryllium	Cu: copper	Na: sodium	Tl: thallium
TKN: total kjeldahl nitrogen	Cd: cadmium	Fe: iron	Pb: lead	Zn: zinc
As: arsenic	Ca: calcium	Mg: magnesium	Sb: antimony	

**ANALYTICAL REPORT**

ENVIRONMENTAL SAMPLING CORP.  
 FRANK PERUGINI  
 W125 S9808 NORTH CAPE ROAD  
 MUSKEGO, WI 53150

Project Name: DELAFIELD LF  
 Project Phase:  
 Project #:  
 Folder #: 135753  
 Purchase Order #:  
 Contract #: 3123

Page 1 of 2  
 Arrival Temperature: See COC  
 Report Date: 05/17/2018  
 Date Received: 04/30/2018  
 Reprint Date: 05/22/2018

CT LAB#: 112490	Sample Description: 13	DNR License/Well #: 00719/237	Sampled: 04/27/2018 1230
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Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
<b>Field Results</b>										
Color (Field)	CLEAR		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Conductivity (Field)	599	umhos/cm	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Odor (Field)	NONE		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
pH (Field)	7.54	S.U.	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Temperature (Field)	11.8	Deg. C	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Turbidity (Field)	NONE		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
<b>Inorganic Results</b>										
Total Kjeldahl Nitrogen	<0.23	mg/L	0.23	0.76	1	U	05/09/2018 10:00	05/11/2018 10:41	LJS	EPA 351.2
Nitrate Nitrogen Total	0.46	mg/L	0.12	0.40	1			04/30/2018 19:53	AGK	EPA 300.0
Nitrite Nitrogen Total	<0.14	mg/L	0.14	0.48	1	U		04/30/2018 19:53	AGK	EPA 300.0
Total Chloride	15	mg/L	1.0	3.2	1			04/30/2018 19:53	AGK	EPA 300.0
Total Sulfate	39	mg/L	0.80	2.5	1			04/30/2018 19:53	AGK	EPA 300.0

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis



**ANALYTICAL REPORT**

ENVIRONMENTAL SAMPLING CORP.  
 FRANK PERUGINI  
 W125 S9808 NORTH CAPE ROAD  
 MUSKEGO, WI 53150

Project Name: DELAFIELD LF  
 Project Phase:  
 Project #:  
 Folder #: 135753  
 Purchase Order #:  
 Contract #: 3123

Page 1 of 5  
 Arrival Temperature: See COC  
 Report Date: 05/17/2018  
 Date Received: 04/30/2018  
 Reprint Date: 05/22/2018

CT LAB#: 112492	Sample Description: 13	DNR License/Well #: 00719/237	Sampled: 04/27/2018 1230
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Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
<b>Inorganic Results</b>										
Alkalinity	320	mg/L	4.0	4.0	1			05/01/2018 16:30	LJS	SM 2320B
Total Cyanide	<0.0030	mg/L	0.0030	0.0090	1	U	05/08/2018 08:15	05/08/2018 11:27	MEZ	EPA 335.4
<b>Metals Results</b>										
Total Barium	105	ug/L	0.70	2.5	1			05/01/2018 19:35	NAH	EPA 200.7
Total Beryllium	<0.38	ug/L	0.38	1.3	1	U		05/01/2018 19:35	NAH	EPA 200.7
Total Cadmium	<0.40	ug/L	0.40	1.4	1	U		05/01/2018 19:35	NAH	EPA 200.7
Total Calcium	56500	ug/L	31	110	1			05/01/2018 19:35	NAH	EPA 200.7
Total Chromium	<2.0	ug/L	2.0	8.0	1	U		05/01/2018 19:35	NAH	EPA 200.7
Total Copper	13.5	ug/L	3.9	13	1			05/01/2018 19:35	NAH	EPA 200.7
Total Iron	<59	ug/L	59	200	1	U		05/01/2018 19:35	NAH	EPA 200.7
Total Magnesium	36700	ug/L	25	84	1			05/01/2018 19:35	NAH	EPA 200.7
Total Manganese	<2.2	ug/L	2.2	7.3	1	U		05/01/2018 19:35	NAH	EPA 200.7
Total Zinc	8.3	ug/L	2.2	7.3	1			05/01/2018 19:35	NAH	EPA 200.7
Total Antimony	<0.60	ug/L	0.60	1.9	1	U		05/08/2018 16:08	MDS	EPA 200.9
Total Arsenic	<0.60	ug/L	0.60	2.1	1	U	05/07/2018 11:10	05/07/2018 16:51	MDS	EPA 200.9

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112492 Sample Description:13

DNR License/Well #: 00719/237 Sampled: 04/27/2018 1230

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Total Lead	1.6	ug/L	0.43	1.4	1			05/01/2018 17:53	MDS	EPA 200.9
Total Selenium	<1.0	ug/L	1.0	3.4	1	U	05/07/2018 11:10	05/09/2018 18:59	MDS	EPA 200.9
Total Thallium	<0.19	ug/L	0.19	0.61	1	U	05/07/2018 09:15	05/09/2018 12:33	MDS	EPA 200.9
Total Sodium	8.650	mg/L	0.030	0.10	1			05/02/2018 12:08	MDS	EPA 200.7
Total Hardness	292	mg/L	0.18	0.61	1			05/01/2018 19:35	NAH	SM 2340B/200.7
<b>Organic Results</b>										
1,1,1,2-Tetrachloroethane	<0.30	ug/L	0.30	1.0	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,1,1-Trichloroethane	<0.28	ug/L	0.28	0.93	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,1,2,2-Tetrachloroethane	<0.50	ug/L	0.50	1.6	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,1,2-Trichloroethane	<0.40	ug/L	0.40	1.3	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,1-Dichloroethane	<0.28	ug/L	0.28	0.95	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,1-Dichloroethene	<0.30	ug/L	0.30	1.1	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,1-Dichloropropene	<0.30	ug/L	0.30	1.1	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,2,3-Trichlorobenzene	<0.50	ug/L	0.50	1.6	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,2,4-Trichlorobenzene	<0.40	ug/L	0.40	1.4	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,2,4-Trimethylbenzene	<0.30	ug/L	0.30	1.1	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,2-Dichlorobenzene	<0.40	ug/L	0.40	1.2	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,2-Dichloroethane	<0.23	ug/L	0.23	0.76	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,2-Dichloropropane	<0.30	ug/L	0.30	1.0	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,3,5-Trimethylbenzene	<0.29	ug/L	0.29	0.98	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,3-Dichlorobenzene	<0.26	ug/L	0.26	0.87	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,3-Dichloropropane	<0.30	ug/L	0.30	1.1	1	U		05/04/2018 00:48	RLD	EPA 524.2
1,4-Dichlorobenzene	<0.29	ug/L	0.29	0.98	1	U		05/04/2018 00:48	RLD	EPA 524.2
2,2-Dichloropropane	<0.40	ug/L	0.40	1.2	1	U		05/04/2018 00:48	RLD	EPA 524.2

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112492 Sample Description:13

DNR License/Well #: 00719/237

Sampled: 04/27/2018 1230

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Chlorotoluene	<0.30	ug/L	0.30	1.0	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
4-Chlorotoluene	<0.40	ug/L	0.40	1.2	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Benzene	<0.26	ug/L	0.26	0.87	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Bromobenzene	<0.40	ug/L	0.40	1.4	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Bromochloromethane	<0.40	ug/L	0.40	1.2	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Bromodichloromethane	<0.24	ug/L	0.24	0.81	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Bromoform	<0.40	ug/L	0.40	1.2	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Bromomethane	<0.40	ug/L	0.40	1.4	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Carbon tetrachloride	<0.28	ug/L	0.28	0.94	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Chlorobenzene	<0.25	ug/L	0.25	0.84	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Chlorodibromomethane	<0.40	ug/L	0.40	1.4	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Chloroethane	<0.30	ug/L	0.30	1.3	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Chloroform	<0.23	ug/L	0.23	0.78	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Chloromethane	0.34	ug/L	0.19	0.63	1	J B	05/04/2018 00:48	00:48	RLD	EPA 524.2
cis-1,2-Dichloroethene	<0.28	ug/L	0.28	0.94	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
cis-1,3-Dichloropropene	<0.22	ug/L	0.22	0.73	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Dibromomethane	<0.30	ug/L	0.30	1.0	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Dichlorodifluoromethane	<0.30	ug/L	0.30	1.0	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Ethylbenzene	<0.27	ug/L	0.27	0.89	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Hexachlorobutadiene	<0.40	ug/L	0.40	1.4	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Isopropylbenzene	<0.29	ug/L	0.29	0.98	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Methyl tert-butyl ether	<0.26	ug/L	0.26	0.86	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Methylene chloride	<0.30	ug/L	0.30	0.99	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
n-Butylbenzene	<0.30	ug/L	0.30	1.0	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
n-Propylbenzene	<0.26	ug/L	0.26	0.85	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Naphthalene	<0.50	ug/L	0.50	1.5	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112492 Sample Description:13

DNR License/Well #: 00719/237 Sampled: 04/27/2018 1230

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
p-Isopropyltoluene	<0.25	ug/L	0.25	0.82	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
sec-Butylbenzene	<0.26	ug/L	0.26	0.85	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Styrene	<0.30	ug/L	0.30	1.0	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
tert-Butylbenzene	<0.24	ug/L	0.24	0.80	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Tetrachloroethene	<0.26	ug/L	0.26	0.87	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Toluene	<0.25	ug/L	0.25	0.84	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Total Xylene	<0.26	ug/L	0.26	0.88	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
trans-1,2-Dichloroethene	<0.23	ug/L	0.23	0.75	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
trans-1,3-Dichloropropene	<0.28	ug/L	0.28	0.93	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Trichloroethene	<0.30	ug/L	0.30	1.0	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Trichlorofluoromethane	<0.24	ug/L	0.24	0.80	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2
Vinyl chloride	<0.17	ug/L	0.17	0.58	1	U	05/04/2018 00:48	00:48	RLD	EPA 524.2

Notes: All LOD/LOQs are adjusted to reflect dilution, percent solids, and any differences in the sample weight / volume as compared to standard amounts.  
 "U" qualifier indicates concentration of analyte was below the detection limit. "J" qualifier indicates an estimated value between the LOD and LOQ.

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

Eric T. Korthals  
 Project Manager  
 Submitted by: 608-356-2760

<u>Code</u>	<u>Description</u>	<u>QC Qualifiers</u>
B	Analyte detected in the associated Method Blank.	
C	Toxicity present in BOD sample.	
D	Diluted Out.	
E	Safe, No Total Coliform detected.	
F	Unsafe, Total Coliform detected, no E. Coli detected.	
G	Unsafe, Total Coliform detected and E. Coli detected.	
H	Holding time exceeded.	
I	BOD incubator temperature was outside acceptance limits during test period.	
J	Estimated value.	
L	Significant peaks were detected outside the chromatographic window.	
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.	
N	Insufficient BOD oxygen depletion.	
O	Complete BOD oxygen depletion.	
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.	
Q	Laboratory Control Sample outside acceptance limits.	
R	See Narrative at end of report.	
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.	
T	Sample received with improper preservation or temperature.	
U	Analyte concentration was below detection limit.	
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.	
W	Sample amount received was below program minimum.	
X	Analyte exceeded calibration range.	
Y	Replicate/Duplicate precision outside acceptance limits.	
Z	Specified calibration criteria was not met.	

**Current CT Laboratories Certifications**

Wisconsin (WDNR) Chemistry ID# 157066030  
 Wisconsin (DATCP) Bacteriology ID# 105-289  
 Louisiana NELAP (primary) ID# ACC20160002  
 Illinois NELAP Lab ID# 200073  
 Kansas NELAP Lab ID# E-10368  
 Virginia NELAP Lab ID# 460203  
 Maryland Lab ID# WI00061  
 ISO/IEC 17025-2005 A2LA Cert # 3806.01  
 DoD-ELAP A2LA 3806.01  
 GA EPD Stipulation ID ACC20160002

**CT Laboratories**

**Quality Control  
Method Blank**



**Method Blank Water**

Analytical Run #:	148502	Analysis Date:	05/03/2018	Prep Batch #:	Matrix:	LIQUID
CTLab #:	119429	Analysis Time:	16:49	Prep Date/Time:	Method:	524
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.3	ug/L		U	0		0.3		
1,1,1-Trichloroethane	0.28	ug/L		U	0		0.28		
1,1,2,2-Tetrachloroethane	0.5	ug/L		U	0		0.5		
1,1,2-Trichloroethane	0.4	ug/L		U	0		0.4		
1,1-Dichloroethane	0.28	ug/L		U	0		0.28		
1,1-Dichloroethene	0.3	ug/L		U	0		0.3		
1,1-Dichloropropene	0.3	ug/L		U	0		0.3		
1,2,3-Trichlorobenzene	0.5	ug/L		U	0		0.5		
1,2,3-Trichloropropane	0.25	ug/L		U	0		0.25		
1,2,4-Trichlorobenzene	0.4	ug/L		U	0		0.4		
1,2,4-Trimethylbenzene	0.3	ug/L		U	0		0.3		
1,2-Dichlorobenzene	0.4	ug/L		U	0		0.4		
1,2-Dichlorobenzene-d4	102	% Recovery			100	102	80 --- 120		
1,2-Dichloroethane	0.23	ug/L		U	0		0.23		
1,2-Dichloropropane	0.3	ug/L		U	0		0.3		
1,3,5-Trimethylbenzene	0.29	ug/L		U	0		0.29		
1,3-Dichlorobenzene	0.26	ug/L		U	0		0.26		
1,3-Dichloropropane	0.3	ug/L		U	0		0.3		
1,4-Dichlorobenzene	0.29	ug/L		U	0		0.29		
2,2-Dichloropropane	0.4	ug/L		U	0		0.4		
2-Chlorotoluene	0.3	ug/L		U	0		0.3		
4-Chlorotoluene	0.4	ug/L		U	0		0.4		
Benzene	0.26	ug/L		U	0		0.26		
Bromobenzene	0.4	ug/L		U	0		0.4		
Bromochloromethane	0.4	ug/L		U	0		0.4		
Bromodichloromethane	0.24	ug/L		U	0		0.24		
Bromofluorobenzene	101	% Recovery			100	101	80 --- 120		
Bromoform	0.4	ug/L		U	0		0.4		
Bromomethane	1.26	ug/L			0		0.4		
Carbon tetrachloride	0.28	ug/L		U	0		0.28		
Chlorobenzene	0.25	ug/L		U	0		0.25		
Chlorodibromomethane	0.4	ug/L		U	0		0.4		
Chloroethane	0.4	ug/L		U	0		0.4		
Chloroform	0.23	ug/L		U	0		0.23		
Chloromethane	9.05	ug/L			0		0.19		
cis-1,2-Dichloroethene	0.28	ug/L		U	0		0.28		
cis-1,3-Dichloropropene	0.22	ug/L		U	0		0.22		
Dibromomethane	0.3	ug/L		U	0		0.3		
Dichlorodifluoromethane	0.3	ug/L		U	0		0.3		
Ethylbenzene	0.27	ug/L		U	0		0.27		
Hexachlorobutadiene	0.4	ug/L		U	0		0.4		
Isopropylbenzene	0.29	ug/L		U	0		0.29		

**Method Blank Water**

Analytical Run #:	148502	Analysis Date:	05/03/2018	Prep Batch #:	Matrix:	LIQUID
CTLab #:	119429	Analysis Time:	16:49	Prep Date/Time:	Method:	524
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methyl tert-butyl ether	0.26	ug/L		U	0		0.26		
Methylene chloride	0.30	ug/L		U	0		0.30		
n-Butylbenzene	0.3	ug/L		U	0		0.3		
n-Propylbenzene	0.26	ug/L		U	0		0.26		
Naphthalene	0.5	ug/L		U	0		0.5		
p-Isopropyltoluene	0.25	ug/L		U	0		0.25		
sec-Butylbenzene	0.26	ug/L		U	0		0.26		
Styrene	0.3	ug/L		U	0		0.3		
tert-Butylbenzene	0.24	ug/L		U	0		0.24		
Tetrachloroethene	0.26	ug/L		U	0		0.26		
Toluene	0.25	ug/L		U	0		0.25		
trans-1,2-Dichloroethene	0.23	ug/L		U	0		0.23		
trans-1,3-Dichloropropene	0.28	ug/L		U	0		0.28		
Trichloroethene	0.3	ug/L		U	0		0.3		
Trichlorofluoromethane	0.24	ug/L		U	0		0.24		
Vinyl chloride	0.17	ug/L		U	0		0.17		

# ENVIRONMENTAL SAMPLING CORPORATION

*Dedicated to Environmental Monitoring, Science & Technology*

May 23, 2018

James and Rita Lofy  
N9 W31146 Concord Ct.  
Delafield, WI 53018

**Re: April 2018 Private Well Monitoring Results (PW-15)**

Dear Mr. and Mrs. Lofy:

Water samples were collected from your well located at N9 W31146 Concord Court on April 27, 2018 as part of the private well monitoring program associated with the closed Delafield Sanitary Transfer and Landfill. The samples were collected by Environmental Sampling Corporation (ESC) personnel and submitted to CT Laboratories, Inc. (WDNR Lab Certification #157066030) for analysis.

The water samples collected from the well were tested for the following semi-annual monitoring parameters: alkalinity, chloride, hardness, sulfate, cyanide, total kjeldahl nitrogen, nitrate, nitrite, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, iron, magnesium, manganese, sodium, lead, antimony, selenium, thallium, zinc, and volatile organic compounds (VOCs). The VOC analysis covers a wide range of compounds that are generally found in household and industrial solvents, degreasers, cleaners, gases and petroleum products. The VOC analysis can detect the presence of more than forty compounds. In addition to the parameters listed above, the sample was tested in the field for pH, temperature, and specific conductance.

The Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (WDNR) have established groundwater quality standards for the protection of human health and the environment. Contaminant concentrations that are detected at levels less than the EPA Maximum Contaminant Level (MCL) and the WDNR Enforcement Standard (ES) are believed to be safe for a water supply. In general, the federal MCL and the Wisconsin ES levels are the same, though for some substances the Wisconsin ES is lower than the MCL. The EPA and WDNR have also established secondary or "aesthetic" standards for select inorganic parameters. These standards are based on the taste and appearance of the water rather than health effects.

One VOC, chloromethane, was reported at a low level (0.50 ug/L) in the sample collected from your well. This concentration was less than the ES; there is no MCL established for chloromethane. Chloromethane was detected at a concentration between what are known as the laboratory Limit of Detection (LOD) and the Limit of Quantitation (LOQ). Because this concentration between the LOD and LOQ is so low, it cannot be accurately quantified by the

Mr. and Mrs. Lofy

May 23, 2018

Page 2

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laboratory and should be considered an estimate. Chloromethane was reported in the laboratory quality control Method Blank at a concentration of 9.05 ug/L, rather than the control limit of 0.19 ug/L. The presence of chloromethane in the Method Blank is an indication of laboratory contamination. The quality control Method Blank data is provided with this letter for your information. Chloromethane is a common laboratory contaminant; the presence of chloromethane in the sample collected from your well is likely a result of laboratory contamination and does not represent the actual drinking water quality.

No additional VOCs were detected at concentrations above the laboratory LOD and therefore, not above an applicable MCL or ES in the samples collected from your well. The concentrations of inorganic parameters were less than drinking water standards.

A summary of the water quality results and a copy of the CT Laboratories report are provided with this letter. Should you have any questions concerning our work at the landfill or the water quality results you have received, please feel free to call me at 414-427-5033.

Sincerely,  
Environmental Sampling Corporation

  
Tracy Ipavec  
Sr. Environmental Specialist

Attachments

cc: Jason Lowery: WDNR, Madison (electronic copy)  
Frank Perugini: ESC

Environmental Sampling Corporation

DELAFIELD LANDFILL  
Private Well Monitoring Data

15	INORGANIC PARAMETERS (EPA MCL or SMCL / WDNR ES or S)															
	Alkalinity	Hardness	Chloride	SO <sub>4</sub>	CN	TKN	Nitrate	Nitrite	As	Ba	Be	Cd	Ca	Cr	Cu	Fe
N9 W31146 Concord Ct.	NS	NS	(250 / 250)	(250 / 250)	(0.2 / 0.2)	NS	(10 / 10)	(1 / 1)	(10 / 10)	(2000 / 2000)	(4 / 4)	(5 / 5)	NS	(100 / 100)	(1300 / 1300)	(300 / 300)
DATE	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L
10/30/17	320	342	30	56	<0.0040	<0.52	1.4	<0.040	<0.60	123	<0.38	<0.40	71.3	<2.0	49.6	<59
04/27/18	330	317	25	53	<0.0030	<0.23	1.3	<0.14	<0.60	136	<0.38	<0.40	62.7	<2.0	4.5 J	<59

Notes:

Drinking water samples are unfiltered.

mg/L = milligrams per liter

ug/L = micrograms per liter

NS = no standard established

s.u. = standard units

# -Manganese has NR140 standards for both Public Welfare (50 ug/L) and Public Health (300 ug/L).

J=Estimated concentration below laboratory quantitation level.

B=Analyte detected in the associated Method Blank.

EPA MCL: Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL)

EPA SMCL: Environmental Protection Agency (EPA) Secondary Maximum Contaminant Level (SMCL)

WDNR ES: Wisconsin Department of Natural Resources (WDNR) Enforcement Standard (ES)

EPA SMCL Standards / WDNR NR140 Public Welfare Standards: chloride, iron, manganese, sulfate, and zinc.

EPA MCL Standards / WDNR NR140 Public Health Standards: cyanide, nitrate, nitrite, arsenic, barium, beryllium, cadmium, chromium, copper, lead, antimony, selenium, thallium, and VOC's.

**590** = Indicates an MCL, SMCL, or ES exceedance

Analyte abbreviations:

SO<sub>4</sub>: sulfate

Ba: barium

Cr: chromium

Mn: manganese

Se: selenium

CN: cyanide

Be: beryllium

Cu: copper

Na: sodium

Tl: thallium

TKN: total kjeldahl nitrogen

Cd: cadmium

Fe: iron

Pb: lead

Zn: zinc

As: arsenic

Ca: calcium

Mg: magnesium

Sb: antimony

**Environmental Sampling Corporation**

**DELAFIELD LANDFILL  
Private Well Monitoring Data**

15	INORGANIC PARAMETERS (EPA MCL or SMCL / WDNR ES)							FIELD PARAMETERS			VOCs (EPA MCL / WDNR ES)	
	Mg	Mn # (50 / 50)	Na	Pb (15 / 15)	Sb (6 / 6)	Se (50 / 50)	Tl (2 / 2)	Zn (5000 / 5000)	pH	Conductivity	Temp.	Chloromethane (NS / 30)
N9 W31146 Concord Ct.	NS		NS						NS	NS	NS	
DATE	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	std. Units	umhos/cm	deg. C	ug/L
10/30/17	39.7	<2.2	8.44	2.2	<0.60	<1.0	<0.19	453	7.47	694	11.9	<0.19
04/27/18	38.9	<2.2	7.14	<0.43	<0.60	<1.0	<0.19	13.5	7.59	664	11.3	0.50 J B

Notes:

Drinking water samples are unfiltered.

mg/L = milligrams per liter

ug/L = micrograms per liter

NS = no standard established

s.u. = standard units

# -Manganese has NR140 standards for both Public Welfare (50 ug/L) and Public Health (300 ug/L).

J=Estimated concentration below laboratory quantitation level.

B=Analyte detected in the associated Method Blank.

EPA MCL: Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL)

EPA SMCL: Environmental Protection Agency (EPA) Secondary Maximum Contaminant Level (SMCL)

WDNR ES: Wisconsin Department of Natural Resources (WDNR) Enforcement Standard (ES)

EPA SMCL Standards / WDNR NR140 Public Welfare Standards: chloride, iron, manganese, sulfate, and zinc.

EPA MCL Standards / WDNR NR140 Public Health Standards: cyanide, nitrate, nitrite, arsenic, barium, beryllium, cadmium, chromium, copper, lead, antimony, selenium, thallium, and VOC's.

**590** = Indicates an MCL, SMCL, or ES exceedance

Analyte abbreviations:

SO<sub>4</sub>: sulfate

Ba: barium

Cr: chromium

Mn: manganese

Se: selenium

CN: cyanide

Be: beryllium

Cu: copper

Na: sodium

Tl: thallium

TKN: total kjeldahl nitrogen

Cd: cadmium

Fe: iron

Pb: lead

Zn: zinc

As: arsenic

Ca: calcium

Mg: magnesium

Sb: antimony



**ANALYTICAL REPORT**

ENVIRONMENTAL SAMPLING CORP.  
 FRANK PERUGINI  
 W125 S9808 NORTH CAPE ROAD  
 MUSKEGO, WI 53150

Project Name: DELAFIELD LF  
 Project Phase:  
 Project #:  
 Folder #: 135753  
 Purchase Order #:  
 Contract #: 3123

Page 1 of 2  
 Arrival Temperature: See COC  
 Report Date: 05/17/2018  
 Date Received: 04/30/2018  
 Reprint Date: 05/22/2018

CT LAB#: 112486	Sample Description: 15	DNR License/Well #: 00719/239	Sampled: 04/27/2018 1230
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Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
<b>Inorganic Results</b>										
Total Kjeldahl Nitrogen	<0.23	mg/L	0.23	0.76	1	U M	05/02/2018 15:00	05/04/2018 14:36	MEZ	EPA 351.2
Nitrate Nitrogen Total	1.3	mg/L	0.12	0.40	1			04/30/2018 16:11	AGK	EPA 300.0
Nitrite Nitrogen Total	<0.14	mg/L	0.14	0.48	1	U		04/30/2018 16:11	AGK	EPA 300.0
Total Chloride	25	mg/L	1.0	3.2	1			04/30/2018 16:11	AGK	EPA 300.0
Total Sulfate	53	mg/L	0.80	2.5	1			04/30/2018 16:11	AGK	EPA 300.0

**ANALYTICAL REPORT**

ENVIRONMENTAL SAMPLING CORP.  
 FRANK PERUGINI  
 W125 S9808 NORTH CAPE ROAD  
 MUSKEGO, WI 53150

Project Name: DELAFIELD LF  
 Project Phase:  
 Project #:  
 Folder #: 135753  
 Purchase Order #:  
 Contract #: 3123

Page 1 of 5  
 Arrival Temperature: See COC  
 Report Date: 05/17/2018  
 Date Received: 04/30/2018  
 Reprint Date: 05/22/2018

CT LAB#: 112479	Sample Description: 15	DNR License/Well #: 00719/239	Sampled: 04/27/2018 1230
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Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
<b>Field Results</b>										
Color (Field)	CLEAR		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Conductivity (Field)	664	umhos/cm	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Odor (Field)	NONE		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
pH (Field)	7.59	S.U.	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Temperature (Field)	11.3	Deg. C	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Turbidity (Field)	NONE		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
<b>Inorganic Results</b>										
Alkalinity	330	mg/L	4.0	4.0	1			05/01/2018 16:30	LJS	SM 2320B
Total Cyanide	<0.0030	mg/L	0.0030	0.0090	1	U	05/08/2018 08:15	05/08/2018 11:02	MEZ	EPA 335.4
<b>Metals Results</b>										
Total Barium	136	ug/L	0.70	2.5	1			05/01/2018 19:04	NAH	EPA 200.7
Total Beryllium	<0.38	ug/L	0.38	1.3	1	U		05/01/2018 19:04	NAH	EPA 200.7
Total Cadmium	<0.40	ug/L	0.40	1.4	1	U		05/01/2018 19:04	NAH	EPA 200.7
Total Calcium	62700	ug/L	31	110	1			05/01/2018 19:04	NAH	EPA 200.7
Total Chromium	<2.0	ug/L	2.0	8.0	1	U		05/01/2018 19:04	NAH	EPA 200.7

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112479 Sample Description:15

DNR License/Well #: 00719/239 Sampled: 04/27/2018 1230

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Total Copper	4.5	ug/L	3.9	13	1	J		05/01/2018 19:04	NAH	EPA 200.7
Total Iron	<59	ug/L	59	200	1	U		05/01/2018 19:04	NAH	EPA 200.7
Total Magnesium	38900	ug/L	25	84	1			05/01/2018 19:04	NAH	EPA 200.7
Total Manganese	<2.2	ug/L	2.2	7.3	1	U		05/01/2018 19:04	NAH	EPA 200.7
Total Zinc	13.5	ug/L	2.2	7.3	1			05/01/2018 19:04	NAH	EPA 200.7
Total Antimony	<0.60	ug/L	0.60	1.9	1	U		05/08/2018 15:49	MDS	EPA 200.9
Total Arsenic	<0.60	ug/L	0.60	2.1	1	U	05/07/2018 11:10	05/07/2018 15:58	MDS	EPA 200.9
Total Lead	<0.43	ug/L	0.43	1.4	1	U		05/01/2018 17:30	MDS	EPA 200.9
Total Selenium	<1.0	ug/L	1.0	3.4	1	U	05/07/2018 11:10	05/09/2018 18:19	MDS	EPA 200.9
Total Thallium	<0.19	ug/L	0.19	0.61	1	U	05/07/2018 09:15	05/09/2018 11:39	MDS	EPA 200.9
Total Sodium	7.140	mg/L	0.030	0.10	1			05/02/2018 11:56	MDS	EPA 200.7
Total Hardness	317	mg/L	0.18	0.61	1			05/01/2018 19:04	NAH	SM 2340B/200.7
<b>Organic Results</b>										
1,1,1,2-Tetrachloroethane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,1,1-Trichloroethane	<0.28	ug/L	0.28	0.93	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,1,2,2-Tetrachloroethane	<0.50	ug/L	0.50	1.6	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,1,2-Trichloroethane	<0.40	ug/L	0.40	1.3	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,1-Dichloroethane	<0.28	ug/L	0.28	0.95	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,1-Dichloroethene	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,1-Dichloropropene	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,2,3-Trichlorobenzene	<0.50	ug/L	0.50	1.6	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,2,4-Trichlorobenzene	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,2,4-Trimethylbenzene	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,2-Dichlorobenzene	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 22:55	RLD	EPA 524.2

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112479 Sample Description:15

DNR License/Well #: 00719/239 Sampled: 04/27/2018 1230

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2-Dichloroethane	<0.23	ug/L	0.23	0.76	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,2-Dichloropropane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,3,5-Trimethylbenzene	<0.29	ug/L	0.29	0.98	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,3-Dichlorobenzene	<0.26	ug/L	0.26	0.87	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,3-Dichloropropane	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 22:55	RLD	EPA 524.2
1,4-Dichlorobenzene	<0.29	ug/L	0.29	0.98	1	U		05/03/2018 22:55	RLD	EPA 524.2
2,2-Dichloropropane	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 22:55	RLD	EPA 524.2
2-Chlorotoluene	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 22:55	RLD	EPA 524.2
4-Chlorotoluene	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 22:55	RLD	EPA 524.2
Benzene	<0.26	ug/L	0.26	0.87	1	U		05/03/2018 22:55	RLD	EPA 524.2
Bromobenzene	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 22:55	RLD	EPA 524.2
Bromochloromethane	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 22:55	RLD	EPA 524.2
Bromodichloromethane	<0.24	ug/L	0.24	0.81	1	U		05/03/2018 22:55	RLD	EPA 524.2
Bromoform	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 22:55	RLD	EPA 524.2
Bromomethane	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 22:55	RLD	EPA 524.2
Carbon tetrachloride	<0.28	ug/L	0.28	0.94	1	U		05/03/2018 22:55	RLD	EPA 524.2
Chlorobenzene	<0.25	ug/L	0.25	0.84	1	U		05/03/2018 22:55	RLD	EPA 524.2
Chlorodibromomethane	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 22:55	RLD	EPA 524.2
Chloroethane	<0.30	ug/L	0.30	1.3	1	U		05/03/2018 22:55	RLD	EPA 524.2
Chloroform	<0.23	ug/L	0.23	0.78	1	U		05/03/2018 22:55	RLD	EPA 524.2
Chloromethane	0.50	ug/L	0.19	0.63	1	J B		05/03/2018 22:55	RLD	EPA 524.2
cis-1,2-Dichloroethene	<0.28	ug/L	0.28	0.94	1	U		05/03/2018 22:55	RLD	EPA 524.2
cis-1,3-Dichloropropene	<0.22	ug/L	0.22	0.73	1	U		05/03/2018 22:55	RLD	EPA 524.2
Dibromomethane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 22:55	RLD	EPA 524.2
Dichlorodifluoromethane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 22:55	RLD	EPA 524.2
Ethylbenzene	<0.27	ug/L	0.27	0.89	1	U		05/03/2018 22:55	RLD	EPA 524.2

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112479 Sample Description:15

DNR License/Well #: 00719/239 Sampled: 04/27/2018 1230

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Hexachlorobutadiene	<0.40	ug/L	0.40	1.4	1	U	05/03/2018 22:55	RLD	EPA 524.2	
Isopropylbenzene	<0.29	ug/L	0.29	0.98	1	U	05/03/2018 22:55	RLD	EPA 524.2	
Methyl tert-butyl ether	<0.26	ug/L	0.26	0.86	1	U	05/03/2018 22:55	RLD	EPA 524.2	
Methylene chloride	<0.30	ug/L	0.30	0.99	1	U	05/03/2018 22:55	RLD	EPA 524.2	
n-Butylbenzene	<0.30	ug/L	0.30	1.0	1	U	05/03/2018 22:55	RLD	EPA 524.2	
n-Propylbenzene	<0.26	ug/L	0.26	0.85	1	U	05/03/2018 22:55	RLD	EPA 524.2	
Naphthalene	<0.50	ug/L	0.50	1.5	1	U	05/03/2018 22:55	RLD	EPA 524.2	
p-Isopropyltoluene	<0.25	ug/L	0.25	0.82	1	U	05/03/2018 22:55	RLD	EPA 524.2	
sec-Butylbenzene	<0.26	ug/L	0.26	0.85	1	U	05/03/2018 22:55	RLD	EPA 524.2	
Styrene	<0.30	ug/L	0.30	1.0	1	U	05/03/2018 22:55	RLD	EPA 524.2	
tert-Butylbenzene	<0.24	ug/L	0.24	0.80	1	U	05/03/2018 22:55	RLD	EPA 524.2	
Tetrachloroethene	<0.26	ug/L	0.26	0.87	1	U	05/03/2018 22:55	RLD	EPA 524.2	
Toluene	<0.25	ug/L	0.25	0.84	1	U	05/03/2018 22:55	RLD	EPA 524.2	
Total Xylene	<0.26	ug/L	0.26	0.88	1	U	05/03/2018 22:55	RLD	EPA 524.2	
trans-1,2-Dichloroethene	<0.23	ug/L	0.23	0.75	1	U	05/03/2018 22:55	RLD	EPA 524.2	
trans-1,3-Dichloropropene	<0.28	ug/L	0.28	0.93	1	U	05/03/2018 22:55	RLD	EPA 524.2	
Trichloroethene	<0.30	ug/L	0.30	1.0	1	U	05/03/2018 22:55	RLD	EPA 524.2	
Trichlorofluoromethane	<0.24	ug/L	0.24	0.80	1	U	05/03/2018 22:55	RLD	EPA 524.2	
Vinyl chloride	<0.17	ug/L	0.17	0.58	1	U	05/03/2018 22:55	RLD	EPA 524.2	

Notes: All LOD/LOQs are adjusted to reflect dilution, percent solids, and any differences in the sample weight / volume as compared to standard amounts.  
 "U" qualifier indicates concentration of analyte was below the detection limit. "J" qualifier indicates an estimated value between the LOD and LOQ.

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

Eric T. Korthals  
 Project Manager  
 Submitted by: 608-356-2760

<u>Code</u>	<u>Description</u>	<u>QC Qualifiers</u>
B	Analyte detected in the associated Method Blank.	
C	Toxicity present in BOD sample.	
D	Diluted Out.	
E	Safe, No Total Coliform detected.	
F	Unsafe, Total Coliform detected, no E. Coli detected.	
G	Unsafe, Total Coliform detected and E. Coli detected.	
H	Holding time exceeded.	
I	BOD incubator temperature was outside acceptance limits during test period.	
J	Estimated value.	
L	Significant peaks were detected outside the chromatographic window.	
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.	
N	Insufficient BOD oxygen depletion.	
O	Complete BOD oxygen depletion.	
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.	
Q	Laboratory Control Sample outside acceptance limits.	
R	See Narrative at end of report.	
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.	
T	Sample received with improper preservation or temperature.	
U	Analyte concentration was below detection limit.	
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.	
W	Sample amount received was below program minimum.	
X	Analyte exceeded calibration range.	
Y	Replicate/Duplicate precision outside acceptance limits.	
Z	Specified calibration criteria was not met.	

**Current CT Laboratories Certifications**

Wisconsin (WDNR) Chemistry ID# 157066030  
 Wisconsin (DATCP) Bacteriology ID# 105-289  
 Louisiana NELAP (primary) ID# ACC20160002  
 Illinois NELAP Lab ID# 200073  
 Kansas NELAP Lab ID# E-10368  
 Virginia NELAP Lab ID# 460203  
 Maryland Lab ID# WI00061  
 ISO/IEC 17025-2005 A2LA Cert # 3806.01  
 DoD-ELAP A2LA 3806.01  
 GA EPD Stipulation ID ACC20160002

**CT Laboratories**

**Quality Control  
Method Blank**

**Method Blank Water**

Analytical Run #:	148502	Analysis Date:	05/03/2018	Prep Batch #:	Matrix:	LIQUID
CTLab #:	119429	Analysis Time:	16:49	Prep Date/Time:	Method:	524
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.3	ug/L		U	0		0.3		
1,1,1-Trichloroethane	0.28	ug/L		U	0		0.28		
1,1,2,2-Tetrachloroethane	0.5	ug/L		U	0		0.5		
1,1,2-Trichloroethane	0.4	ug/L		U	0		0.4		
1,1-Dichloroethane	0.28	ug/L		U	0		0.28		
1,1-Dichloroethene	0.3	ug/L		U	0		0.3		
1,1-Dichloropropene	0.3	ug/L		U	0		0.3		
1,2,3-Trichlorobenzene	0.5	ug/L		U	0		0.5		
1,2,3-Trichloropropane	0.25	ug/L		U	0		0.25		
1,2,4-Trichlorobenzene	0.4	ug/L		U	0		0.4		
1,2,4-Trimethylbenzene	0.3	ug/L		U	0		0.3		
1,2-Dichlorobenzene	0.4	ug/L		U	0		0.4		
1,2-Dichlorobenzene-d4	102	% Recovery			100	102	80 --- 120		
1,2-Dichloroethane	0.23	ug/L		U	0		0.23		
1,2-Dichloropropane	0.3	ug/L		U	0		0.3		
1,3,5-Trimethylbenzene	0.29	ug/L		U	0		0.29		
1,3-Dichlorobenzene	0.26	ug/L		U	0		0.26		
1,3-Dichloropropane	0.3	ug/L		U	0		0.3		
1,4-Dichlorobenzene	0.29	ug/L		U	0		0.29		
2,2-Dichloropropane	0.4	ug/L		U	0		0.4		
2-Chlorotoluene	0.3	ug/L		U	0		0.3		
4-Chlorotoluene	0.4	ug/L		U	0		0.4		
Benzene	0.26	ug/L		U	0		0.26		
Bromobenzene	0.4	ug/L		U	0		0.4		
Bromochloromethane	0.4	ug/L		U	0		0.4		
Bromodichloromethane	0.24	ug/L		U	0		0.24		
Bromofluorobenzene	101	% Recovery			100	101	80 --- 120		
Bromoform	0.4	ug/L		U	0		0.4		
Bromomethane	1.26	ug/L			0		0.4		
Carbon tetrachloride	0.28	ug/L		U	0		0.28		
Chlorobenzene	0.25	ug/L		U	0		0.25		
Chlorodibromomethane	0.4	ug/L		U	0		0.4		
Chloroethane	0.4	ug/L		U	0		0.4		
Chloroform	0.23	ug/L		U	0		0.23		
Chloromethane	9.05	ug/L			0		0.19		
cis-1,2-Dichloroethene	0.28	ug/L		U	0		0.28		
cis-1,3-Dichloropropene	0.22	ug/L		U	0		0.22		
Dibromomethane	0.3	ug/L		U	0		0.3		
Dichlorodifluoromethane	0.3	ug/L		U	0		0.3		
Ethylbenzene	0.27	ug/L		U	0		0.27		
Hexachlorobutadiene	0.4	ug/L		U	0		0.4		
Isopropylbenzene	0.29	ug/L		U	0		0.29		



**Method Blank Water**

Analytical Run #:	148502	Analysis Date:	05/03/2018	Prep Batch #:	Matrix:	LIQUID
CTLab #:	119429	Analysis Time:	16:49	Prep Date/Time:	Method:	524
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methyl tert-butyl ether	0.26	ug/L		U	0		0.26		
Methylene chloride	0.30	ug/L		U	0		0.30		
n-Butylbenzene	0.3	ug/L		U	0		0.3		
n-Propylbenzene	0.26	ug/L		U	0		0.26		
Naphthalene	0.5	ug/L		U	0		0.5		
p-Isopropyltoluene	0.25	ug/L		U	0		0.25		
sec-Butylbenzene	0.26	ug/L		U	0		0.26		
Styrene	0.3	ug/L		U	0		0.3		
tert-Butylbenzene	0.24	ug/L		U	0		0.24		
Tetrachloroethene	0.26	ug/L		U	0		0.26		
Toluene	0.25	ug/L		U	0		0.25		
trans-1,2-Dichloroethene	0.23	ug/L		U	0		0.23		
trans-1,3-Dichloropropene	0.28	ug/L		U	0		0.28		
Trichloroethene	0.3	ug/L		U	0		0.3		
Trichlorofluoromethane	0.24	ug/L		U	0		0.24		
Vinyl chloride	0.17	ug/L		U	0		0.17		

# ENVIRONMENTAL SAMPLING CORPORATION

*Dedicated to Environmental Monitoring, Science & Technology*

May 23, 2018

Mr. Erwin Sulma  
W310 N1055 Bunker Hill Tr.  
Delafield, WI 53018

Mr. Craig Van Der Bunt  
W310 N1054 Bunker Hill Tr.  
Delafield, WI 53018

**Re: April 2018 Private Well Monitoring Results (LOT 15)**

Dear Mr. Sulma and Mr. Van Der Bunt:

Water samples were collected from your shared well on Bunker Hill Trail on April 27, 2018 as part of the private well monitoring program associated with the closed Delafield Sanitary Transfer and Landfill. The samples were collected by Environmental Sampling Corporation (ESC) personnel and submitted to CT Laboratories, Inc. (WDNR Lab Certification #157066030) for analysis.

The water samples collected from the well were tested for the following semi-annual monitoring parameters: alkalinity, chloride, hardness, sulfate, cyanide, total kjeldahl nitrogen, nitrate, nitrite, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, iron, magnesium, manganese, sodium, lead, antimony, selenium, thallium, zinc, and volatile organic compounds (VOCs). The VOC analysis covers a wide range of compounds that are generally found in household and industrial solvents, degreasers, cleaners, gases and petroleum products. The VOC analysis can detect the presence of more than forty compounds. In addition to the parameters listed above, the sample was tested in the field for pH, temperature, and specific conductance.

The Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (WDNR) have established groundwater quality standards for the protection of human health and the environment. Contaminant concentrations that are detected at levels less than the EPA Maximum Contaminant Level (MCL) and the WDNR Enforcement Standard (ES) are believed to be safe for a water supply. In general, the federal MCL and the Wisconsin ES levels are the same, though for some substances the Wisconsin ES is lower than the MCL. The EPA and WDNR have also established secondary or "aesthetic" standards for select inorganic parameters. These standards are based on the taste and appearance of the water rather than health effects.

Mr. Sulma and Mr. Van Der Bunt

May 23, 2018

Page 2

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One VOC, chloromethane, was reported at a low level (0.50 ug/L) in the sample collected from your well. This concentration was less than the ES; there is no MCL established for chloromethane. Chloromethane was detected at a concentration between what are known as the laboratory Limit of Detection (LOD) and the Limit of Quantitation (LOQ). Because this concentration between the LOD and LOQ is so low, it cannot be accurately quantified by the laboratory and should be considered an estimate. Chloromethane was reported in the laboratory quality control Method Blank at a concentration of 9.05 ug/L, rather than the control limit of 0.19 ug/L. The presence of chloromethane in the Method Blank is an indication of laboratory contamination. The quality control Method Blank data is provided with this letter for your information. Chloromethane is a common laboratory contaminant; the presence of chloromethane in the sample collected from your well is likely a result of laboratory contamination and does not represent the actual drinking water quality.

No additional VOCs were detected at concentrations above the laboratory LOD and therefore, not above an applicable MCL or ES in the samples collected from your well. The concentrations of inorganic parameters were less than drinking water standards.

A summary of the water quality results and a copy of the CT Laboratories report are provided with this letter. Should you have any questions concerning our work at the landfill or the water quality results you have received, please feel free to call me at 414-427-5033.

Sincerely,  
Environmental Sampling Corporation

  
Tracy Ipavec  
Sr. Environmental Specialist

Attachments

cc: Jason Lowery: WDNR, Madison (electronic copy)  
Frank Perugini: ESC

**Environmental Sampling Corporation**

**DELAFIELD LANDFILL  
Private Well Monitoring Data**

LOT 15 W310 N1054 W310 N1055 Bunker Hill Tr.	INORGANIC PARAMETERS (EPA MCL or SMCL / WDNR ES or S)															
	Alkalinity	Hardness	Chloride	SO <sub>4</sub>	CN	TKN	Nitrate	Nitrite	As	Ba	Be	Cd	Ca	Cr	Cu	Fe
	NS	NS	(250 / 250)	(250 / 250)	(0.2 / 0.2)	NS	(10 / 10)	(1 / 1)	(10 / 10)	(2000 / 2000)	(4 / 4)	(5 / 5)	NS	(100 / 100)	(1300 / 1300)	(300 / 300)
DATE	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L
11/01/17	230	211	4.9	27	<0.0040	<0.52	<0.040	<0.040	<0.60	43.5	<0.38	<0.40	49.4	<2.0	96.8	150 J
04/27/18	240	209	3.3	21	<0.0030	0.27 J	<0.12	<0.14	<0.60	51.0	<0.38	<0.40	47.6	<2.0	69.2	179 J

Notes:

Drinking water samples are unfiltered.

mg/L = milligrams per liter

ug/L = micrograms per liter

NS = no standard established

s.u. = standard units

# -Manganese has NR140 standards for both Public Welfare (50 ug/L) and Public Health (300 ug/L).

J=Estimated concentration below laboratory quantitation level.

B=Analyte was detected in the laboratory QA/QC trip blank. Presence of this compound is a result of laboratory or sample bottle contamination and does not represent the actual water quality of the sample.

EPA MCL: Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL)

EPA SMCL: Environmental Protection Agency (EPA) Secondary Maximum Contaminant Level (SMCL)

WDNR ES: Wisconsin Department of Natural Resources (WDNR) Enforcement Standard (ES)

EPA SMCL Standards / WDNR NR140 Public Welfare Standards: chloride, iron, manganese, sulfate, and zinc.

EPA MCL Standards / WDNR NR140 Public Health Standards: cyanide, nitrate, nitrite, arsenic, barium, beryllium, cadmium, chromium, copper, lead, antimony, selenium, thallium, and VOC's.

**590** = Indicates an MCL, SMCL, or ES exceedance

Analyte abbreviations:

SO<sub>4</sub>: sulfate

Ba: barium

Cr: chromium

Mn: manganese

Se: selenium

CN: cyanide

Be: beryllium

Cu: copper

Na: sodium

Tl: thallium

TKN: total kjeldahl nitrogen

Cd: cadmium

Fe: iron

Pb: lead

Zn: zinc

As: arsenic

Ca: calcium

Mg: magnesium

Sb: antimony

**Environmental Sampling Corporation**

**DELAFIELD LANDFILL  
Private Well Monitoring Data**

LOT 15 W310 N1054 W310 N1055 Bunker Hill Tr.	INORGANIC PARAMETERS (EPA MCL or SMCL / WDNR ES)								FIELD PARAMETERS			VOCs (EPA MCL / WDNR ES)
	Mg	Mn #	Na	Pb	Sb	Se	Tl	Zn	pH	Conductivity	Temp.	Chloromethane
DATE	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	std. Units	umhos/cm	deg. C	ug/L
11/01/17	21.3	5.8 J	5.73	4.3	<0.60	<1.0	<0.19	260	7.10	436	14.3	<0.19
04/27/18	21.9	4.4 J	5.17	6.8	<0.60	<1.0	0.19 J B	262	7.52	406	14.8	0.50 J B

Notes:

Drinking water samples are unfiltered.

mg/L = milligrams per liter

ug/L = micrograms per liter

NS = no standard established

s.u. = standard units

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EPA MCL Standards / WDNR NR140 Public Health Standards: cyanide, nitrate, nitrite, arsenic, barium, beryllium, cadmium, chromium, copper, lead, antimony, selenium, thallium, and VOC's.

**590** = Indicates an MCL, SMCL, or ES exceedance

Analyte abbreviations:

SO<sub>4</sub>: sulfate

Ba: barium

Cr: chromium

Mn: manganese

Se: selenium

CN: cyanide

Be: beryllium

Cu: copper

Na: sodium

Tl: thallium

TKN: total kjeldahl nitrogen

Cd: cadmium

Fe: iron

Pb: lead

Zn: zinc

As: arsenic

Ca: calcium

Mg: magnesium

Sb: antimony

**ANALYTICAL REPORT**

ENVIRONMENTAL SAMPLING CORP.  
 FRANK PERUGINI  
 W125 S9808 NORTH CAPE ROAD  
 MUSKEGO, WI 53150

Project Name: DELAFIELD LF  
 Project Phase:  
 Project #:  
 Folder #: 135753  
 Purchase Order #:  
 Contract #: 3123

Page 1 of 2  
 Arrival Temperature: See COC  
 Report Date: 05/17/2018  
 Date Received: 04/30/2018  
 Reprint Date: 05/22/2018

CT LAB#: 112489	Sample Description: LOT 15	DNR License/Well #: 00719/382	Sampled: 04/27/2018 1045
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Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
<b>Field Results</b>										
Color (Field)	CLEAR		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Conductivity (Field)	406	umhos/cm	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Odor (Field)	NONE		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
pH (Field)	7.52	S.U.	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Temperature (Field)	14.8	Deg. C	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Turbidity (Field)	NONE		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
<b>Inorganic Results</b>										
Total Kjeldahl Nitrogen	0.27	mg/L	0.23	0.76	1	J M	05/09/2018 10:00	05/11/2018 10:38	LJS	EPA 351.2
Nitrate Nitrogen Total	<0.12	mg/L	0.12	0.40	1	U		04/30/2018 18:02	AGK	EPA 300.0
Nitrite Nitrogen Total	<0.14	mg/L	0.14	0.48	1	U		04/30/2018 18:02	AGK	EPA 300.0
Total Chloride	3.3	mg/L	1.0	3.2	1	M		04/30/2018 18:02	AGK	EPA 300.0
Total Sulfate	21	mg/L	0.80	2.5	1	M		04/30/2018 18:02	AGK	EPA 300.0

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis



**ANALYTICAL REPORT**

ENVIRONMENTAL SAMPLING CORP.  
 FRANK PERUGINI  
 W125 S9808 NORTH CAPE ROAD  
 MUSKEGO, WI 53150

Project Name: DELAFIELD LF  
 Project Phase:  
 Project #:  
 Folder #: 135753  
 Purchase Order #:  
 Contract #: 3123

Page 1 of 5  
 Arrival Temperature: See COC  
 Report Date: 05/17/2018  
 Date Received: 04/30/2018  
 Reprint Date: 05/22/2018

CT LAB#: 112491	Sample Description: LOT 15	DNR License/Well #: 00719/382	Sampled: 04/27/2018 1045
-----------------	----------------------------	-------------------------------	--------------------------

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
<b>Inorganic Results</b>										
Alkalinity	240	mg/L	4.0	4.0	1			05/01/2018 16:30	LJS	SM 2320B
Total Cyanide	<0.0030	mg/L	0.0030	0.0090	1	U	05/08/2018 08:15	05/08/2018 11:23	MEZ	EPA 335.4
<b>Metals Results</b>										
Total Barium	51.0	ug/L	0.70	2.5	1			05/01/2018 19:27	NAH	EPA 200.7
Total Beryllium	<0.38	ug/L	0.38	1.3	1	U		05/01/2018 19:27	NAH	EPA 200.7
Total Cadmium	<0.40	ug/L	0.40	1.4	1	U		05/01/2018 19:27	NAH	EPA 200.7
Total Calcium	47600	ug/L	31	110	1			05/01/2018 19:27	NAH	EPA 200.7
Total Chromium	<2.0	ug/L	2.0	8.0	1	U		05/01/2018 19:27	NAH	EPA 200.7
Total Copper	69.2	ug/L	3.9	13	1			05/01/2018 19:27	NAH	EPA 200.7
Total Iron	179	ug/L	59	200	1	J		05/01/2018 19:27	NAH	EPA 200.7
Total Magnesium	21900	ug/L	25	84	1			05/01/2018 19:27	NAH	EPA 200.7
Total Manganese	4.4	ug/L	2.2	7.3	1	J		05/01/2018 19:27	NAH	EPA 200.7
Total Zinc	262	ug/L	2.2	7.3	1			05/01/2018 19:27	NAH	EPA 200.7
Total Antimony	<0.60	ug/L	0.60	1.9	1	U		05/08/2018 16:03	MDS	EPA 200.9
Total Arsenic	<0.60	ug/L	0.60	2.1	1	U	05/07/2018 11:10	05/07/2018 16:45	MDS	EPA 200.9

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112491 Sample Description: LOT 15

DNR License/Well #: 00719/382 Sampled: 04/27/2018 1045

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Total Lead	6.8	ug/L	0.43	1.4	1			05/01/2018 17:47	MDS	EPA 200.9
Total Selenium	<1.0	ug/L	1.0	3.4	1	U	05/07/2018 11:10	05/09/2018 18:53	MDS	EPA 200.9
Total Thallium	0.19	ug/L	0.19	0.61	1	J B	05/07/2018 09:15	05/09/2018 12:27	MDS	EPA 200.9
Total Sodium	5.170	mg/L	0.030	0.10	1			05/02/2018 12:05	MDS	EPA 200.7
Total Hardness	209	mg/L	0.18	0.61	1			05/01/2018 19:27	NAH	SM 2340B/200.7
<b>Organic Results</b>										
1,1,1,2-Tetrachloroethane	<0.30	ug/L	0.30	1.0	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,1,1-Trichloroethane	<0.28	ug/L	0.28	0.93	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,1,2,2-Tetrachloroethane	<0.50	ug/L	0.50	1.6	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,1,2-Trichloroethane	<0.40	ug/L	0.40	1.3	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,1-Dichloroethane	<0.28	ug/L	0.28	0.95	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,1-Dichloroethene	<0.30	ug/L	0.30	1.1	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,1-Dichloropropene	<0.30	ug/L	0.30	1.1	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,2,3-Trichlorobenzene	<0.50	ug/L	0.50	1.6	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,2,4-Trichlorobenzene	<0.40	ug/L	0.40	1.4	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,2,4-Trimethylbenzene	<0.30	ug/L	0.30	1.1	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,2-Dichlorobenzene	<0.40	ug/L	0.40	1.2	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,2-Dichloroethane	<0.23	ug/L	0.23	0.76	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,2-Dichloropropane	<0.30	ug/L	0.30	1.0	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,3,5-Trimethylbenzene	<0.29	ug/L	0.29	0.98	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,3-Dichlorobenzene	<0.26	ug/L	0.26	0.87	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,3-Dichloropropane	<0.30	ug/L	0.30	1.1	1	U		05/04/2018 00:19	RLD	EPA 524.2
1,4-Dichlorobenzene	<0.29	ug/L	0.29	0.98	1	U		05/04/2018 00:19	RLD	EPA 524.2
2,2-Dichloropropane	<0.40	ug/L	0.40	1.2	1	U		05/04/2018 00:19	RLD	EPA 524.2

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis



CT LAB#: 112491 Sample Description: LOT 15

DNR License/Well #: 00719/382 Sampled: 04/27/2018 1045

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
2-Chlorotoluene	<0.30	ug/L	0.30	1.0	1	U		05/04/2018 00:19	RLD	EPA 524.2
4-Chlorotoluene	<0.40	ug/L	0.40	1.2	1	U		05/04/2018 00:19	RLD	EPA 524.2
Benzene	<0.26	ug/L	0.26	0.87	1	U		05/04/2018 00:19	RLD	EPA 524.2
Bromobenzene	<0.40	ug/L	0.40	1.4	1	U		05/04/2018 00:19	RLD	EPA 524.2
Bromochloromethane	<0.40	ug/L	0.40	1.2	1	U		05/04/2018 00:19	RLD	EPA 524.2
Bromodichloromethane	<0.24	ug/L	0.24	0.81	1	U		05/04/2018 00:19	RLD	EPA 524.2
Bromoform	<0.40	ug/L	0.40	1.2	1	U		05/04/2018 00:19	RLD	EPA 524.2
Bromomethane	<0.40	ug/L	0.40	1.4	1	U		05/04/2018 00:19	RLD	EPA 524.2
Carbon tetrachloride	<0.28	ug/L	0.28	0.94	1	U		05/04/2018 00:19	RLD	EPA 524.2
Chlorobenzene	<0.25	ug/L	0.25	0.84	1	U		05/04/2018 00:19	RLD	EPA 524.2
Chlorodibromomethane	<0.40	ug/L	0.40	1.4	1	U		05/04/2018 00:19	RLD	EPA 524.2
Chloroethane	<0.30	ug/L	0.30	1.3	1	U		05/04/2018 00:19	RLD	EPA 524.2
Chloroform	<0.23	ug/L	0.23	0.78	1	U		05/04/2018 00:19	RLD	EPA 524.2
Chloromethane	0.33	ug/L	0.19	0.63	1	J B		05/04/2018 00:19	RLD	EPA 524.2
cis-1,2-Dichloroethene	<0.28	ug/L	0.28	0.94	1	U		05/04/2018 00:19	RLD	EPA 524.2
cis-1,3-Dichloropropene	<0.22	ug/L	0.22	0.73	1	U		05/04/2018 00:19	RLD	EPA 524.2
Dibromomethane	<0.30	ug/L	0.30	1.0	1	U		05/04/2018 00:19	RLD	EPA 524.2
Dichlorodifluoromethane	<0.30	ug/L	0.30	1.0	1	U		05/04/2018 00:19	RLD	EPA 524.2
Ethylbenzene	<0.27	ug/L	0.27	0.89	1	U		05/04/2018 00:19	RLD	EPA 524.2
Hexachlorobutadiene	<0.40	ug/L	0.40	1.4	1	U		05/04/2018 00:19	RLD	EPA 524.2
Isopropylbenzene	<0.29	ug/L	0.29	0.98	1	U		05/04/2018 00:19	RLD	EPA 524.2
Methyl tert-butyl ether	<0.26	ug/L	0.26	0.86	1	U		05/04/2018 00:19	RLD	EPA 524.2
Methylene chloride	<0.30	ug/L	0.30	0.99	1	U		05/04/2018 00:19	RLD	EPA 524.2
n-Butylbenzene	<0.30	ug/L	0.30	1.0	1	U		05/04/2018 00:19	RLD	EPA 524.2
n-Propylbenzene	<0.26	ug/L	0.26	0.85	1	U		05/04/2018 00:19	RLD	EPA 524.2
Naphthalene	<0.50	ug/L	0.50	1.5	1	U		05/04/2018 00:19	RLD	EPA 524.2

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112491 Sample Description: LOT 15

DNR License/Well #: 00719/382 Sampled: 04/27/2018 1045

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
p-Isopropyltoluene	<0.25	ug/L	0.25	0.82	1	U	05/04/2018 00:19	05/04/2018 00:19	RLD	EPA 524.2
sec-Butylbenzene	<0.26	ug/L	0.26	0.85	1	U	05/04/2018 00:19	05/04/2018 00:19	RLD	EPA 524.2
Styrene	<0.30	ug/L	0.30	1.0	1	U	05/04/2018 00:19	05/04/2018 00:19	RLD	EPA 524.2
tert-Butylbenzene	<0.24	ug/L	0.24	0.80	1	U	05/04/2018 00:19	05/04/2018 00:19	RLD	EPA 524.2
Tetrachloroethene	<0.26	ug/L	0.26	0.87	1	U	05/04/2018 00:19	05/04/2018 00:19	RLD	EPA 524.2
Toluene	<0.25	ug/L	0.25	0.84	1	U	05/04/2018 00:19	05/04/2018 00:19	RLD	EPA 524.2
Total Xylene	<0.26	ug/L	0.26	0.88	1	U	05/04/2018 00:19	05/04/2018 00:19	RLD	EPA 524.2
trans-1,2-Dichloroethene	<0.23	ug/L	0.23	0.75	1	U	05/04/2018 00:19	05/04/2018 00:19	RLD	EPA 524.2
trans-1,3-Dichloropropene	<0.28	ug/L	0.28	0.93	1	U	05/04/2018 00:19	05/04/2018 00:19	RLD	EPA 524.2
Trichloroethene	<0.30	ug/L	0.30	1.0	1	U	05/04/2018 00:19	05/04/2018 00:19	RLD	EPA 524.2
Trichlorofluoromethane	<0.24	ug/L	0.24	0.80	1	U	05/04/2018 00:19	05/04/2018 00:19	RLD	EPA 524.2
Vinyl chloride	<0.17	ug/L	0.17	0.58	1	U	05/04/2018 00:19	05/04/2018 00:19	RLD	EPA 524.2

Notes: All LOD/LOQs are adjusted to reflect dilution, percent solids, and any differences in the sample weight / volume as compared to standard amounts.  
 "U" qualifier indicates concentration of analyte was below the detection limit. "J" qualifier indicates an estimated value between the LOD and LOQ.

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

Eric T. Korthals  
 Project Manager  
 Submitted by: 608-356-2760

<u>Code</u>	<u>Description</u>	<u>QC Qualifiers</u>
B	Analyte detected in the associated Method Blank.	
C	Toxicity present in BOD sample.	
D	Diluted Out.	
E	Safe, No Total Coliform detected.	
F	Unsafe, Total Coliform detected, no E. Coli detected.	
G	Unsafe, Total Coliform detected and E. Coli detected.	
H	Holding time exceeded.	
I	BOD incubator temperature was outside acceptance limits during test period.	
J	Estimated value.	
L	Significant peaks were detected outside the chromatographic window.	
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.	
N	Insufficient BOD oxygen depletion.	
O	Complete BOD oxygen depletion.	
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.	
Q	Laboratory Control Sample outside acceptance limits.	
R	See Narrative at end of report.	
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.	
T	Sample received with improper preservation or temperature.	
U	Analyte concentration was below detection limit.	
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.	
W	Sample amount received was below program minimum.	
X	Analyte exceeded calibration range.	
Y	Replicate/Duplicate precision outside acceptance limits.	
Z	Specified calibration criteria was not met.	

**Current CT Laboratories Certifications**  
 Wisconsin (WDNR) Chemistry ID# 157066030  
 Wisconsin (DATCP) Bacteriology ID# 105-289  
 Louisiana NELAP (primary) ID# ACC20160002  
 Illinois NELAP Lab ID# 200073  
 Kansas NELAP Lab ID# E-10368  
 Virginia NELAP Lab ID# 460203  
 Maryland Lab ID# WI00061  
 ISO/IEC 17025-2005 A2LA Cert # 3806.01  
 DoD-ELAP A2LA 3806.01  
 GA EPD Stipulation ID ACC20160002

**CT Laboratories**

**Quality Control  
Method Blank**

**Method Blank Water**

Analytical Run #:	148502	Analysis Date:	05/03/2018	Prep Batch #:	Matrix:	LIQUID
CTLab #:	119429	Analysis Time:	16:49	Prep Date/Time:	Method:	524
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.3	ug/L		U	0		0.3		
1,1,1-Trichloroethane	0.28	ug/L		U	0		0.28		
1,1,2,2-Tetrachloroethane	0.5	ug/L		U	0		0.5		
1,1,2-Trichloroethane	0.4	ug/L		U	0		0.4		
1,1-Dichloroethane	0.28	ug/L		U	0		0.28		
1,1-Dichloroethene	0.3	ug/L		U	0		0.3		
1,1-Dichloropropene	0.3	ug/L		U	0		0.3		
1,2,3-Trichlorobenzene	0.5	ug/L		U	0		0.5		
1,2,3-Trichloropropane	0.25	ug/L		U	0		0.25		
1,2,4-Trichlorobenzene	0.4	ug/L		U	0		0.4		
1,2,4-Trimethylbenzene	0.3	ug/L		U	0		0.3		
1,2-Dichlorobenzene	0.4	ug/L		U	0		0.4		
1,2-Dichlorobenzene-d4	102	% Recovery			100	102	80 --- 120		
1,2-Dichloroethane	0.23	ug/L		U	0		0.23		
1,2-Dichloropropane	0.3	ug/L		U	0		0.3		
1,3,5-Trimethylbenzene	0.29	ug/L		U	0		0.29		
1,3-Dichlorobenzene	0.26	ug/L		U	0		0.26		
1,3-Dichloropropane	0.3	ug/L		U	0		0.3		
1,4-Dichlorobenzene	0.29	ug/L		U	0		0.29		
2,2-Dichloropropane	0.4	ug/L		U	0		0.4		
2-Chlorotoluene	0.3	ug/L		U	0		0.3		
4-Chlorotoluene	0.4	ug/L		U	0		0.4		
Benzene	0.26	ug/L		U	0		0.26		
Bromobenzene	0.4	ug/L		U	0		0.4		
Bromochloromethane	0.4	ug/L		U	0		0.4		
Bromodichloromethane	0.24	ug/L		U	0		0.24		
Bromofluorobenzene	101	% Recovery			100	101	80 --- 120		
Bromoform	0.4	ug/L		U	0		0.4		
Bromomethane	1.26	ug/L			0		0.4		
Carbon tetrachloride	0.28	ug/L		U	0		0.28		
Chlorobenzene	0.25	ug/L		U	0		0.25		
Chlorodibromomethane	0.4	ug/L		U	0		0.4		
Chloroethane	0.4	ug/L		U	0		0.4		
Chloroform	0.23	ug/L		U	0		0.23		
Chloromethane	9.05	ug/L			0		0.19		
cis-1,2-Dichloroethene	0.28	ug/L		U	0		0.28		
cis-1,3-Dichloropropene	0.22	ug/L		U	0		0.22		
Dibromomethane	0.3	ug/L		U	0		0.3		
Dichlorodifluoromethane	0.3	ug/L		U	0		0.3		
Ethylbenzene	0.27	ug/L		U	0		0.27		
Hexachlorobutadiene	0.4	ug/L		U	0		0.4		
Isopropylbenzene	0.29	ug/L		U	0		0.29		

**Method Blank Water**

Analytical Run #:	148502	Analysis Date:	05/03/2018	Prep Batch #:	Matrix:	LIQUID
CTLab #:	119429	Analysis Time:	16:49	Prep Date/Time:	Method:	524
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methyl tert-butyl ether	0.26	ug/L		U	0		0.26		
Methylene chloride	0.30	ug/L		U	0		0.30		
n-Butylbenzene	0.3	ug/L		U	0		0.3		
n-Propylbenzene	0.26	ug/L		U	0		0.26		
Naphthalene	0.5	ug/L		U	0		0.5		
p-Isopropyltoluene	0.25	ug/L		U	0		0.25		
sec-Butylbenzene	0.26	ug/L		U	0		0.26		
Styrene	0.3	ug/L		U	0		0.3		
tert-Butylbenzene	0.24	ug/L		U	0		0.24		
Tetrachloroethene	0.26	ug/L		U	0		0.26		
Toluene	0.25	ug/L		U	0		0.25		
trans-1,2-Dichloroethene	0.23	ug/L		U	0		0.23		
trans-1,3-Dichloropropene	0.28	ug/L		U	0		0.28		
Trichloroethene	0.3	ug/L		U	0		0.3		
Trichlorofluoromethane	0.24	ug/L		U	0		0.24		
Vinyl chloride	0.17	ug/L		U	0		0.17		

# ENVIRONMENTAL SAMPLING CORPORATION

*Dedicated to Environmental Monitoring, Science & Technology*

May 23, 2018

Michael Sitarz  
W312 N1055 Fairfield Way  
Delafield, WI 53018

**Re: April 2018 Private Well Monitoring Results (PW-54)**

Dear Mr. Sitarz:

Water samples were collected from your well located at W312 N1055 Fairfield Way on April 27, 2018 as part of the private well monitoring program associated with the closed Delafield Sanitary Transfer and Landfill. The samples were collected by Environmental Sampling Corporation (ESC) personnel and submitted to CT Laboratories, Inc. (WDNR Lab Certification #157066030) for analysis.

The water samples collected from the well were tested for the following semi-annual monitoring parameters: alkalinity, chloride, hardness, sulfate, cyanide, total kjeldahl nitrogen, nitrate, nitrite, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, iron, magnesium, manganese, sodium, lead, antimony, selenium, thallium, zinc, and volatile organic compounds (VOCs). The VOC analysis covers a wide range of compounds that are generally found in household and industrial solvents, degreasers, cleaners, gases and petroleum products. The VOC analysis can detect the presence of more than forty compounds. In addition to the parameters listed above, the sample was tested in the field for pH, temperature, and specific conductance.

The Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (WDNR) have established groundwater quality standards for the protection of human health and the environment. Contaminant concentrations that are detected at levels less than the EPA Maximum Contaminant Level (MCL) and the WDNR Enforcement Standard (ES) are believed to be safe for a water supply. In general, the federal MCL and the Wisconsin ES levels are the same, though for some substances the Wisconsin ES is lower than the MCL. The EPA and WDNR have also established secondary or "aesthetic" standards for select inorganic parameters. These standards are based on the taste and appearance of the water rather than health effects.

One VOC, chloromethane, was reported at a low level (0.50 ug/L) in the sample collected from your well. This concentration was less than the ES; there is no MCL established for chloromethane. Chloromethane was detected at a concentration between what are known as the laboratory Limit of Detection (LOD) and the Limit of Quantitation (LOQ). Because this concentration between the LOD and LOQ is so low, it cannot be accurately quantified by the

laboratory and should be considered an estimate. Chloromethane was reported in the laboratory quality control Method Blank at a concentration of 9.05 ug/L, rather than the control limit of 0.19 ug/L. The presence of chloromethane in the Method Blank is an indication of laboratory contamination. The quality control Method Blank data is provided with this letter for your information. Chloromethane is a common laboratory contaminant; the presence of chloromethane in the sample collected from your well is likely a result of laboratory contamination and does not represent the actual drinking water quality.

No additional VOCs were detected at concentrations above the laboratory LOD and therefore, not above an applicable MCL or ES in the samples collected from your well. The concentrations of inorganic parameters were less than drinking water standards.

A summary of the water quality results and a copy of the CT Laboratories report are provided with this letter. Should you have any questions concerning our work at the landfill or the water quality results you have received, please feel free to call me at 414-427-5033.

Sincerely,  
Environmental Sampling Corporation



Tracy Ipavec  
Sr. Environmental Specialist

#### Attachments

cc: Jason Lowery: WDNR, Madison (electronic copy)  
Frank Perugini: ESC



**Environmental Sampling Corporation**

**DELAFIELD LANDFILL  
Private Well Monitoring Data**

54	INORGANIC PARAMETERS (EPA MCL or SMCL / WDNR ES or S)															
	W312 N1055 Fairfield Way	Alkalinity NS	Hardness NS	Chloride (250 / 250)	SO <sub>4</sub> (250 / 250)	CN (0.2 / 0.2)	TKN NS	Nitrate (10 / 10)	Nitrite (1 / 1)	As (10 / 10)	Ba (2000 / 2000)	Be (4 / 4)	Cd (5 / 5)	Ca NS	Cr (100 / 100)	Cu (1300 / 1300)
DATE	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L
10/30/17	340	353	89	52	<0.0040	<0.52	<0.040	<0.040	<0.60	82.3	<0.38	<0.40	79.4	<2.0	9.2 J	<59
04/27/18	360	346	<1.0	53	<0.0030	<0.23	<0.12	<0.14	<0.60	98.4	<0.38	<0.40	73.4	<2.0	11.7 J	81.8 J

Notes:

Drinking water samples are unfiltered.

mg/L = milligrams per liter

ug/L = micrograms per liter

NS = no standard established

s.u. = standard units

# -Manganese has NR140 standards for both Public Welfare (50 ug/L) and Public Health (300 ug/L).

J=Estimated concentration below laboratory quantitation level.

B=Analyte detected in the associated Method Blank.

EPA MCL: Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL)

EPA SMCL: Environmental Protection Agency (EPA) Secondary Maximum Contaminant Level (SMCL)

WDNR ES: Wisconsin Department of Natural Resources (WDNR) Enforcement Standard (ES)

EPA SMCL Standards / WDNR NR140 Public Welfare Standards: chloride, iron, manganese, sulfate, and zinc.

EPA MCL Standards / WDNR NR140 Public Health Standards: cyanide, nitrate, nitrite, arsenic, barium, beryllium, cadmium, chromium, copper, lead, antimony, selenium, thallium, and VOC's.

**590** = Indicates an MCL, SMCL, or ES exceedance

Analyte abbreviations:

SO <sub>4</sub> : sulfate	Ba: barium	Cr: chromium	Mn: manganese	Se: selenium
CN: cyanide	Be: beryllium	Cu: copper	Na: sodium	Tl: thallium
TKN: total kjeldahl nitrogen	Cd: cadmium	Fe: iron	Pb: lead	Zn: zinc
As: arsenic	Ca: calcium	Mg: magnesium	Sb: antimony	

**Environmental Sampling Corporation**

**DELAFIELD LANDFILL  
Private Well Monitoring Data**

54	INORGANIC PARAMETERS (EPA MCL or SMCL / WDNR ES)								FIELD PARAMETERS			VOCs (EPA MCL / WDNR ES)
	Mg	Mn # (50 / 50)	Na	Pb (15 / 15)	Sb (6 / 6)	Se (50 / 50)	Tl (2 / 2)	Zn (5000 / 5000)	pH	Conductivity	Temp.	Chloromethane (NS / 30)
W312 N1055 Fairfield Way	NS		NS						NS	NS	NS	
DATE	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	std. Units	umhos/cm	deg. C	ug/L
10/30/17	37.5	8.1	49.1	<0.43	<0.60	<1.0	<0.19	37.1	7.53	882	10.7	<0.19
04/27/18	39.4	8.7	44.0	0.89 J	<0.60	<1.0	<0.19	42.4	7.62	891	11.5	0.50 J B

Notes:

Drinking water samples are unfiltered.

mg/L = milligrams per liter

ug/L = micrograms per liter

NS = no standard established

s.u. = standard units

# -Manganese has NR140 standards for both Public Welfare (50 ug/L) and Public Health (300 ug/L).

J=Estimated concentration below laboratory quantitation level.

B=Analyte detected in the associated Method Blank.

EPA MCL: Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL)

EPA SMCL: Environmental Protection Agency (EPA) Secondary Maximum Contaminant Level (SMCL)

WDNR ES: Wisconsin Department of Natural Resources (WDNR) Enforcement Standard (ES)

EPA SMCL Standards / WDNR NR140 Public Welfare Standards: chloride, iron, manganese, sulfate, and zinc.

EPA MCL Standards / WDNR NR140 Public Health Standards: cyanide, nitrate, nitrite, arsenic, barium, beryllium, cadmium, chromium, copper, lead, antimony, selenium, thallium, and VOC's.

**590** = Indicates an MCL, SMCL, or ES exceedance

Analyte abbreviations:

SO <sub>4</sub> : sulfate	Ba: barium	Cr: chromium	Mn: manganese	Se: selenium
CN: cyanide	Be: beryllium	Cu: copper	Na: sodium	Tl: thallium
TKN: total kjeldahl nitrogen	Cd: cadmium	Fe: iron	Pb: lead	Zn: zinc
As: arsenic	Ca: calcium	Mg: magnesium	Sb: antimony	

**ANALYTICAL REPORT**

ENVIRONMENTAL SAMPLING CORP.  
 FRANK PERUGINI  
 W125 S9808 NORTH CAPE ROAD  
 MUSKEGO, WI 53150

Project Name: DELAFIELD LF  
 Project Phase:  
 Project #:  
 Folder #: 135753  
 Purchase Order #:  
 Contract #: 3123

Page 1 of 2  
 Arrival Temperature: See COC  
 Report Date: 05/17/2018  
 Date Received: 04/30/2018  
 Reprint Date: 05/22/2018

CT LAB#: 112487	Sample Description: 54	DNR License/Well #: 00719/281	Sampled: 04/27/2018 1210
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Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
<b>Inorganic Results</b>										
Total Kjeldahl Nitrogen	<0.23	mg/L	0.23	0.76	1	U	05/02/2018 15:00	05/04/2018 14:40	MEZ	EPA 351.2
Nitrate Nitrogen Total	<0.12	mg/L	0.12	0.40	1	U		04/30/2018 16:55	AGK	EPA 300.0
Nitrite Nitrogen Total	<0.14	mg/L	0.14	0.48	1	U		04/30/2018 16:55	AGK	EPA 300.0
Total Chloride	<1.0	mg/L	1.0	3.2	1	U		04/30/2018 16:55	AGK	EPA 300.0
Total Sulfate	53	mg/L	0.80	2.5	1			04/30/2018 16:55	AGK	EPA 300.0

***ANALYTICAL REPORT***

ENVIRONMENTAL SAMPLING CORP.  
 FRANK PERUGINI  
 W125 S9808 NORTH CAPE ROAD  
 MUSKEGO, WI 53150

Project Name: DELAFIELD LF  
 Project Phase:  
 Project #:  
 Folder #: 135753  
 Purchase Order #:  
 Contract #: 3123

Page 1 of 5  
 Arrival Temperature: See COC  
 Report Date: 05/17/2018  
 Date Received: 04/30/2018  
 Reprint Date: 05/22/2018

CT LAB#: 112480	Sample Description: 54	DNR License/Well #: 00719/281	Sampled: 04/27/2018 1210
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Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
<b>Field Results</b>										
Color (Field)	CLEAR		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Conductivity (Field)	891	umhos/cm	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Odor (Field)	NONE		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
pH (Field)	7.62	S.U.	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Temperature (Field)	11.5	Deg. C	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Turbidity (Field)	NONE		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
<b>Inorganic Results</b>										
Alkalinity	360	mg/L	4.0	4.0	1			05/01/2018 16:30	LJS	SM 2320B
Total Cyanide	<0.0030	mg/L	0.0030	0.0090	1	U	05/08/2018 08:15	05/08/2018 11:06	MEZ	EPA 335.4
<b>Metals Results</b>										
Total Barium	98.4	ug/L	0.70	2.5	1			05/01/2018 19:12	NAH	EPA 200.7
Total Beryllium	<0.38	ug/L	0.38	1.3	1	U		05/01/2018 19:12	NAH	EPA 200.7
Total Cadmium	<0.40	ug/L	0.40	1.4	1	U		05/01/2018 19:12	NAH	EPA 200.7
Total Calcium	73400	ug/L	31	110	1			05/01/2018 19:12	NAH	EPA 200.7
Total Chromium	<2.0	ug/L	2.0	8.0	1	U		05/01/2018 19:12	NAH	EPA 200.7

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112480 Sample Description:54

DNR License/Well #: 00719/281 Sampled: 04/27/2018 1210

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Total Copper	11.7	ug/L	3.9	13	1	J		05/01/2018 19:12	NAH	EPA 200.7
Total Iron	81.8	ug/L	59	200	1	J		05/01/2018 19:12	NAH	EPA 200.7
Total Magnesium	39400	ug/L	25	84	1			05/01/2018 19:12	NAH	EPA 200.7
Total Manganese	8.7	ug/L	2.2	7.3	1			05/01/2018 19:12	NAH	EPA 200.7
Total Zinc	42.4	ug/L	2.2	7.3	1			05/01/2018 19:12	NAH	EPA 200.7
Total Antimony	<0.60	ug/L	0.60	1.9	1	U		05/08/2018 15:54	MDS	EPA 200.9
Total Arsenic	<0.60	ug/L	0.60	2.1	1	U	05/07/2018 11:10	05/07/2018 16:04	MDS	EPA 200.9
Total Lead	0.89	ug/L	0.43	1.4	1	J		05/01/2018 17:36	MDS	EPA 200.9
Total Selenium	<1.0	ug/L	1.0	3.4	1	U	05/07/2018 11:10	05/09/2018 18:25	MDS	EPA 200.9
Total Thallium	<0.19	ug/L	0.19	0.61	1	U	05/07/2018 09:15	05/09/2018 11:45	MDS	EPA 200.9
Total Sodium	44.00	mg/L	0.030	0.10	1			05/02/2018 11:59	MDS	EPA 200.7
Total Hardness	346	mg/L	0.18	0.61	1			05/01/2018 19:12	NAH	SM 2340B/200.7
<b>Organic Results</b>										
1,1,1,2-Tetrachloroethane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,1,1-Trichloroethane	<0.28	ug/L	0.28	0.93	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,1,2,2-Tetrachloroethane	<0.50	ug/L	0.50	1.6	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,1,2-Trichloroethane	<0.40	ug/L	0.40	1.3	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,1-Dichloroethane	<0.28	ug/L	0.28	0.95	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,1-Dichloroethene	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,1-Dichloropropene	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,2,3-Trichlorobenzene	<0.50	ug/L	0.50	1.6	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,2,4-Trichlorobenzene	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,2,4-Trimethylbenzene	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,2-Dichlorobenzene	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 23:23	RLD	EPA 524.2

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112480 Sample Description:54

DNR License/Well #: 00719/281 Sampled: 04/27/2018 1210

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2-Dichloroethane	<0.23	ug/L	0.23	0.76	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,2-Dichloropropane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,3,5-Trimethylbenzene	<0.29	ug/L	0.29	0.98	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,3-Dichlorobenzene	<0.26	ug/L	0.26	0.87	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,3-Dichloropropane	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 23:23	RLD	EPA 524.2
1,4-Dichlorobenzene	<0.29	ug/L	0.29	0.98	1	U		05/03/2018 23:23	RLD	EPA 524.2
2,2-Dichloropropane	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 23:23	RLD	EPA 524.2
2-Chlorotoluene	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 23:23	RLD	EPA 524.2
4-Chlorotoluene	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 23:23	RLD	EPA 524.2
Benzene	<0.26	ug/L	0.26	0.87	1	U		05/03/2018 23:23	RLD	EPA 524.2
Bromobenzene	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 23:23	RLD	EPA 524.2
Bromochloromethane	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 23:23	RLD	EPA 524.2
Bromodichloromethane	<0.24	ug/L	0.24	0.81	1	U		05/03/2018 23:23	RLD	EPA 524.2
Bromoform	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 23:23	RLD	EPA 524.2
Bromomethane	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 23:23	RLD	EPA 524.2
Carbon tetrachloride	<0.28	ug/L	0.28	0.94	1	U		05/03/2018 23:23	RLD	EPA 524.2
Chlorobenzene	<0.25	ug/L	0.25	0.84	1	U		05/03/2018 23:23	RLD	EPA 524.2
Chlorodibromomethane	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 23:23	RLD	EPA 524.2
Chloroethane	<0.30	ug/L	0.30	1.3	1	U		05/03/2018 23:23	RLD	EPA 524.2
Chloroform	<0.23	ug/L	0.23	0.78	1	U		05/03/2018 23:23	RLD	EPA 524.2
Chloromethane	0.50	ug/L	0.19	0.63	1	J B		05/03/2018 23:23	RLD	EPA 524.2
cis-1,2-Dichloroethene	<0.28	ug/L	0.28	0.94	1	U		05/03/2018 23:23	RLD	EPA 524.2
cis-1,3-Dichloropropene	<0.22	ug/L	0.22	0.73	1	U		05/03/2018 23:23	RLD	EPA 524.2
Dibromomethane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 23:23	RLD	EPA 524.2
Dichlorodifluoromethane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 23:23	RLD	EPA 524.2
Ethylbenzene	<0.27	ug/L	0.27	0.89	1	U		05/03/2018 23:23	RLD	EPA 524.2

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112480 Sample Description:54

DNR License/Well #: 00719/281

Sampled: 04/27/2018 1210

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Hexachlorobutadiene	<0.40	ug/L	0.40	1.4	1	U	05/03/2018 23:23	RLD	EPA 524.2	
Isopropylbenzene	<0.29	ug/L	0.29	0.98	1	U	05/03/2018 23:23	RLD	EPA 524.2	
Methyl tert-butyl ether	<0.26	ug/L	0.26	0.86	1	U	05/03/2018 23:23	RLD	EPA 524.2	
Methylene chloride	<0.30	ug/L	0.30	0.99	1	U	05/03/2018 23:23	RLD	EPA 524.2	
n-Butylbenzene	<0.30	ug/L	0.30	1.0	1	U	05/03/2018 23:23	RLD	EPA 524.2	
n-Propylbenzene	<0.26	ug/L	0.26	0.85	1	U	05/03/2018 23:23	RLD	EPA 524.2	
Naphthalene	<0.50	ug/L	0.50	1.5	1	U	05/03/2018 23:23	RLD	EPA 524.2	
p-Isopropyltoluene	<0.25	ug/L	0.25	0.82	1	U	05/03/2018 23:23	RLD	EPA 524.2	
sec-Butylbenzene	<0.26	ug/L	0.26	0.85	1	U	05/03/2018 23:23	RLD	EPA 524.2	
Styrene	<0.30	ug/L	0.30	1.0	1	U	05/03/2018 23:23	RLD	EPA 524.2	
tert-Butylbenzene	<0.24	ug/L	0.24	0.80	1	U	05/03/2018 23:23	RLD	EPA 524.2	
Tetrachloroethene	<0.26	ug/L	0.26	0.87	1	U	05/03/2018 23:23	RLD	EPA 524.2	
Toluene	<0.25	ug/L	0.25	0.84	1	U	05/03/2018 23:23	RLD	EPA 524.2	
Total Xylene	<0.26	ug/L	0.26	0.88	1	U	05/03/2018 23:23	RLD	EPA 524.2	
trans-1,2-Dichloroethene	<0.23	ug/L	0.23	0.75	1	U	05/03/2018 23:23	RLD	EPA 524.2	
trans-1,3-Dichloropropene	<0.28	ug/L	0.28	0.93	1	U	05/03/2018 23:23	RLD	EPA 524.2	
Trichloroethene	<0.30	ug/L	0.30	1.0	1	U	05/03/2018 23:23	RLD	EPA 524.2	
Trichlorofluoromethane	<0.24	ug/L	0.24	0.80	1	U	05/03/2018 23:23	RLD	EPA 524.2	
Vinyl chloride	<0.17	ug/L	0.17	0.58	1	U	05/03/2018 23:23	RLD	EPA 524.2	

Notes: All LOD/LOQs are adjusted to reflect dilution, percent solids, and any differences in the sample weight / volume as compared to standard amounts.  
 "U" qualifier indicates concentration of analyte was below the detection limit. "J" qualifier indicates an estimated value between the LOD and LOQ.

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

Eric T. Korthals  
 Project Manager  
 Submitted by: 608-356-2760

<u>Code</u>	<u>Description</u>	<u>QC Qualifiers</u>
B	Analyte detected in the associated Method Blank.	
C	Toxicity present in BOD sample.	
D	Diluted Out.	
E	Safe, No Total Coliform detected.	
F	Unsafe, Total Coliform detected, no E. Coli detected.	
G	Unsafe, Total Coliform detected and E. Coli detected.	
H	Holding time exceeded.	
I	BOD incubator temperature was outside acceptance limits during test period.	
J	Estimated value.	
L	Significant peaks were detected outside the chromatographic window.	
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.	
N	Insufficient BOD oxygen depletion.	
O	Complete BOD oxygen depletion.	
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.	
Q	Laboratory Control Sample outside acceptance limits.	
R	See Narrative at end of report.	
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.	
T	Sample received with improper preservation or temperature.	
U	Analyte concentration was below detection limit.	
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.	
W	Sample amount received was below program minimum.	
X	Analyte exceeded calibration range.	
Y	Replicate/Duplicate precision outside acceptance limits.	
Z	Specified calibration criteria was not met.	

**Current CT Laboratories Certifications**

Wisconsin (WDNR) Chemistry ID# 157066030  
 Wisconsin (DATCP) Bacteriology ID# 105-289  
 Louisiana NELAP (primary) ID# ACC20160002  
 Illinois NELAP Lab ID# 200073  
 Kansas NELAP Lab ID# E-10368  
 Virginia NELAP Lab ID# 460203  
 Maryland Lab ID# WI00061  
 ISO/IEC 17025-2005 A2LA Cert # 3806.01  
 DoD-ELAP A2LA 3806.01  
 GA EPD Stipulation ID ACC20160002



**CT Laboratories**

**Quality Control  
Method Blank**

**Method Blank Water**

Analytical Run #:	148502	Analysis Date:	05/03/2018	Prep Batch #:	Matrix:	LIQUID
CTLab #:	119429	Analysis Time:	16:49	Prep Date/Time:	Method:	524
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.3	ug/L		U	0		0.3		
1,1,1-Trichloroethane	0.28	ug/L		U	0		0.28		
1,1,2,2-Tetrachloroethane	0.5	ug/L		U	0		0.5		
1,1,2-Trichloroethane	0.4	ug/L		U	0		0.4		
1,1-Dichloroethane	0.28	ug/L		U	0		0.28		
1,1-Dichloroethene	0.3	ug/L		U	0		0.3		
1,1-Dichloropropene	0.3	ug/L		U	0		0.3		
1,2,3-Trichlorobenzene	0.5	ug/L		U	0		0.5		
1,2,3-Trichloropropane	0.25	ug/L		U	0		0.25		
1,2,4-Trichlorobenzene	0.4	ug/L		U	0		0.4		
1,2,4-Trimethylbenzene	0.3	ug/L		U	0		0.3		
1,2-Dichlorobenzene	0.4	ug/L		U	0		0.4		
1,2-Dichlorobenzene-d4	102	% Recovery			100	102	80 --- 120		
1,2-Dichloroethane	0.23	ug/L		U	0		0.23		
1,2-Dichloropropane	0.3	ug/L		U	0		0.3		
1,3,5-Trimethylbenzene	0.29	ug/L		U	0		0.29		
1,3-Dichlorobenzene	0.26	ug/L		U	0		0.26		
1,3-Dichloropropane	0.3	ug/L		U	0		0.3		
1,4-Dichlorobenzene	0.29	ug/L		U	0		0.29		
2,2-Dichloropropane	0.4	ug/L		U	0		0.4		
2-Chlorotoluene	0.3	ug/L		U	0		0.3		
4-Chlorotoluene	0.4	ug/L		U	0		0.4		
Benzene	0.26	ug/L		U	0		0.26		
Bromobenzene	0.4	ug/L		U	0		0.4		
Bromochloromethane	0.4	ug/L		U	0		0.4		
Bromodichloromethane	0.24	ug/L		U	0		0.24		
Bromofluorobenzene	101	% Recovery			100	101	80 --- 120		
Bromoform	0.4	ug/L		U	0		0.4		
Bromomethane	1.26	ug/L			0		0.4		
Carbon tetrachloride	0.28	ug/L		U	0		0.28		
Chlorobenzene	0.25	ug/L		U	0		0.25		
Chlorodibromomethane	0.4	ug/L		U	0		0.4		
Chloroethane	0.4	ug/L		U	0		0.4		
Chloroform	0.23	ug/L		U	0		0.23		
Chloromethane	9.05	ug/L			0		0.19		
cis-1,2-Dichloroethene	0.28	ug/L		U	0		0.28		
cis-1,3-Dichloropropene	0.22	ug/L		U	0		0.22		
Dibromomethane	0.3	ug/L		U	0		0.3		
Dichlorodifluoromethane	0.3	ug/L		U	0		0.3		
Ethylbenzene	0.27	ug/L		U	0		0.27		
Hexachlorobutadiene	0.4	ug/L		U	0		0.4		
Isopropylbenzene	0.29	ug/L		U	0		0.29		

**Method Blank Water**

Analytical Run #:	148502	Analysis Date:	05/03/2018	Prep Batch #:	Matrix:	LIQUID
CTLab #:	119429	Analysis Time:	16:49	Prep Date/Time:	Method:	524
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methyl tert-butyl ether	0.26	ug/L		U	0		0.26		
Methylene chloride	0.30	ug/L		U	0		0.30		
n-Butylbenzene	0.3	ug/L		U	0		0.3		
n-Propylbenzene	0.26	ug/L		U	0		0.26		
Naphthalene	0.5	ug/L		U	0		0.5		
p-Isopropyltoluene	0.25	ug/L		U	0		0.25		
sec-Butylbenzene	0.26	ug/L		U	0		0.26		
Styrene	0.3	ug/L		U	0		0.3		
tert-Butylbenzene	0.24	ug/L		U	0		0.24		
Tetrachloroethene	0.26	ug/L		U	0		0.26		
Toluene	0.25	ug/L		U	0		0.25		
trans-1,2-Dichloroethene	0.23	ug/L		U	0		0.23		
trans-1,3-Dichloropropene	0.28	ug/L		U	0		0.28		
Trichloroethene	0.3	ug/L		U	0		0.3		
Trichlorofluoromethane	0.24	ug/L		U	0		0.24		
Vinyl chloride	0.17	ug/L		U	0		0.17		

# ENVIRONMENTAL SAMPLING CORPORATION

*Dedicated to Environmental Monitoring, Science & Technology*

May 23, 2018

Chuck and Sharilyn Spiegeloff  
1916 Hillside Ct.  
Delafield, WI 53018

**Re: April 2018 Private Well Monitoring Results (PW-1916)**

Dear Mr. and Mrs. Spiegeloff:

Water samples were collected from your well located at 1916 Hillside Court on April 27, 2018 as part of the private well monitoring program associated with the closed Delafield Sanitary Transfer and Landfill. The samples were collected by Environmental Sampling Corporation (ESC) personnel and submitted to CT Laboratories, Inc. (WDNR Lab Certification #157066030) for analysis.

The water samples collected from the well were tested for the following semi-annual monitoring parameters: alkalinity, chloride, hardness, sulfate, cyanide, total kjeldahl nitrogen, nitrate, nitrite, arsenic, barium, beryllium, cadmium, calcium, chromium, copper, iron, magnesium, manganese, sodium, lead, antimony, selenium, thallium, zinc, and volatile organic compounds (VOCs). The VOC analysis covers a wide range of compounds that are generally found in household and industrial solvents, degreasers, cleaners, gases and petroleum products. The VOC analysis can detect the presence of more than forty compounds. In addition to the parameters listed above, the sample was tested in the field for pH, temperature, and specific conductance.

The Environmental Protection Agency (EPA) and the Wisconsin Department of Natural Resources (WDNR) have established groundwater quality standards for the protection of human health and the environment. Contaminant concentrations that are detected at levels less than the EPA Maximum Contaminant Level (MCL) and the WDNR Enforcement Standard (ES) are believed to be safe for a water supply. In general, the federal MCL and the Wisconsin ES levels are the same, though for some substances the Wisconsin ES is lower than the MCL. The EPA and WDNR have also established secondary or "aesthetic" standards for select inorganic parameters. These standards are based on the taste and appearance of the water rather than health effects.

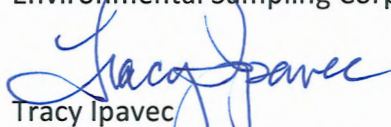
One VOC, chloromethane, was reported at a low level (0.35 ug/L) in the sample collected from your well. This concentration was less than the ES; there is no MCL established for chloromethane. Chloromethane was detected at a concentration between what are known as the laboratory Limit of Detection (LOD) and the Limit of Quantitation (LOQ). Because this concentration between the LOD and LOQ is so low; it cannot be accurately quantified by the

laboratory and should be considered an estimate. Chloromethane was reported in the laboratory quality control Method Blank at a concentration of 9.05 ug/L, rather than the control limit of 0.19 ug/L. The presence of chloromethane in the Method Blank is an indication of laboratory contamination. The quality control Method Blank data is provided with this letter for your information. Chloromethane is a common laboratory contaminant; the presence of chloromethane in the sample collected from your well is likely a result of laboratory contamination and does not represent the actual drinking water quality.

No additional VOCs were detected at concentrations above the laboratory LOD and therefore, not above an applicable MCL or ES in the samples collected from your well. The concentrations of inorganic parameters were less than drinking water standards.

A summary of the water quality results and a copy of the CT Laboratories report are provided with this letter. Should you have any questions concerning our work at the landfill or the water quality results you have received, please feel free to call me at 414-427-5033.

Sincerely,  
Environmental Sampling Corporation

  
Tracy Ipavec  
Sr. Environmental Specialist

#### Attachments

cc: Jason Lowery: WDNR, Madison (electronic copy)  
Frank Perugini: ESC

**Environmental Sampling Corporation**

**DELAFIELD LANDFILL  
Private Well Monitoring Data**

1916	INORGANIC PARAMETERS (EPA MCL or SMCL / WDNR ES or S)															
	Alkalinity	Hardness	Chloride	SO <sub>4</sub>	CN	TKN	Nitrate	Nitrite	As	Ba	Be	Cd	Ca	Cr	Cu	Fe
1916 Hillside Ct.	NS	NS	(250 / 250)	(250 / 250)	(0.2 / 0.2)	NS	(10 / 10)	(1 / 1)	(10 / 10)	(2000 / 2000)	(4 / 4)	(5 / 5)	NS	(100 / 100)	(1300 / 1300)	(300 / 300)
DATE	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	mg/L	ug/L	ug/L	ug/L	ug/L	mg/L	ug/L	ug/L	ug/L
10/30/17	330	410	150	29	<0.0040	<0.52	5.3	<0.040	<0.60	62.3	<0.38	<0.40	92.7	<2.0	7.6 J	<59
04/27/18	340	379	<1.0	28	<0.0030	<0.23	4.4	<0.14	<0.60	68.2	<0.38	<0.40	81.4	<2.0	5.2 J	<59

Notes:

Drinking water samples are unfiltered.

mg/L = milligrams per liter

ug/L = micrograms per liter

NS = no standard established

s.u. = standard units

# -Manganese has NR140 standards for both Public Welfare (50 ug/L) and Public Health (300 ug/L).

J=Estimated concentration below laboratory quantitation level.

B=Analyte detected in the associated Method Blank.

EPA MCL: Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL)

EPA SMCL: Environmental Protection Agency (EPA) Secondary Maximum Contaminant Level (SMCL)

WDNR ES: Wisconsin Department of Natural Resources (WDNR) Enforcement Standard (ES)

EPA SMCL Standards / WDNR NR140 Public Welfare Standards: chloride, iron, manganese, sulfate, and zinc.

EPA MCL Standards / WDNR NR140 Public Health Standards: cyanide, nitrate, nitrite, arsenic, barium, beryllium, cadmium, chromium, copper, lead, antimony, selenium, thallium, and VOC's.

**590** = Indicates an MCL, SMCL, or ES exceedance

Analyte abbreviations:

SO <sub>4</sub> : sulfate	Ba: barium	Cr: chromium	Mn: manganese	Se: selenium
CN: cyanide	Be: beryllium	Cu: copper	Na: sodium	Tl: thallium
TKN: total kjeldahl nitrogen	Cd: cadmium	Fe: iron	Pb: lead	Zn: zinc
As: arsenic	Ca: calcium	Mg: magnesium	Sb: antimony	

**Environmental Sampling Corporation**

**DELAFIELD LANDFILL  
Private Well Monitoring Data**

1916 1916 Hillside Ct.	INORGANIC PARAMETERS (EPA MCL or SMCL / WDNR ES)								FIELD PARAMETERS			VOCs (EPA MCL / WDNR ES)
	Mg NS	Mn # (50 / 50)	Na NS	Pb (15 / 15)	Sb (6 / 6)	Se (50 / 50)	Tl (2 / 2)	Zn (5000 / 5000)	pH NS	Conductivity NS	Temp. NS	Chloromethane (NS / 30)
DATE	mg/L	ug/L	mg/L	ug/L	ug/L	ug/L	ug/L	ug/L	std. Units	umhos/cm	deg. C	ug/L
10/30/17	43.3	<2.2	54.3	<0.43	<0.60	<1.0	<0.19	11.4	7.35	990	10.8	<0.19
04/27/18	42.7	<2.2	47.2	0.65 J	<0.60	<1.0	0.23 J	18.2	7.38	965	10.7	0.35 J B

Notes:

Drinking water samples are unfiltered.

mg/L = milligrams per liter

ug/L = micrograms per liter

NS = no standard established

s.u. = standard units

# -Manganese has NR140 standards for both Public Welfare (50 ug/L) and Public Health (300 ug/L).

J=Estimated concentration below laboratory quantitation level.

B=Analyte detected in the associated Method Blank.

EPA MCL: Environmental Protection Agency (EPA) Maximum Contaminant Level (MCL)

EPA SMCL: Environmental Protection Agency (EPA) Secondary Maximum Contaminant Level (SMCL)

WDNR ES: Wisconsin Department of Natural Resources (WDNR) Enforcement Standard (ES)

EPA SMCL Standards / WDNR NR140 Public Welfare Standards: chloride, iron, manganese, sulfate, and zinc.

EPA MCL Standards / WDNR NR140 Public Health Standards: cyanide, nitrate, nitrite, arsenic, barium, beryllium, cadmium, chromium, copper, lead, antimony, selenium, thallium, and VOC's.

**590** = Indicates an MCL, SMCL, or ES exceedance

Analyte abbreviations:

SO <sub>4</sub> : sulfate	Ba: barium	Cr: chromium	Mn: manganese	Se: selenium
CN: cyanide	Be: beryllium	Cu: copper	Na: sodium	Tl: thallium
TKN: total kjeldahl nitrogen	Cd: cadmium	Fe: iron	Pb: lead	Zn: zinc
As: arsenic	Ca: calcium	Mg: magnesium	Sb: antimony	



**ANALYTICAL REPORT**

ENVIRONMENTAL SAMPLING CORP.  
 FRANK PERUGINI  
 W125 S9808 NORTH CAPE ROAD  
 MUSKEGO, WI 53150

Project Name: DELAFIELD LF  
 Project Phase:  
 Project #:  
 Folder #: 135753  
 Purchase Order #:  
 Contract #: 3123

Page 1 of 2  
 Arrival Temperature: See COC  
 Report Date: 05/17/2018  
 Date Received: 04/30/2018  
 Reprint Date: 05/22/2018

CT LAB#: 112488	Sample Description: 1916	DNR License/Well #: 00719/383	Sampled: 04/27/2018 1255
-----------------	--------------------------	-------------------------------	--------------------------

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
<b>Inorganic Results</b>										
Total Kjeldahl Nitrogen	<0.23	mg/L	0.23	0.76	1	U	05/02/2018 15:00	05/04/2018 14:41	MEZ	EPA 351.2
Nitrate Nitrogen Total	4.4	mg/L	0.12	0.40	1			04/30/2018 17:40	AGK	EPA 300.0
Nitrite Nitrogen Total	<0.14	mg/L	0.14	0.48	1	U		04/30/2018 17:40	AGK	EPA 300.0
Total Chloride	<1.0	mg/L	1.0	3.2	1	U		04/30/2018 17:40	AGK	EPA 300.0
Total Sulfate	28	mg/L	0.80	2.5	1			04/30/2018 17:40	AGK	EPA 300.0

***ANALYTICAL REPORT***

ENVIRONMENTAL SAMPLING CORP.  
 FRANK PERUGINI  
 W125 S9808 NORTH CAPE ROAD  
 MUSKEGO, WI 53150

Project Name: DELAFIELD LF  
 Project Phase:  
 Project #:  
 Folder #: 135753  
 Purchase Order #:  
 Contract #: 3123

Page 1 of 5  
 Arrival Temperature: See COC  
 Report Date: 05/17/2018  
 Date Received: 04/30/2018  
 Reprint Date: 05/22/2018

CT LAB#: 112481	Sample Description: 1916	DNR License/Well #: 00719/383	Sampled: 04/27/2018 1255
-----------------	--------------------------	-------------------------------	--------------------------

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
<b>Field Results</b>										
Color (Field)	CLEAR		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Conductivity (Field)	965	umhos/cm	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Odor (Field)	NONE		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
pH (Field)	7.38	S.U.	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Temperature (Field)	10.7	Deg. C	N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
Turbidity (Field)	NONE		N/A	N/A	1			04/27/2018 00:00	SUB	FIELD
<b>Inorganic Results</b>										
Alkalinity	340	mg/L	4.0	4.0	1			05/01/2018 16:30	LJS	SM 2320B
Total Cyanide	<0.0030	mg/L	0.0030	0.0090	1	U	05/08/2018 08:15	05/08/2018 11:09	MEZ	EPA 335.4
<b>Metals Results</b>										
Total Barium	68.2	ug/L	0.70	2.5	1			05/01/2018 19:20	NAH	EPA 200.7
Total Beryllium	<0.38	ug/L	0.38	1.3	1	U		05/01/2018 19:20	NAH	EPA 200.7
Total Cadmium	<0.40	ug/L	0.40	1.4	1	U		05/01/2018 19:20	NAH	EPA 200.7
Total Calcium	81400	ug/L	31	110	1			05/01/2018 19:20	NAH	EPA 200.7
Total Chromium	<2.0	ug/L	2.0	8.0	1	U		05/01/2018 19:20	NAH	EPA 200.7

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112481 Sample Description:1916

DNR License/Well #: 00719/383 Sampled: 04/27/2018 1255

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Total Copper	5.2	ug/L	3.9	13	1	J		05/01/2018 19:20	NAH	EPA 200.7
Total Iron	<59	ug/L	59	200	1	U		05/01/2018 19:20	NAH	EPA 200.7
Total Magnesium	42700	ug/L	25	84	1			05/01/2018 19:20	NAH	EPA 200.7
Total Manganese	<2.2	ug/L	2.2	7.3	1	U		05/01/2018 19:20	NAH	EPA 200.7
Total Zinc	18.2	ug/L	2.2	7.3	1			05/01/2018 19:20	NAH	EPA 200.7
Total Antimony	<0.60	ug/L	0.60	1.9	1	U		05/08/2018 15:58	MDS	EPA 200.9
Total Arsenic	<0.60	ug/L	0.60	2.1	1	U	05/07/2018 11:10	05/07/2018 16:10	MDS	EPA 200.9
Total Lead	0.65	ug/L	0.43	1.4	1	J		05/01/2018 17:42	MDS	EPA 200.9
Total Selenium	<1.0	ug/L	1.0	3.4	1	U M	05/07/2018 11:10	05/14/2018 11:40	MDS	EPA 200.9
Total Thallium	0.23	ug/L	0.19	0.61	1	J	05/07/2018 09:15	05/09/2018 12:09	MDS	EPA 200.9
Total Sodium	47.20	mg/L	0.030	0.10	1			05/02/2018 12:02	MDS	EPA 200.7
Total Hardness	379	mg/L	0.18	0.61	1			05/01/2018 19:20	NAH	SM 2340B/200.7
<b>Organic Results</b>										
1,1,1,2-Tetrachloroethane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,1,1-Trichloroethane	<0.28	ug/L	0.28	0.93	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,1,2,2-Tetrachloroethane	<0.50	ug/L	0.50	1.6	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,1,2-Trichloroethane	<0.40	ug/L	0.40	1.3	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,1-Dichloroethane	<0.28	ug/L	0.28	0.95	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,1-Dichloroethene	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,1-Dichloropropene	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,2,3-Trichlorobenzene	<0.50	ug/L	0.50	1.6	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,2,3-Trichloropropane	<0.25	ug/L	0.25	0.83	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,2,4-Trichlorobenzene	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,2,4-Trimethylbenzene	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,2-Dichlorobenzene	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 23:51	RLD	EPA 524.2

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112481 Sample Description:1916

DNR License/Well #: 00719/383

Sampled: 04/27/2018 1255

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
1,2-Dichloroethane	<0.23	ug/L	0.23	0.76	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,2-Dichloropropane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,3,5-Trimethylbenzene	<0.29	ug/L	0.29	0.98	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,3-Dichlorobenzene	<0.26	ug/L	0.26	0.87	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,3-Dichloropropane	<0.30	ug/L	0.30	1.1	1	U		05/03/2018 23:51	RLD	EPA 524.2
1,4-Dichlorobenzene	<0.29	ug/L	0.29	0.98	1	U		05/03/2018 23:51	RLD	EPA 524.2
2,2-Dichloropropane	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 23:51	RLD	EPA 524.2
2-Chlorotoluene	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 23:51	RLD	EPA 524.2
4-Chlorotoluene	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 23:51	RLD	EPA 524.2
Benzene	<0.26	ug/L	0.26	0.87	1	U		05/03/2018 23:51	RLD	EPA 524.2
Bromobenzene	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 23:51	RLD	EPA 524.2
Bromochloromethane	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 23:51	RLD	EPA 524.2
Bromodichloromethane	<0.24	ug/L	0.24	0.81	1	U		05/03/2018 23:51	RLD	EPA 524.2
Bromoform	<0.40	ug/L	0.40	1.2	1	U		05/03/2018 23:51	RLD	EPA 524.2
Bromomethane	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 23:51	RLD	EPA 524.2
Carbon tetrachloride	<0.28	ug/L	0.28	0.94	1	U		05/03/2018 23:51	RLD	EPA 524.2
Chlorobenzene	<0.25	ug/L	0.25	0.84	1	U		05/03/2018 23:51	RLD	EPA 524.2
Chlorodibromomethane	<0.40	ug/L	0.40	1.4	1	U		05/03/2018 23:51	RLD	EPA 524.2
Chloroethane	<0.30	ug/L	0.30	1.3	1	U		05/03/2018 23:51	RLD	EPA 524.2
Chloroform	<0.23	ug/L	0.23	0.78	1	U		05/03/2018 23:51	RLD	EPA 524.2
Chloromethane	0.35	ug/L	0.19	0.63	1	J B		05/03/2018 23:51	RLD	EPA 524.2
cis-1,2-Dichloroethene	<0.28	ug/L	0.28	0.94	1	U		05/03/2018 23:51	RLD	EPA 524.2
cis-1,3-Dichloropropene	<0.22	ug/L	0.22	0.73	1	U		05/03/2018 23:51	RLD	EPA 524.2
Dibromomethane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 23:51	RLD	EPA 524.2
Dichlorodifluoromethane	<0.30	ug/L	0.30	1.0	1	U		05/03/2018 23:51	RLD	EPA 524.2
Ethylbenzene	<0.27	ug/L	0.27	0.89	1	U		05/03/2018 23:51	RLD	EPA 524.2

Unless specifically stated to the contrary, soil/sediment/sludge sample results/LOD/LOQ/RLs were reported on a Dry Weight Basis

CT LAB#: 112481 Sample Description:1916

DNR License/Well #: 00719/383

Sampled: 04/27/2018 1255

Analyte	Result	Units	LOD	LOQ	Dilution	Qualifier	Prep Date/Time	Analysis Date/Time	Analyst	Method
Hexachlorobutadiene	<0.40	ug/L	0.40	1.4	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
Isopropylbenzene	<0.29	ug/L	0.29	0.98	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
Methyl tert-butyl ether	<0.26	ug/L	0.26	0.86	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
Methylene chloride	<0.30	ug/L	0.30	0.99	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
n-Butylbenzene	<0.30	ug/L	0.30	1.0	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
n-Propylbenzene	<0.26	ug/L	0.26	0.85	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
Naphthalene	<0.50	ug/L	0.50	1.5	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
p-Isopropyltoluene	<0.25	ug/L	0.25	0.82	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
sec-Butylbenzene	<0.26	ug/L	0.26	0.85	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
Styrene	<0.30	ug/L	0.30	1.0	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
tert-Butylbenzene	<0.24	ug/L	0.24	0.80	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
Tetrachloroethene	<0.26	ug/L	0.26	0.87	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
Toluene	<0.25	ug/L	0.25	0.84	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
Total Xylene	<0.26	ug/L	0.26	0.88	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
trans-1,2-Dichloroethene	<0.23	ug/L	0.23	0.75	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
trans-1,3-Dichloropropene	<0.28	ug/L	0.28	0.93	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
Trichloroethene	<0.30	ug/L	0.30	1.0	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
Trichlorofluoromethane	<0.24	ug/L	0.24	0.80	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2
Vinyl chloride	<0.17	ug/L	0.17	0.58	1	U	05/03/2018 23:51	05/03/2018 23:51	RLD	EPA 524.2

Notes: All LOD/LOQs are adjusted to reflect dilution, percent solids, and any differences in the sample weight / volume as compared to standard amounts.  
 "U" qualifier indicates concentration of analyte was below the detection limit. "J" qualifier indicates an estimated value between the LOD and LOQ.

All samples were received intact and properly preserved unless otherwise noted. The results reported relate only to the samples tested. This report shall not be reproduced, except in full, without written approval of this laboratory. The Chain of Custody is attached.

Eric T. Korthals  
 Project Manager  
 Submitted by: 608-356-2760

<u>Code</u>	<u>Description</u>	<u>QC Qualifiers</u>
B	Analyte detected in the associated Method Blank.	
C	Toxicity present in BOD sample.	
D	Diluted Out.	
E	Safe, No Total Coliform detected.	
F	Unsafe, Total Coliform detected, no E. Coli detected.	
G	Unsafe, Total Coliform detected and E. Coli detected.	
H	Holding time exceeded.	
I	BOD incubator temperature was outside acceptance limits during test period.	
J	Estimated value.	
L	Significant peaks were detected outside the chromatographic window.	
M	Matrix spike and/or Matrix Spike Duplicate recovery outside acceptance limits.	
N	Insufficient BOD oxygen depletion.	
O	Complete BOD oxygen depletion.	
P	Concentration of analyte differs more than 40% between primary and confirmation analysis.	
Q	Laboratory Control Sample outside acceptance limits.	
R	See Narrative at end of report.	
S	Surrogate standard recovery outside acceptance limits due to apparent matrix effects.	
T	Sample received with improper preservation or temperature.	
U	Analyte concentration was below detection limit.	
V	Raised Quantitation or Reporting Limit due to limited sample amount or dilution for matrix background interference.	
W	Sample amount received was below program minimum.	
X	Analyte exceeded calibration range.	
Y	Replicate/Duplicate precision outside acceptance limits.	
Z	Specified calibration criteria was not met.	

**Current CT Laboratories Certifications**

Wisconsin (WDNR) Chemistry ID# 157066030  
 Wisconsin (DATCP) Bacteriology ID# 105-289  
 Louisiana NELAP (primary) ID# ACC20160002  
 Illinois NELAP Lab ID# 200073  
 Kansas NELAP Lab ID# E-10368  
 Virginia NELAP Lab ID# 460203  
 Maryland Lab ID# WI00061  
 ISO/IEC 17025-2005 A2LA Cert # 3806.01  
 DoD-ELAP A2LA 3806.01  
 GA EPD Stipulation ID ACC20160002

**CT Laboratories**

**Quality Control  
Method Blank**

**Method Blank Water**

Analytical Run #:	148502	Analysis Date:	05/03/2018	Prep Batch #:	Matrix:	LIQUID
CTLab #:	119429	Analysis Time:	16:49	Prep Date/Time:	Method:	524
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
1,1,1,2-Tetrachloroethane	0.3	ug/L		U	0		0.3		
1,1,1-Trichloroethane	0.28	ug/L		U	0		0.28		
1,1,2,2-Tetrachloroethane	0.5	ug/L		U	0		0.5		
1,1,2-Trichloroethane	0.4	ug/L		U	0		0.4		
1,1-Dichloroethane	0.28	ug/L		U	0		0.28		
1,1-Dichloroethene	0.3	ug/L		U	0		0.3		
1,1-Dichloropropene	0.3	ug/L		U	0		0.3		
1,2,3-Trichlorobenzene	0.5	ug/L		U	0		0.5		
1,2,3-Trichloropropane	0.25	ug/L		U	0		0.25		
1,2,4-Trichlorobenzene	0.4	ug/L		U	0		0.4		
1,2,4-Trimethylbenzene	0.3	ug/L		U	0		0.3		
1,2-Dichlorobenzene	0.4	ug/L		U	0		0.4		
1,2-Dichlorobenzene-d4	102	% Recovery			100	102	80 --- 120		
1,2-Dichloroethane	0.23	ug/L		U	0		0.23		
1,2-Dichloropropane	0.3	ug/L		U	0		0.3		
1,3,5-Trimethylbenzene	0.29	ug/L		U	0		0.29		
1,3-Dichlorobenzene	0.26	ug/L		U	0		0.26		
1,3-Dichloropropane	0.3	ug/L		U	0		0.3		
1,4-Dichlorobenzene	0.29	ug/L		U	0		0.29		
2,2-Dichloropropane	0.4	ug/L		U	0		0.4		
2-Chlorotoluene	0.3	ug/L		U	0		0.3		
4-Chlorotoluene	0.4	ug/L		U	0		0.4		
Benzene	0.26	ug/L		U	0		0.26		
Bromobenzene	0.4	ug/L		U	0		0.4		
Bromochloromethane	0.4	ug/L		U	0		0.4		
Bromodichloromethane	0.24	ug/L		U	0		0.24		
Bromofluorobenzene	101	% Recovery			100	101	80 --- 120		
Bromoform	0.4	ug/L		U	0		0.4		
Bromomethane	1.26	ug/L			0		0.4		
Carbon tetrachloride	0.28	ug/L		U	0		0.28		
Chlorobenzene	0.25	ug/L		U	0		0.25		
Chlorodibromomethane	0.4	ug/L		U	0		0.4		
Chloroethane	0.4	ug/L		U	0		0.4		
Chloroform	0.23	ug/L		U	0		0.23		
Chloromethane	9.05	ug/L			0		0.19		
cis-1,2-Dichloroethene	0.28	ug/L		U	0		0.28		
cis-1,3-Dichloropropene	0.22	ug/L		U	0		0.22		
Dibromomethane	0.3	ug/L		U	0		0.3		
Dichlorodifluoromethane	0.3	ug/L		U	0		0.3		
Ethylbenzene	0.27	ug/L		U	0		0.27		
Hexachlorobutadiene	0.4	ug/L		U	0		0.4		
Isopropylbenzene	0.29	ug/L		U	0		0.29		



**Method Blank Water**

Analytical Run #:	148502	Analysis Date:	05/03/2018	Prep Batch #:	Matrix:	LIQUID
CTLab #:	119429	Analysis Time:	16:49	Prep Date/Time:	Method:	524
Parent Sample #:		Analyst:	RLD	Prep Analyst:		

Analyte	QC sample result	Units	Parent sample result	Qualifier(s)	Spike Amount Added	% Recovery	Control Limits	RPD	RPD Limit
Methyl tert-butyl ether	0.26	ug/L		U	0		0.26		
Methylene chloride	0.30	ug/L		U	0		0.30		
n-Butylbenzene	0.3	ug/L		U	0		0.3		
n-Propylbenzene	0.26	ug/L		U	0		0.26		
Naphthalene	0.5	ug/L		U	0		0.5		
p-Isopropyltoluene	0.25	ug/L		U	0		0.25		
sec-Butylbenzene	0.26	ug/L		U	0		0.26		
Styrene	0.3	ug/L		U	0		0.3		
tert-Butylbenzene	0.24	ug/L		U	0		0.24		
Tetrachloroethene	0.26	ug/L		U	0		0.26		
Toluene	0.25	ug/L		U	0		0.25		
trans-1,2-Dichloroethene	0.23	ug/L		U	0		0.23		
trans-1,3-Dichloropropene	0.28	ug/L		U	0		0.28		
Trichloroethene	0.3	ug/L		U	0		0.3		
Trichlorofluoromethane	0.24	ug/L		U	0		0.24		
Vinyl chloride	0.17	ug/L		U	0		0.17		