

**SEMI-ANNUAL GROUNDWATER MONITORING  
BRISTOL MUNICIPAL LANDFILL  
BRISTOL, VERMONT**

DEC Project RU95-205

November 9, 2022

Prepared for:  
Town of Bristol  
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LEE Project # 14-013



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## 1.0 INTRODUCTION

The Town of Bristol, Vermont (the Town) owns and previously operated a municipal landfill on Pine Street in the Town of Bristol, Vermont (See Site Location Map in Appendix A). The Site is currently a closed, unlined municipal solid waste disposal facility. The facility previously served approximately 3,500 people prior to closure.

The Site is certified for operation by the State of Vermont Department of Environmental Conservation (DEC), Waste Management Division, under Facility Certification RU95-0205. The current certification period is from January 30, 2017 through December 31, 2026.

The Town of Bristol has retained LE Environmental LLC (LEE) to collect groundwater samples in the vicinity of the landfill according to conditions 8 and 10 of the certification. Groundwater samples are collected in May and October from MW-101, 102R, 103, 309, and 335. The certification requires that the groundwater samples be tested for field parameters during collection, and for inorganic analytes and volatile organic compounds (VOCs – in May only) by a certified laboratory.

Semiannual monitoring is conducted to detect changes in groundwater quality which could indicate that landfill leachate is impacting groundwater beneath or adjacent to the Site. In addition to applicable Federal and State waste management statutes and regulations, the Site is regulated under the State of Vermont Groundwater Protection Rule and Strategy, Subchapter 12, effective July 6, 2019 (GWPRS) including Primary and Secondary Vermont Groundwater Enforcement Standards (VGES) contained in GWPRS Tables 1 and 2. The GWPRS requires that regulated activities not cause groundwater quality to exceed the VGES at the compliance boundary, defined as the downgradient property line, or at an alternative compliance boundary if one is established (see Section 12-801 and Appendix 1 of the GWPRS). The Federal regulations for municipal solid waste disposal facilities (40 C.F.R. Part 258) allow downgradient points of compliance to be up to 150 meters from the downgradient edge of the waste mass.

Surficial groundwater beneath the Site flows from northeast to southwest. The configuration of the Site is such that the distance between the southwestern edge of the waste mass and the southwestern property line is approximately 50 feet. In order to meet the requirements contained in the GWPRS with a higher degree of certainty, the Town has acquired groundwater easements from neighboring property owners west, north, and south of the Site. These easements allow the downgradient points of compliance for groundwater quality to be further from the landfill than the downgradient property lines.

The Site's compliance groundwater monitoring network consists of two upgradient monitoring wells (MW-309 and MW-103) and three downgradient monitoring wells



(MW-102R, MW-101, and MW-335). The approximate locations of these wells are depicted on the Site Map in Appendix A.

## **2.0 METHODOLOGY**

On October 25, 2022, LEE obtained depth to groundwater measurements and obtained groundwater samples from four groundwater monitoring wells. MW-102R was dry and could not be sampled. The water level indicator was cleaned before and between uses. The depth to water was subtracted from the top-of-casing elevation to obtain the relative water table elevation.

Groundwater monitoring wells were purged and sampled using air-driven downhole bladder pumps. The bladder pumps are connected to dedicated, bundled polyethylene tubing. Samples were purged and collected according to LEE's standard protocol for low flow sampling. Each well was purged until stabilization of pH, temperature, and turbidity occurred (typically 1-3 gallon evacuation). Monitoring well MW-103 was sampled without low flow procedures due to pump controller failure.

All samples were delivered to Eastern Analytical, Inc of Concord, New Hampshire under proper chain of custody procedures on October 28, 2022.

## **3.0 RESULTS OF GROUNDWATER MONITORING**

### **3.1 GROUNDWATER ELEVATIONS**

Water level measurement data and calculated groundwater elevations are presented in Appendix B. The water table elevations in October of 2022 were 0.8-1.5 feet lower than those seen in the Spring 2022 sampling event. The estimated groundwater flow direction in October 2022 was toward the southwest, similar to previous results.

### **3.2 GROUNDWATER QUALITY DATA**

The October 2022 field measurement data for groundwater monitoring wells are summarized as follows. A summary of the data is included in Appendix B.

1. Groundwater pH at the time of sampling ranged measurements ranged from 7.04 to 8.08 standard units. Measured pH was within historic range at all monitoring locations.
2. Groundwater temperatures at the time of sampling ranged from 9.4° – 11.7° Celsius and were within historic range at all monitoring locations.
3. Groundwater turbidity measurements ranged from 0.02 – 114 NTU and were within historic ranges at all monitoring locations.



Inorganic analytes were reported above detection limits in each of the samples collected from the monitoring wells. A database summary of accumulated water quality data for the Site is included in Appendix B. The laboratory analytical reports are included in Appendix C.

**MW-101:**

The laboratory analytical report indicates chloride, sodium, total and dissolved iron, total and dissolved manganese, and total zinc were reported above laboratory reporting limits. None exceeded applicable primary or secondary VGES except dissolved manganese, which exceeded the primary and site-specific secondary VGES.

**MW-102R:**

No sample was obtained from MW-102R.

**MW-103:**

The laboratory analytical report indicates that sodium, total iron, total and dissolved manganese, total lead, and total zinc were reported above laboratory reporting limits. None exceeded applicable primary or secondary VGES.

**MW-309:**

The laboratory analytical report indicates that chloride, sodium, dissolved and total manganese, and total zinc were reported above laboratory reporting limits. None exceeded applicable primary or secondary VGES except dissolved manganese, which exceeded the primary and site-specific secondary VGES.

**MW-335:**

The laboratory analytical report indicates that sodium, chloride, total and dissolved iron, and total and dissolved manganese, were reported above laboratory reporting limits. None exceeded applicable primary or secondary VGES except dissolved manganese, which exceeded the primary and site-specific secondary VGES.

The site-specific secondary VGES for dissolved manganese was calculated using the methodology set forth in Section 12-502 (1)(a)(ii) of the 2016 GWPRS because background water quality exceeds published secondary standards. The mean dissolved manganese concentration in 62 samples collected from background well MW-309 is 0.13 ppm.

Data analysis indicates the following observations.

1. Reported concentrations of iron and manganese at downgradient monitoring well MW-101 have depicted a fluctuating trend. Concentrations of sodium and chloride have depicted an overall decreasing trend since 2003. All concentrations were within historic ranges.



2. In upgradient monitoring well MW-103, all concentrations are within historic ranges with no discernable chloride or sodium trends. Concentrations of dissolved manganese have depicted a long-term decline.
3. In upgradient monitoring well MW-309, all concentrations are within historic ranges with no discernable trends except dissolved manganese concentrations are increasing. Since this is an upgradient monitoring well, this trend is not believed to be attributed to the landfill.
4. In downgradient monitoring well MW-335, all concentrations remained within historic ranges. The dissolved manganese concentrations have fluctuated over time. Concentrations of chloride and sodium have depicted a long-term decline.

#### **4.0 QUALITY ASSURANCE AND QUALITY CONTROL SUMMARY**

A duplicate sample was obtained from monitoring well MW-309 during the October 2022 sampling event for quality assurance and control (QAQC) purposes. The duplicate sample was analyzed for all test parameters. The results of the laboratory analysis of the duplicate sample were analyzed using a relative percent difference (RPD) analysis. For the October 2022 monitoring event, the absolute RPD values ranged from 0% to 3%, which is within the 30% range specified by United States Environmental Protection Agency (EPA) Region 1.

#### **5.0 CONCLUSIONS**

LEE makes the following conclusions for the Fall 2022 monitoring event at the Bristol landfill.

1. Based on the estimated groundwater flow direction and previous sampling events, monitoring wells MW-101, MW-102R, and MW-335 are downgradient of the landfill, while MW-103 and MW-309 are upgradient of the landfill. Monitoring well MW-309 is also downgradient of several residences and businesses. The estimated flow direction is similar to previous estimates.
2. Compliance sampling of upgradient and downgradient groundwater monitoring wells indicated that the primary and site specific secondary VGES for dissolved manganese was exceeded at MW-101, MW-309, and MW-335.
3. No sensitive receptors appear to be impacted. The Town holds groundwater easements on adjacent properties, which limit uses of groundwater in these zones.

#### **6.0 RECOMMENDATIONS**

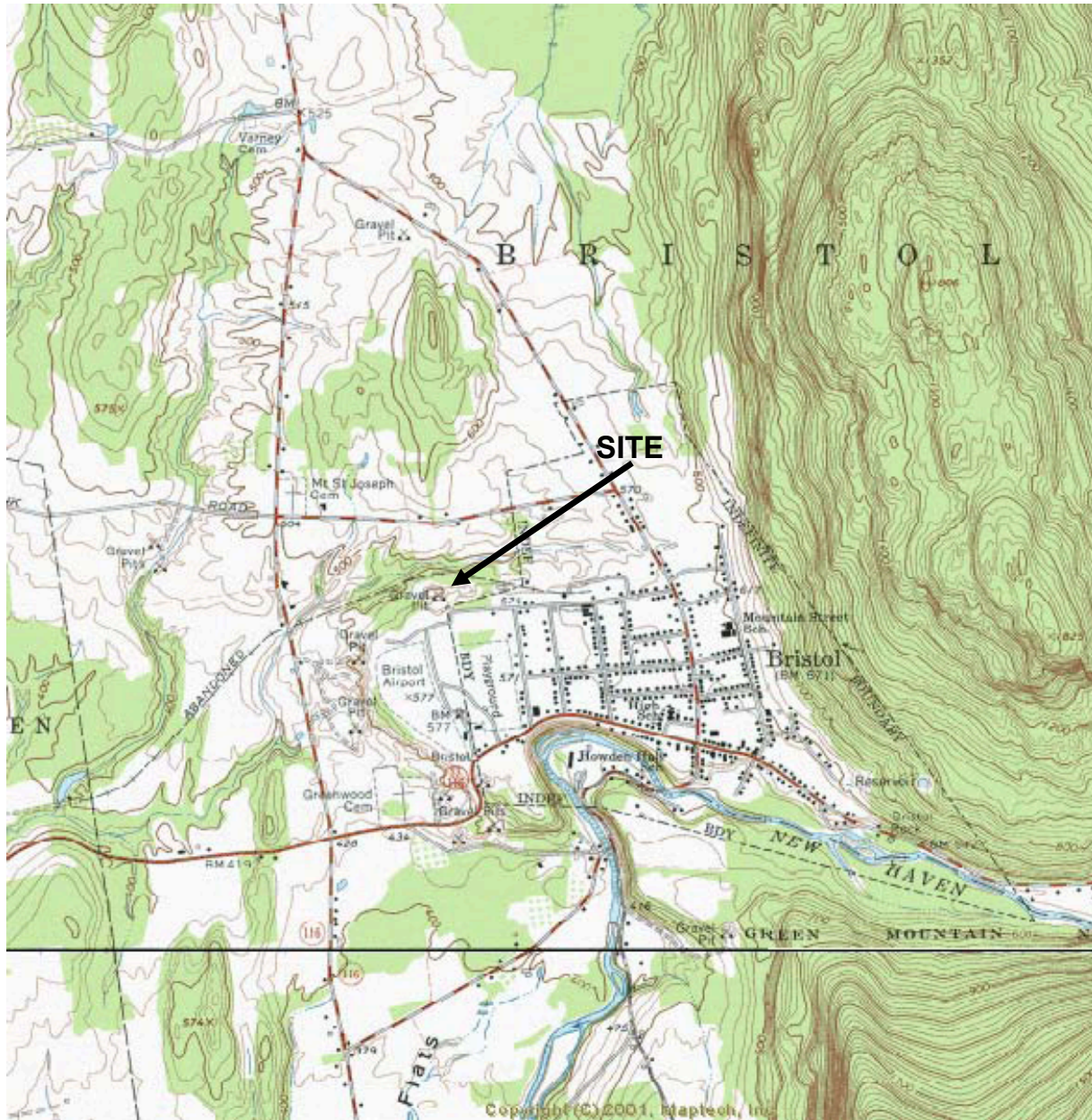
The next semiannual sampling event will take place at the Bristol municipal landfill in May 2023 per the requirements of the landfill certification.



Fall 2022 Semi-Annual Groundwater Monitoring  
Bristol Landfill, Bristol, Vermont

## APPENDIX A

### SITE MAPS



**Bristol Landfill**  
Bristol, Vermont

USGS Mapping



LE-Environmental

LE #: 14-013

Date: November 3, 2014

Source: msrmaps.com





**LEGEND**

Town Boundary

**NOTES**

Map created using ANR's Natural Resources Atlas

122.0 0 61.00 122.0 Meters  
 WGS\_1984\_Web\_Mercator\_Auxiliary\_Sphere 1" = 200 Ft. 1cm = 24 Meters  
 © Vermont Agency of Natural Resources THIS MAP IS NOT TO BE USED FOR NAVIGATION

DISCLAIMER: This map is for general reference only. Data layers that appear on this map may or may not be accurate, current, or otherwise reliable. ANR and the State of Vermont make no representations of any kind, including but not limited to, the warranties of merchantability, or fitness for a particular use, nor are any such warranties to be implied with respect to the data on this map.

**SITE PLAN**  
Bristol Landfill

VT ANR Natural Resources Atlas



LE:Environmental

LE #: 14-013  
 Date: November 3, 2014  
 Source: VTANR Mapper



APPENDIX B

DATA SUMMARY TABLES

**Water Table Elevations  
Bristol Landfill**

<b>Date: 5/25/2011</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	128.19	446
MW-102R	520	79.44	441
MW-103	509	28.38	480.62
MW-309	525.48	35.38	490.1
MW-335	574	124.1	449.9

<b>Date: 10/19/2011</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	128.5	445.69
MW-102R	520	79.95	440
MW-103	509	29.38	479.62
MW-309	525.48	36.93	488.55
MW-335	574	124.5	449.5

<b>Date: 5/11/2012</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	130.59	443.6
MW-102R	520	82.53	437
MW-103	509	29.93	479.07
MW-309	525.48	39.18	486.3
MW-335	574	129.6	444.4

<b>Date: 10/17/2012 and 10/18/2012</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	132.17	442.02
MW-102R	520	NR	-
MW-103	509	30.79	478.21
MW-309	525.48	40.92	484.56
MW-335	574	128.54	445.46

<b>Date: 5/8/2013 and 6/4/2013</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	NR	-
MW-102R	520	84.42	436
MW-103	509	NR	-
MW-309	525.48	40.87	484.61
MW-335	574	NR	-

<b>Date: 10/30/2013</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	133.06	441.13
MW-102R	520	79.87	440
MW-103	509	33.7	475.3
MW-309	525.48	40.55	484.93
MW-335	574	119.02	454.98

<b>Date: 5/20/2014 and 5/21/2014</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	132.4	441.79
MW-102R	520	82.95	437
MW-103	509	33.91	475.09
MW-309	525.48	39.74	485.74
MW-335	574	127.45	446.55

<b>Date: 10/15/14</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	134.35	439.84
MW-102R	520	84.31	435.69
MW-103	509	30.75	478.25
MW-309	525.48	40.88	484.6
MW-335	574	128.55	445.45

Notes:

Source of top of casing elevations for MW-101, MW-309 and MW-335:  
Hydrogeology, Simulated Ground-Water Flow and Ground-Water Quality at Two Landfills in Bristol, Vermont  
U.S. Geological Survey Water-Resources Investigations Report 94-4108, 1995, Appendix 2, Pgs 77-78.

Top of casing elevation for MW-103 (replacement for BR-2) estimated based on information for BR-2 in the referenced publication.

Top of casing elevation for MW-102R (replacement for MW102-D) estimated based on information for MW-102D in the referenced publication.

Depth to water measured prior to purging

Data prior to October 2014 obtained from previous reports

## Water Table Elevations Bristol Landfill

Date: 5/26/2015			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	133.24	440.95
MW-102R	520	84.12	436
MW-103	509	30.26	479
MW-309	525.48	41.08	484.40
MW-335	574	129.44	445

Date: 10/15/2015			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	131.63	442.56
MW-102R	520	83.84	436
MW-103	509	30.49	479
MW-309	525.48	40.14	485.34
MW-335	574	128.05	446

Date: 5/10/2016			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	131.75	442.44
MW-102R	520	83.71	436
MW-103	509	29.98	479
MW-309	525.48	40.51	484.97
MW-335	574	128.09	446

Date: 10/19/2016			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	133.31	440.88
MW-102R	520	Dry	-
MW-103	509	31.34	478
MW-309	525.48	41.89	483.59
MW-335	574	129.79	444

Date: 5/9/2017			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	132.77	441.42
MW-102R	520	Dry	Dry
MW-103	509	30.17	479
MW-309	525.48	41.72	483.76
MW-335	574	129.06	445

Date: 10/24/2017			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	132.35	441.84
MW-102R	520	84.51	435
MW-103	509	30.56	478
MW-309	525.48	41.00	484.48
MW-335	574	128.73	445

Date: 5/17/2018			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	131.12	443.07
MW-102R	520	82.88	437
MW-103	509	29.53	479
MW-309	525.48	39.39	486.09
MW-335	574	127.42	447

Date: 10/30/2018			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	132.21	441.98
MW-102R	520	Dry	Dry
MW-103	509	30.64	478
MW-309	525.48	41.07	484.41
MW-335	574	128.64	445

**Notes:**

Source of top of casing elevations for MW-101, MW-309 and MW-335:

Hydrogeology, Simulated Ground-Water Flow and Ground-Water Quality at Two Landfills in Bristol, Vermont  
U.S. Geological Survey Water-Resources Investigations Report 94-4108, 1995, Appendix 2, Pgs 77-78.

Top of casing elevation for MW-103 (replacement for BR-2) estimated based on information for BR-2 in the referenced publication.

Top of casing elevation for MW-102R (replacement for MW102-D) estimated based on information for MW-102D in the referenced publication.

Depth to water measured prior to purging

Data prior to October 2014 obtained from previous reports

**Water Table Elevations  
Bristol Landfill**

<b>Date: 5/29/2019</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	130.03	444.16
MW-102R	520	81.71	438
MW-103	509	29.32	480
MW-309	525.48	38.24	487.24
MW-335	574	126.29	448

<b>Date: 10/24/2019</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	130.24	443.95
MW-102R	520	82.04	438
MW-103	509	29.79	479
MW-309	525.48	38.38	487.10
MW-335	574	126.40	448

<b>5/26/20</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	129.35	444.84
MW-102R	520	81.10	439
MW-103	509	29.61	479
MW-309	525.48	37.50	487.98
MW-335	574	125.57	448

<b>10/19/20</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	131.25	442.94
MW-102R	520	83.28	437
MW-103	509	30.94	478
MW-309	525.48	40.05	485.43
MW-335	574	127.56	446

<b>5/25/21</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	132.72	441.47
MW-102R	520	Dry	-
MW-103	509	30.61	478
MW-309	525.48	41.65	483.83
MW-335	574	129.00	445

<b>10/19/21</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	133.47	440.72
MW-102R	520	-	-
MW-103	509	30.12	479
MW-309	525.48	42.04	483.44
MW-335	574	129.78	444

<b>5/20/22</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	131.71	442.48
MW-102R	520	83.52	436
MW-103	509	29.92	479
MW-309	525.48	39.39	486.09
MW-335	574	128.00	446

<b>10/25/22</b>			
Well ID	Top of Casing Elevation	Depth to Water	Water Table Elevation
MW-101	574.19	132.51	441.68
MW-102R	520	Dry	-
MW-103	509	30.86	478
MW-309	525.48	40.87	484.61
MW-335	574	128.84	445

Notes:  
 Source of top of casing elevations for MW-101, MW-309 and MW-335:  
 Hydrogeology, Simulated Ground-Water Flow and Ground-Water Quality at Two Landfills in Bristol, Vermont  
 U.S. Geological Survey Water-Resources Investigations Report 94-4108, 1995, Appendix 2, Pgs 77-78.  
 Top of casing elevation for MW-103 (replacement for BR-2) estimated based on information for BR-2 in the referenced publication.  
 Top of casing elevation for MW-102R (replacement for MW102-D) estimated based on information for MW-102D in the referenced publication.  
 Depth to water measured prior to purging  
 Data prior to October 2014 obtained from previous reports

**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-101**  
 Page 1 of 4

**Field Measurement Data**

Date	Depth to Water (ft)	pH (SU)	Temp °C	Cond (us/cm)	Turbidity (ntu)
17-Aug-89	-	6.73	14.4	1134	-
19-Oct-89	-	6.86	9.5	1109	-
28-Dec-89	-	6.78	7	1075	-
19-Sep-90	-	-	-	1260	-
20-May-91	-	6.33	12.7	970	-
15-Aug-91	-	-	-	820	-
17-Oct-91	-	-	-	-	-
10-Jun-93	-	6.79	12.1	1128	-
13-Oct-93	-	6.7	10	1221	-
24-May-94	-	6.73	10.6	1226	-
19-Oct-94	-	7.14	9.6	1219	-
25-May-95	-	7.43	10.5	1208	-
24-Oct-95	-	6.7	10.4	1267	-
15-May-96	-	6.86	9.8	540	-
11-Oct-96	-	6.78	8.4	1121	12.65
21-May-97	-	6.46	9	1012	2.53
28-Oct-97	-	6.71	8.9	1053	13.21
27-May-98	130.52	6.98	9.7	1117	12.69
21-Oct-98	129.84	7.01	9.5	1099	13.02
19-May-99	130.29	6.88	6	575	5.6
28-Oct-99	132.36	7.18	10.6	1010	0.5
19-May-00	130.85	8.54	9.5	425	0.91
24-Oct-00	131.58	6.99	10.1	680	2.25
29-May-01	130.42	7.58	10.8	597	4.67
31-Oct-01	132.61	6.41	7	998	1.53
12-May-02	133.15	6.9	10	585	2
10-Oct-02	133.94	7.46	11.7	NT	4
22-May-03	133.43	6.94	11.5	727	2.33
9-Oct-03	133.66	6.92	14	1098	2
26-May-04	131.45	6.89	14.8	697	7.56
20-Oct-04	NM	7.07	13	857	0.93
26-May-05	130.57	6.77	9.9	621	4.6
19-Oct-05	129.19	6.66	10.1	1057	11.2
25-May-06	129.4	6.83	12.9	625	0.6
6-Oct-06	129.95	6.76	10.6	1049	3.2
7-May-07	129.98	6.73	11.6	598	6.1
8-Oct-07	130.6	6.87	11.2	948	NM
7-May-08	129.7	7.55	11.7	895	19.6
9-Oct-08	130.08	6.69	12.5	946	11.7
26-May-09	130.21	6.81	12.9	759	5.9
29-Oct-09	130.55	7.24	11.8	995	8.9

Notes:

Data prior to October 2014 collected by others

ND< = Non detect less than detection limit

NS = Not Sampled

"-" = No data available

Only VOCs reported above detection limits one or more times are displayed

**VOC Laboratory Data**

Date	Chloromethane (ug/l)
17-Aug-89	3
19-Oct-89	ND<1
28-Dec-89	ND<10
19-Sep-90	-
20-May-91	ND<10
15-Aug-91	-
17-Oct-91	-
10-Jun-93	ND<10
13-Oct-93	ND<1
24-May-94	ND<1
19-Oct-94	ND<1
25-May-95	ND<2
24-Oct-95	ND<2
15-May-96	ND
11-Oct-96	ND
21-May-97	ND
28-Oct-97	ND
27-May-98	ND
21-Oct-98	ND
19-May-99	ND<10
28-Oct-99	ND<10
19-May-00	ND<10
24-Oct-00	ND<10
29-May-01	ND<10
31-Oct-01	ND<10
9-May-02	ND<10
10-Oct-02	ND<10
22-May-03	ND<3
9-Oct-03	ND<3
26-May-04	ND<3
20-Oct-04	ND<3
26-May-05	ND<3
19-Oct-05	ND<3
25-May-06	ND<3
6-Oct-06	ND<3
7-May-07	ND<3
8-Oct-07	ND<3
7-May-08	ND<3
9-Oct-08	ND<3
26-Mar-09	ND<3
29-Oct-09	ND<3

**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-101**  
 Page 2 of 4

**Field Measurement Data**

Date	Depth to Water (ft)	pH (SU)	Temp °C	Cond (us/cm)	Turbidity (ntu)
26-May-10	130.65	7.04	13.2	880	29.3
13-Oct-10	131.78	6.93	12.3	716	NM
25-May-11	128.19	6.87	12.4	632	2.05
19-Oct-11	128.5	6.93	12.6	592	0
11-May-12	130.59	7.01	10.5	885	4.23
17-Oct-12	132.17	7.44	12	890	1.53
8-May-13	NM	7.28	16.9	805	0.4
30-Oct-13	133.06	NM	NM	NM	NM
20-May-14	NM	NM	NM	NM	NM
15-Oct-14	134.35	6.97	11.3	1014	45.57
26-May-15	133.24	7.56	14.8	1055	10.9
15-Oct-15	131.63	7.29	13.1	1172	9.78
10-May-16	131.75	8.17	10.3	1135	0.84
19-Oct-16	133.31	7.29	12.0	1185	3.91
9-May-17	132.77	7.17	9.7	1111	1.22
24-Oct-17	132.35	7.80	14.9	1085	1.76
17-May-18	131.12	6.82	12.2	1128	1.68
30-Oct-18	132.21	7.33	9.2	1054	NM
29-May-19	130.03	6.89	11.7	1045	1.92
24-Oct-19	130.24	8.26	10.7	867	15.4
26-May-20	129.35	7.35	10.5	847	9.03
19-Oct-20	131.25	6.94	11.3	851	0.02
25-May-21	132.72	7.10	12.1	847	2.13
19-Oct-21	133.47	7.12	10.7	843	17.2
20-May-22	131.71	7.29	14.0	NM	1.98
25-Oct-22	132.51	7.04	11.7	1066	1.99

Notes:

Data prior to October 2014 collected by others

ND< = Non detect less than detection limit

NS = Not Sampled

NT = Not Tested

Only VOCs reported above detection limits one or more times are displayed

**VOC Laboratory Data**

Date	Chloromethane (ug/l)
26-May-10	ND<3
13-Oct-10	ND<3
25-May-11	ND<3
19-Oct-11	ND<3
11-May-12	ND<3
17-Oct-12	ND<3
8-May-13	ND<3
30-Oct-13	NS
20-May-14	NS
15-Oct-14	ND<2
26-May-15	ND<2
15-Oct-15	ND<2
10-May-16	ND<2
19-Oct-16	ND<2
9-May-17	ND<2
24-Oct-17	NT
17-May-18	ND<2
30-Oct-18	NT
29-May-19	ND<2
24-Oct-19	NT
26-May-20	ND<2
19-Oct-20	NT
25-May-21	ND<2
19-Oct-21	NT
20-May-22	ND<2
25-Oct-22	NT

Bristol Landfill Groundwater Monitoring Data Table  
Monitoring Well MW-101  
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Laboratory Analytical Data

Date	COD	Chloride	Sodium	Total Cadmium	Total Chromium	Total Copper	Dissolved Iron	Total Iron	Total Lead	Dissolved Manganese	Total Manganese	Total Nickel	Total Zinc
17-Aug-89	15.8	80.5	-	-	-	-	-	-	-	-	-	-	-
19-Oct-89	11.4	98	-	-	-	-	-	-	-	-	-	-	-
28-Dec-89	10	97.2	-	-	-	-	0.025	-	-	0.356	-	-	-
19-Sep-90	ND<10	86.2	56.9	-	-	-	0.952	-	-	1.02	-	-	-
20-May-91	11.9	48.8	-	-	-	-	0.021	-	-	0.392	-	-	-
17-Oct-91	-	41.2	25.4	-	-	-	0.024	-	-	0.548	-	-	-
10-Jun-93	ND<2	64	34.6	-	-	-	ND<0.03	-	-	0.36	-	-	-
13-Oct-93	93	92.3	49.8	-	-	-	ND<0.01	-	-	0.33	-	-	-
24-May-94	5.92	65	52	-	-	-	0.02	-	-	0.31	-	-	-
19-Oct-94	5.1	75	54	-	-	-	0.03	-	-	0.3	-	-	-
25-May-95	ND<20	71	41	ND<0.001	ND<0.005	ND<0.03	ND<0.03	0.22	ND<0.003	0.36	0.42	ND<0.05	0.52
24-Oct-95	ND<20	77	41	0.001	ND<0.005	ND<0.03	0.03	0.32	ND<0.003	0.32	0.4	ND<0.05	0.34
15-May-96	7.6	3	4.15	0.003	ND<0.025	ND<0.02	ND<0.05	0.15	0.006	0.28	0.46	ND<0.025	0.05
11-Oct-96	ND<5	65.5	43.3	ND<0.001	0.002	ND<0.02	ND<0.02	0.132	0.005	0.458	0.49	ND<0.05	ND<0.02
21-May-97	ND<20	52.6	29.3	0.007	0.014	0.104	0.016	-	0.003	0.384	-	0.04	0.019
28-Oct-97	ND<20	57	32.6	ND<0.002	ND<0.01	ND<0.01	ND<0.01	0.063	ND<0.005	-	0.395	ND<0.02	ND<0.01
27-May-98	ND<20	66	37.8	ND<0.002	ND<0.01	ND<0.01	ND<0.01	0.032	ND<0.002	0.349	0.358	ND<0.02	ND<0.01
21-Oct-98	ND<20	71	36.8	ND<0.002	ND<0.01	ND<0.02	ND<0.02	0.031	ND<0.002	0.341	0.335	ND<0.02	ND<0.01
19-May-99	ND<20	45.2	24.7	ND<0.003	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.002	0.339	0.295	ND<0.02	ND<0.01
28-Oct-99	ND<15	58	29.5	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.025	ND<0.002	0.193	0.254	ND<0.02	ND<0.01
19-May-00	ND<15	10.5	21.6	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.027	ND<0.002	0.117	0.148	ND<0.02	ND<0.01
24-Oct-00	29	4.75	9.67	ND<0.003	ND<0.01	ND<0.01	0.147	0.307	ND<0.002	ND<0.005	0.331	ND<0.02	ND<0.01
29-May-01	ND<15	3.52	3.66	ND<0.003	ND<0.01	ND<0.01	0.078	0.163	ND<0.002	0.964	0.93	ND<0.02	ND<0.02
31-Oct-01	ND<15	9.56	6.42	ND<0.003	ND<0.01	ND<0.01	0.074	0.081	ND<0.002	0.451	0.36	ND<0.02	ND<0.02
9-May-02	ND<15	45.2	21.1	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.048	ND<0.002	0.045	0.107	ND<0.02	ND<0.02
10-Oct-02	ND<15	61.8	34.6	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.132	ND<0.002	ND<0.005	0.11	ND<0.02	ND<0.02
22-May-03	ND<15	80.6	51.3	ND<0.003	ND<0.01	0.019	ND<0.01	0.055	ND<0.002	0.223	0.238	ND<0.02	ND<0.02
9-Oct-03	18	112	69.2	ND<0.003	ND<0.01	0.012	ND<0.01	0.036	ND<0.002	0.233	0.232	ND<0.02	ND<0.02
26-May-04	ND<15	110	66.7	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.044	0.002	0.169	0.177	ND<0.02	ND<0.02
20-Oct-04	20	93.4	61.5	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.033	ND<0.002	0.072	0.091	ND<0.02	ND<0.02
26-May-05	ND<15	60.7	40.5	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.044	ND<0.002	0.072	0.084	ND<0.02	ND<0.02
19-Oct-05	ND<15	74	32.7	ND<0.002	ND<0.01	ND<0.01	ND<0.01	0.032	ND<0.001	0.093	0.089	ND<0.02	ND<0.02
25-May-06	ND<15	35.5	30.7	ND<0.002	ND<0.01	0.021	ND<0.01	0.011	ND<0.001	0.071	0.075	ND<0.02	ND<0.02
6-Oct-06	ND<15	65.9	34.8	ND<0.002	ND<0.002	ND<0.02	ND<0.02	ND<0.02	ND<0.001	0.101	0.101	ND<0.02	ND<0.02
7-May-07	61	5.61	5.67	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.035	ND<0.001	ND<0.02	ND<0.02	ND<0.02	ND<0.02
8-Oct-07	ND<10	74	46.6	ND<0.002	ND<0.02	ND<0.02	ND<0.02	ND<0.02	ND<0.001	ND<0.02	ND<0.02	ND<0.02	ND<0.02
7-May-08	28	55	37	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.093	ND<0.001	ND<0.02	0.035	ND<0.02	ND<0.02
9-Oct-08	ND<10	71	48	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.16	ND<0.001	0.03	0.053	ND<0.02	ND<0.02
26-May-09	ND<10	64	44	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.055	ND<0.001	ND<0.02	0.02	ND<0.02	ND<0.02
29-Oct-09	13	61	45	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.14	ND<0.001	ND<0.02	ND<0.02	ND<0.02	ND<0.02
26-May-10	15	58	44	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.17	ND<0.001	0.031	0.041	ND<0.005	ND<0.005
13-Oct-10	ND<10	62	45	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.028	ND<0.001	0.053	0.052	ND<0.005	ND<0.005
25-May-11	ND<10	55	43	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.025	ND<0.001	0.056	0.071	ND<0.005	0.009
19-Oct-11	14	51	34	ND<0.002	ND<0.005	ND<0.02	ND<0.02	ND<0.02	ND<0.001	0.06	0.059	ND<0.005	ND<0.02
11-May-12	10	44	29	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.046	ND<0.001	0.056	0.055	ND<0.005	ND<0.02
17-Oct-12	29	46	33	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.026	ND<0.001	0.05	0.051	ND<0.005	ND<0.02
8-May-13	ND<10	53	39	ND<0.002	ND<0.005	ND<0.02	ND<0.02	ND<0.02	ND<0.001	0.046	0.042	ND<0.005	ND<0.02
15-Oct-14	24	33	29	ND<0.001	ND<0.001	0.006	0.10	0.66	0.003	0.17	0.20	0.004	0.030
26-May-15	17	50	37	ND<0.001	ND<0.001	0.004	ND<0.05	0.24	0.001	0.23	0.29	0.005	0.014
15-Oct-15	ND<10	53	37	ND<0.001	ND<0.001	0.006	ND<0.05	0.37	0.002	0.079	0.074	0.005	0.013
10-May-16	ND<10	50	33	ND<0.001	ND<0.001	0.002	ND<0.05	ND<0.05	ND<0.001	0.11	0.11	0.004	ND<0.005
19-Oct-16	ND<10	50	34	ND<0.001	ND<0.001	0.004	ND<0.05	0.11	ND<0.001	0.13	0.14	0.005	0.015

Notes

Results in mg/l unless otherwise noted.

ND< = Non detect less than detection limit

"" = No data available



**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-101**  
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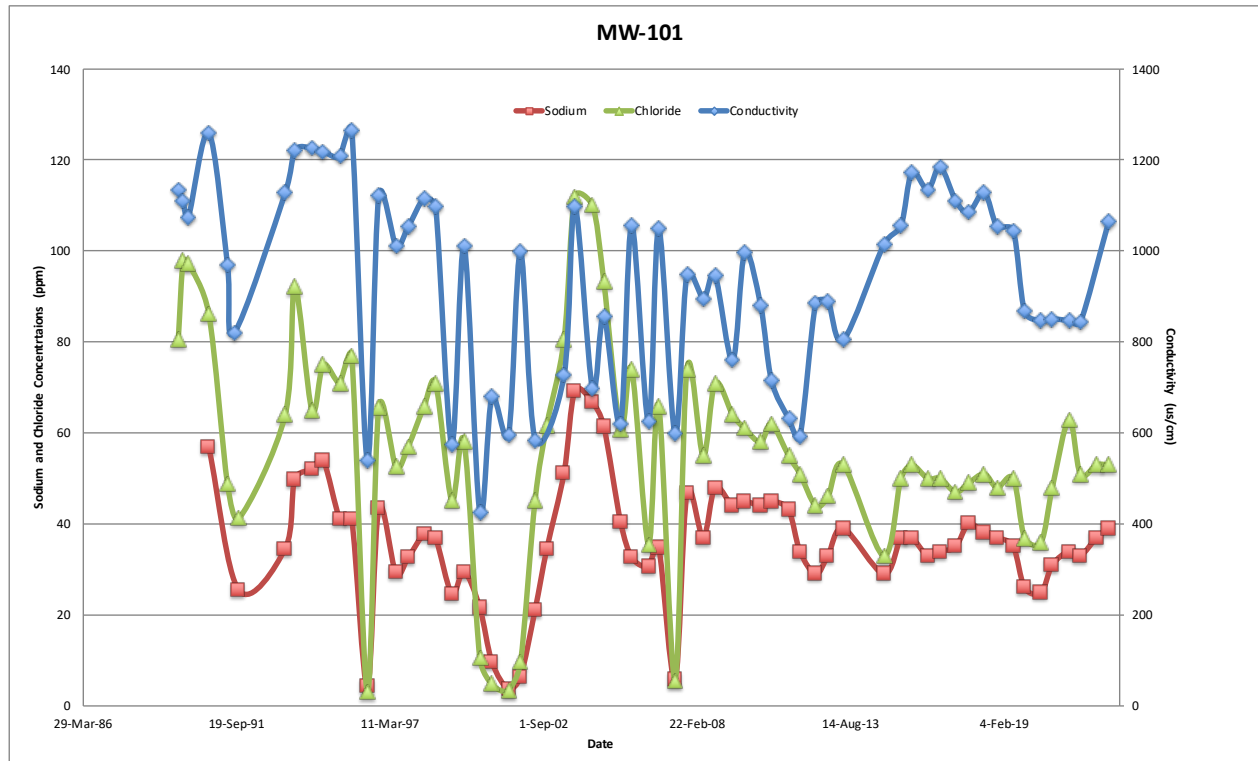
**Laboratory Analytical Data**

Date	COD	Chloride	Sodium	Dissolved Iron	Total Iron	Total Lead	Dissolved Manganese	Total Manganese	Total Zinc
9-May-17	12	47	35	ND<0.05	ND<0.05	ND<0.001	0.070	0.077	ND<0.005
24-Oct-17	ND<10	49	40	ND<0.05	ND<0.05	ND<0.001	0.053	0.044	ND<0.005
17-May-18	ND<10	51	38	ND<0.05	ND<0.05	ND<0.001	0.25	0.27	0.0057
30-Oct-18	ND<10	48	37	ND<0.05	ND<0.05	ND<0.001	0.18	0.19	ND<0.005
29-May-19	ND<10	50	35	ND<0.05	ND<0.05	ND<0.001	0.31	0.33	ND<0.005
24-Oct-19	24	37	26	ND<0.05	0.45	0.0043	ND<0.005	0.061	0.068
26-May-20	22	36	25	ND<0.05	0.42	0.0029	0.13	0.22	0.034
19-Oct-20	ND<10	48	31	ND<0.05	ND<0.05	ND<0.001	0.27	0.29	ND<0.005
25-May-21	ND<10	63	34	ND<0.05	0.070	ND<0.001	0.27	0.28	0.0083
19-Oct-21	33	51	33	ND<0.05	0.50	0.0020	0.19	0.23	0.028
20-May-22	ND<10	53	37	0.42	0.33	ND<0.001	0.35	0.35	0.014
25-Oct-22	ND<10	53	39	0.24	0.49	ND<0.001	0.31	0.31	0.017

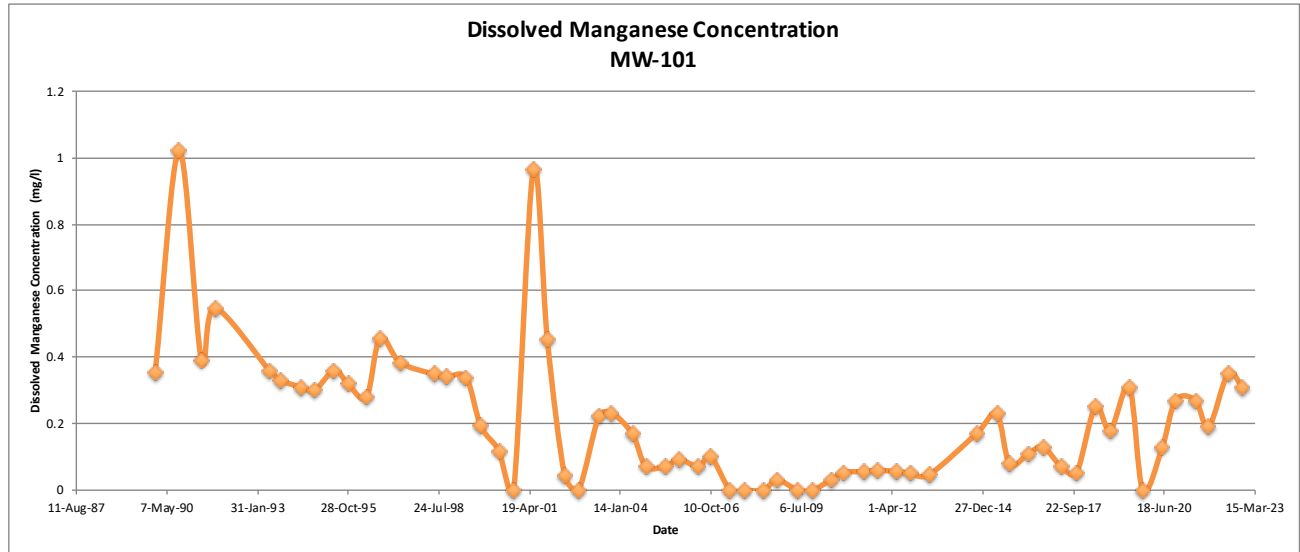
Notes

Results in mg/l unless otherwise noted.  
 ND< = Non detect less than detection limit  
 "-" = No data available

Bristol Landfill Groundwater Monitoring Data  
Monitoring Well MW-101



Bristol Landfill Groundwater Monitoring Data  
Monitoring Well MW-101



**Bristol Landfill Groundwater Monitoring Data Table  
Monitoring Well MW-102R**

**Field Measurement Data**

Date	Depth to Water (ft)	pH (SU)	Temp °C	Cond (us/cm)	Turbidity (ntu)
25-May-06	81.35	6.55	14.5	1120	113
6-Oct-06	81.6	6.65	13.9	1221	23.1
7-May-07	82.5	6.4	13.4	1305	3.3
8-Oct-07	82.54	6.53	13.5	1044	NM
7-May-08	81.31	6.38	14.3	993	61.2
9-Oct-08	81.77	6.53	14.8	1057	10.5
26-May-09	82.1	6.49	14.9	754	16
29-Oct-09	82.55	6.66	14.1	903	7.3
26-May-10	82.09	6.85	15.4	960	18.3
13-Oct-10	82.68	6.78	14.5	737	NM
25-May-11	79.44	6.66	15.6	674	3.08
19-Oct-11	79.95	6.81	13.4	580	0
11-May-12	82.53	6.78	13.6	1177	19.25
18-Oct-12	NM	7.1	14.9	1239	2.87
4-Jun-13	84.42	6.87	12.1	793	2.41
30-Oct-13	79.87	6.68	12	1097	0.19
20-May-14	82.95	6.23	15.4	191	1.64
15-Oct-14	84.31	6.67	19.0	887	1.92
26-May-15	84.12	7.27	13.7	982	0.51
15-Oct-15	83.84	7.28	14.2	1036	0.47
10-May-16	83.71	7.24	11.7	1239	1.17
17-May-18	82.88	6.64	14.1	1311	3.95
29-May-19	81.71	6.61	12.2	1240	0.71
24-Oct-19	82.04	6.87	12.2	1018	0.40
26-May-20	81.1	7.03	14.2	1,033	0.02
19-Oct-20	83.28	7.00	12.9	884	0.20
20-May-22	83.52	6.75	16.1	NM	0.20

**VOC Laboratory Data**

Date	Tetrahydrofuran (ug/l)
9-Oct-08	12.3
26-May-09	14.5
29-Oct-09	ND<10
26-May-10	ND<10
13-Oct-10	ND<10
25-May-11	ND<10
19-Oct-11	ND<10
18-Oct-12	ND<10
4-Jun-13	ND<10
30-Oct-13	ND<10
20-May-14	ND<10
15-Oct-14	ND<10
26-May-15	ND<10
15-Oct-15	ND<10
10-May-16	ND<10
17-May-18	ND<10
29-May-19	ND<10
24-Oct-19	NT
26-May-20	ND<10
19-Oct-20	NT
20-May-22	ND<10

Notes:

Data prior to October 2014 collected by others

ND< = Non detect less than detection limit

NS = Not Sampled NT = Not Tested

"-" = No data available

Only VOCs reported above detection limits one or more times are displayed

**Bristol Landfill Groundwater Monitoring Data Table  
Monitoring Well MW-102R**

**Laboratory Analytical Data**

Date	COD	Chloride	Sodium	Total Cadmium	Total Chromium	Total Copper	Dissolved Iron	Total Iron	Total Lead	Dissolved Manganese	Total Manganese	Total Nickel	Total Zinc
25-May-06	ND<15	31.5	25.9	ND<0.002	ND<0.01	0.032	ND<0.01	ND<0.01	ND<0.01	1.68	1.61	ND<0.02	ND<0.02
6-Oct-06	ND<15	74.8	41.1	ND<0.002	ND<0.02	0.023	ND<0.02	0.846	0.002	0.541	0.56	ND<0.02	ND<0.02
7-May-07	41	96.9	59.8	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.163	ND<0.001	0.313	0.334	ND<0.02	ND<0.02
8-Oct-07	ND<10	72	47.6	ND<0.002	ND<0.02	ND<0.02	ND<0.02	5.08	0.005	0.711	0.706	ND<0.02	ND<0.02
8-May-08	ND<10	27	25	ND<0.002	ND<0.02	ND<0.02	ND<0.02	1.1	0.017	0.79	0.84	ND<0.02	ND<0.02
9-Oct-08	ND<10	25	24	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.51	ND<0.001	1.1	1.1	ND<0.02	ND<0.02
26-May-09	ND<10	18	15	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.19	ND<0.001	1.3	1.3	ND<0.02	ND<0.02
29-Oct-09	15	12	12	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.097	ND<0.001	1.3	1.3	ND<0.02	0.044
26-May-10	20	20	17	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.056	ND<0.001	0.92	0.92	ND<0.005	ND<0.005
13-Oct-10	ND<10	21	17	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.047	ND<0.001	1.2	1.1	ND<0.005	0.005
25-May-11	15	67	57	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.02	ND<0.001	ND<0.02	0.038	ND<0.005	0.033
19-Oct-11	17	43	33	ND<0.002	ND<0.005	ND<0.02	ND<0.02	ND<0.02	ND<0.001	0.14	0.13	ND<0.005	ND<0.02
11-May-12	13	52	38	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.096	ND<0.001	0.98	0.98	0.006	ND<0.02
18-Oct-12	ND<10	28	23	ND<0.002	ND<0.005	ND<0.02	ND<0.02	ND<0.02	ND<0.001	1.9	2	0.006	ND<0.02
4-Jun-13	ND<10	13	10	ND<0.002	ND<0.005	ND<0.02	ND<0.02	ND<0.02	ND<0.001	1.4	1.4	ND<0.005	ND<0.02
30-Oct-13	20	44	33	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.039	ND<0.001	0.99	1.2	0.012	ND<0.02
20-May-14	12	16	16	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.035	ND<0.001	0.32	0.3	ND<0.005	ND<0.02
15-Oct-14	ND<10	11	10	ND<0.001	ND<0.001	0.014	ND<0.05	ND<0.05	ND<0.001	0.45	0.047	0.002	ND<0.005
26-May-15	ND<10	10	9	ND<0.001	ND<0.001	0.002	ND<0.05	ND<0.05	ND<0.001	0.55	0.58	0.003	ND<0.005
15-Oct-15	ND<10	11	9	ND<0.001	ND<0.001	0.001	ND<0.05	0.23	ND<0.001	0.15	0.17	0.003	ND<0.005
10-May-16	ND<10	25	18	ND<0.001	ND<0.001	ND<0.001	ND<0.05	ND<0.05	ND<0.001	0.25	0.26	0.004	ND<0.005
17-May-18	ND<10	24	26	NT	NT	NT	ND<0.05	ND<0.05	ND<0.001	0.0062	0.19	NT	ND<0.005
29-May-19	ND<10	19	19	NT	NT	NT	ND<0.05	ND<0.05	ND<0.001	0.014	0.082	NT	ND<0.005
24-Oct-19	ND<10	37	18	NT	NT	NT	ND<0.05	ND<0.05	ND<0.001	0.49	0.64	NT	ND<0.005
26-May-20	ND<10	44	30	NT	NT	NT	ND<0.05	ND<0.05	ND<0.001	0.59	0.63	NT	ND<0.005
19-Oct-20	ND<10	54	34	NT	NT	NT	ND<0.05	ND<0.05	ND<0.001	0.52	0.56	NT	ND<0.005
20-May-22	ND<10	53	36	NT	NT	NT	ND<0.05	0.058	0.0020	ND<0.005	0.11	NT	0.044

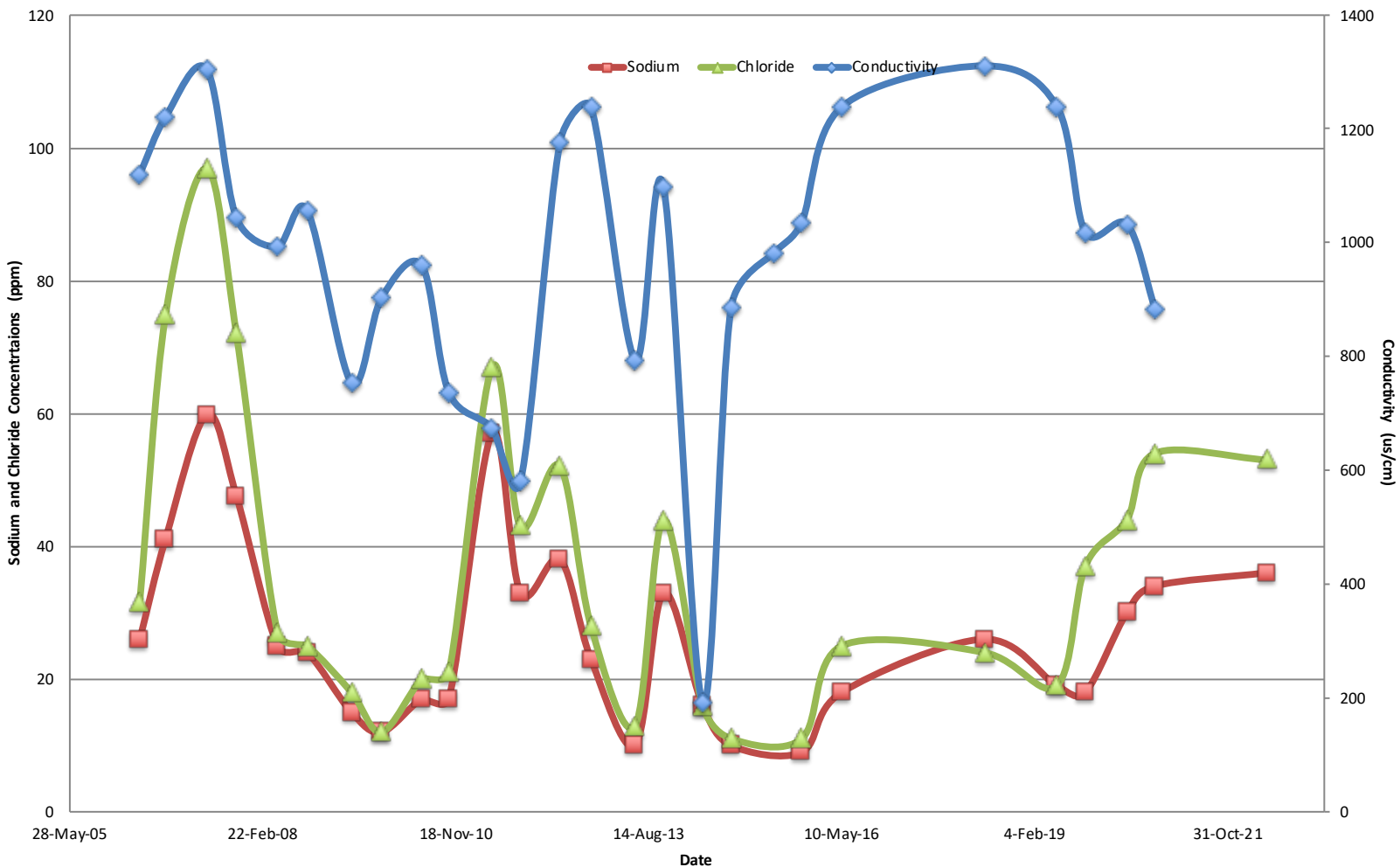
Notes

Results in mg/l unless otherwise noted.

ND< = Non detect less than detection limit

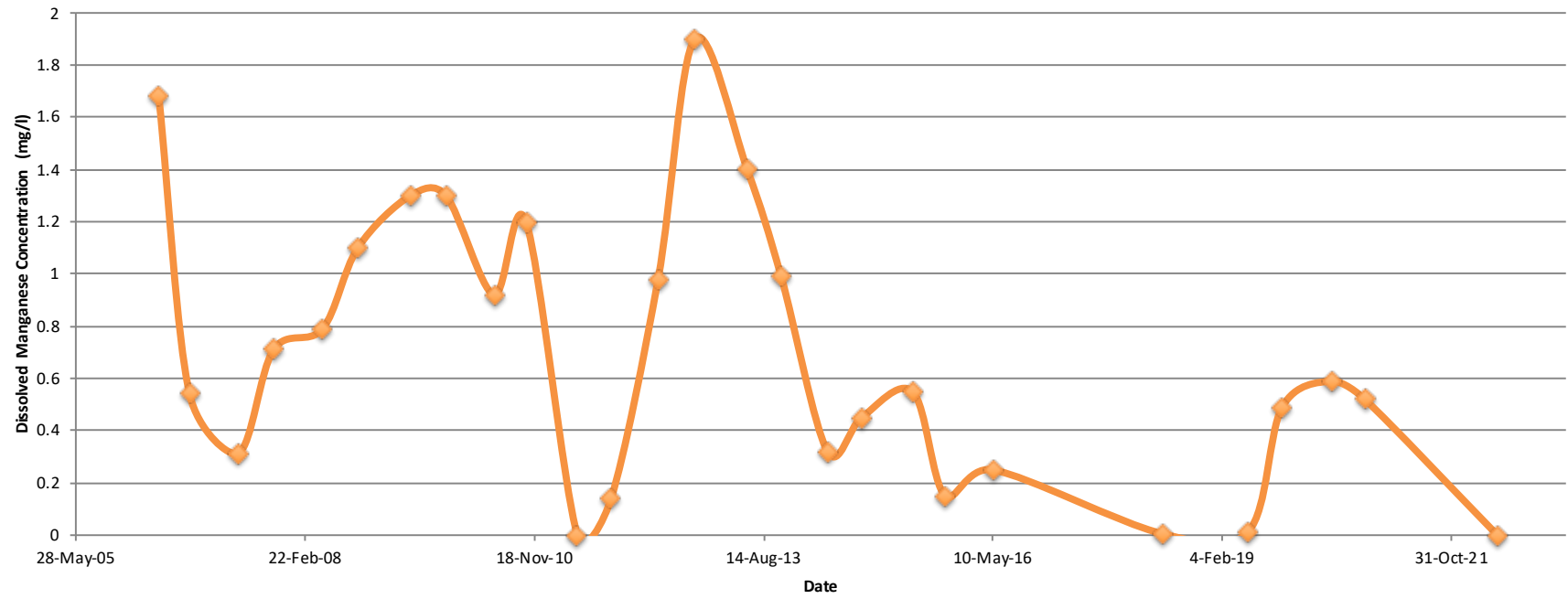
Bristol Landfill Groundwater Monitoring Data  
Monitoring Well MW-102R

MW-102R



Bristol Landfill Groundwater Monitoring Data  
Monitoring Well MW-102R

Dissolved Manganese Concentration  
MW-102R



**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-103**  
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**Field Measurement Data**

Date	Depth to Water (ft)	pH (SU)	Temp °C	Cond (us/cm)	Turbidity (ntu)
25-May-95	-	6.95	8.8	540	-
24-Oct-95	-	6.88	9.3	487	-
15-May-96	-	7.12	8.5	582	-
11-Oct-96	-	7.31	6.7	478	569
21-May-97	-	6.53	8.5	465	1085
28-Oct-97	-	7.17	7.7	446	192.1
27-May-98	29.79	6.85	7.9	470	176.4
21-Oct-98	29.44	6.87	7.8	451	144.2
19-May-99	29.73	7.14	8.9	107.5	28.9
28-Oct-99	28.78	8.1	9.3	448	197
19-May-00	29.22	8.74	8.8	436	80.2
24-Oct-00	30.15	7.41	10.3	454	26.5
29-May-01	29.88	7.96	10.6	-	31.9
31-Oct-01	31.07	6.4	7.3	461	16.1
9-May-02	30.18	7.06	10.6	550	43
10-Oct-02	31.76	7.52	11.5	-	25
22-May-03	30.11	7.28	11.3	358	70.5
9-Oct-03	31.2	7.31	13.6	413	10
26-May-04	29.42	7.2	14.3	315	39.5
20-Oct-04	29.85	7.05	9.9	435	13.9
26-May-05	32.51	7.16	9.9	360	31.2
19-Oct-05	30.25	7.1	10.1	441	23.4
25-May-06	29.2	7.3	12	470	26.3
6-Oct-06	30.5	7.75	10.4	423	39.7
7-May-07	30.02	7.05	11.8	486	23.1
8-Oct-07	30.45	7.53	10.4	425	NM
7-May-08	31.33	7.43	12.1	422	18.2
9-Oct-08	29.73	7.48	12.9	414	19.9
26-Mar-09	28.85	7.07	10.9	353	14.8
29-Oct-09	30.27	7.55	12.7	451	12.7

**VOC Laboratory Data**

Date	Toluene (ug/l)	MTBE (ug/l)	Benzene (ug/l)
25-May-95	ND	ND	ND
24-Oct-95	ND	ND	ND
15-May-96	ND	ND	ND
11-Oct-96	1.3	ND	ND
21-May-97	ND	ND	ND
28-Oct-97	ND	ND	ND
27-May-98	ND	ND	ND
21-Oct-98	ND	ND	ND
19-May-99	ND<1	ND	ND
28-Oct-99	ND<1	ND	ND
19-May-00	ND<1	ND	ND
24-Oct-00	ND<1	ND	ND
29-May-01	ND<1	ND	ND
31-Oct-01	ND<1	ND	ND
9-May-02	1.4	5.1	ND
10-Oct-02	ND<1	ND<1	ND
22-May-03	ND<1	ND<1	ND
9-Oct-03	ND<1	ND<2	ND
26-May-04	ND<1	ND<2	ND
20-Oct-04	ND<1	ND<2	ND
26-May-05	1.1	ND<2	ND
19-Oct-05	3.1	ND<2	1.4
25-May-06	2.6	ND<2	1
26-May-06	1.8	ND<2	ND<1
7-May-07	1.5	ND<2	ND<1
8-Oct-07	ND<1	ND<2	ND<1
7-May-08	2.4	ND<2	ND<1
9-Oct-08	ND<1	ND<2	ND<1
26-Mar-09	ND<1	ND<2	ND<1
29-Oct-09	ND<1	ND<2	ND<1

Notes:

Data prior to October 2014 collected by others

ND< = Non detect less than detection limit

NS = Not Sampled

"-" = No data available

Only VOCs reported above detection limits one or more times are displayed



**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-103**  
Page 2 of 4

**Field Measurement Data**

Date	Depth to Water (ft)	pH (SU)	Temp °C	Cond (us/cm)	Turbidity (ntu)
26-May-10	29.63	8.01	15.4	402	18.3
13-Oct-10	29.92	7.55	12.3	358	NM
25-May-11	28.38	7.32	11.9	386	3.9
19-Oct-11	29.38	7.18	11.4	332	0
11-May-12	29.93	7.49	12.7	445	3.14
18-Oct-12	30.79	7.57	11	424.4	85
8-May-13	NM	7.86	13.1	302	0.63
30-Oct-13	33.7	7.03	8.5	378.7	0.74
20-May-14	33.91	7.42	11.4	138.2	18.7
15-Oct-14	30.75	7.29	11.2	457	26.26
26-May-15	30.26	8.21	11.7	463	1.06
15-Oct-15	30.49	7.64	9.6	464	0.89
10-May-16	29.98	8.29	9.6	470	0.45
19-Oct-16	31.34	7.84	10.6	458	11.0
9-May-17	30.17	7.39	10.3	451	5.05
24-Oct-17	30.56	7.75	12.5	442	2.36
17-May-18	29.53	7.32	10.8	479	1.87
30-Oct-18	30.64	7.82	8.4	443	NM
29-May-19	29.32	7.35	9.5	482	0.22
24-Oct-19	29.79	7.58	9.5	451	14.2
26-May-20	29.61	7.60	10.6	462	0.02
19-Oct-20	30.94	7.60	10.3	398	0.02
25-May-21	30.61	7.14	10.7	458	0.02
19-Oct-21	30.12	7.33	10.4	419	0.72
20-May-22	29.92	7.40	17.8	NM	0.02
25-Oct-22	30.86	7.23	10.7	438	114

Notes:

Data prior to October 2014 collected by others

ND< = Non detect less than detection limit

NS = Not Sampled

NT = Not Tested

Only VOCs reported above detection limits one or more times are displayed

**VOC Laboratory Data**

Date	Toluene (ug/l)	MTBE (ug/l)	Benzene (ug/l)
26-May-10	ND<1	ND<2	ND<1
13-Oct-10	ND<1	ND<2	ND<1
25-May-11	ND<1	ND<2	ND<1
19-Oct-11	ND<1	ND<2	ND<1
11-May-12	ND<1	ND<2	ND<1
18-Oct-12	ND<1	ND<2	ND<1
8-May-13	ND<1	ND<2	ND<1
30-Oct-13	ND<1	ND<2	ND<1
20-May-14	ND<1	ND<2	ND<1
15-Oct-14	ND<1	ND<5	ND<1
26-May-15	ND<1	ND<5	ND<1
15-Oct-15	ND<1	ND<5	ND<1
10-May-16	ND<1	ND<5	ND<1
19-Oct-16	ND<1	ND<5	ND<1
9-May-17	ND<1	ND<5	ND<1
24-Oct-17	NT	NT	NT
17-May-18	ND<1	ND<5	ND<1
30-Oct-18	NT	NT	NT
29-May-19	ND<1	ND<5	ND<1
24-Oct-19	NT	NT	NT
24-Oct-19	ND<1	ND<5	ND<1
19-Oct-20	NT	NT	NT
25-May-21	ND<1	ND<5	ND<1
19-Oct-21	NT	NT	NT
25-May-21	ND<1	ND<5	ND<1
25-Oct-22	NT	NT	NT

**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-103**  
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**Laboratory Analytical Data**

Date	COD	Chloride	Sodium	Total Cadmium	Total Chromium	Total Copper	Dissolved Iron	Total Iron	Total Lead	Dissolved Manganese	Total Manganese	Total Nickel	Total Zinc
25-May-95	ND<20	18	8.1	ND<0.001	ND<0.005	ND<0.03	ND<0.03	5.8	ND<0.003	0.68	1	ND<0.05	0.093
24-Oct-95	ND<20	19	6	ND<0.001	ND<0.005	ND<0.03	0.03	3.03	0.006	0.046	1.03	ND<0.05	0.079
15-May-96	ND<5	14	11.2	0.005	ND<0.025	0.044	ND<0.05	77.8	0.018	0.686	3.46	ND<0.025	0.283
11-Oct-96	ND<5	16	9.58	0.001	0.091	0.066	ND<0.02	73.4	0.032	0.365	2.62	ND<0.05	0.183
21-May-97	ND<20	15.2	6.85	ND<0.002	ND<0.01	0.08	0.012		0.015	0.195		ND<0.05	0.063
28-Oct-97	ND<20	17.3	7.03	ND<0.002	ND<0.01	ND<0.01	0.013	55.7	ND<0.005	0.104	0.474	ND<0.02	0.029
27-May-98	ND<20	15.3	6.11	ND<0.002	ND<0.01	ND<0.01	ND<0.01	0.323	0.002	0.04	0.142	ND<0.02	0.011
21-Oct-98	ND<20	15.4	5.97	ND<0.002	ND<0.01	ND<0.02	0.05	0.314	ND<0.002	0.049	0.56	ND<0.02	ND<0.01
19-May-99	ND<20	15.4	6.18	ND<0.003	ND<0.01	ND<0.01	ND<0.01	ND<0.01	ND<0.002	0.064	0.059	ND<0.02	ND<0.01
28-Oct-99	ND<15	15.2	6.27	ND<0.003	ND<0.01	ND<0.01	ND<0.01	6.72	0.004	0.044	0.393	ND<0.02	0.022
19-May-00	ND<15	13.4	6.34	ND<0.003	ND<0.01	ND<0.01	ND<0.01	2.94	0.003	0.044	0.164	ND<0.02	0.013
24-Oct-00	ND<15	15.1	7	ND<0.003	ND<0.01	ND<0.01	ND<0.01	1.15	0.002	0.036	0.096	ND<0.02	ND<0.01
29-May-01	ND<15	13	7.19	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.202	ND<0.002	0.026	0.041	ND<0.02	ND<0.02
31-Oct-01	ND<15	13.8	7.35	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.869	ND<0.002	0.029	0.087	ND<0.02	ND<0.02
9-May-02	ND<15	14	5.8	ND<0.003	ND<0.01	ND<0.01	ND<0.01	1.3	ND<0.002	0.03	0.115	ND<0.02	ND<0.02
10-Oct-02	ND<15	13.5	5.88	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.73	ND<0.002	0.019	0.055	ND<0.02	ND<0.02
22-May-03	ND<15	15.7	7.39	ND<0.003	ND<0.01	ND<0.01	ND<0.01	1.47	ND<0.002	0.012	0.099	ND<0.02	ND<0.02
9-Oct-03	ND<15	14.8	7.65	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.539	ND<0.002	0.011	0.046	ND<0.02	1.02
26-May-04	ND<15	15.3	6.73	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.958	ND<0.002	0.018	0.068	ND<0.02	ND<0.02
20-Oct-04	ND<15	16.6	6.99	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.386	ND<0.002	0.022	0.047	ND<0.02	ND<0.02
26-May-05	ND<15	15.9	7.42	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.612	ND<0.002	0.024	0.074	ND<0.02	ND<0.02
19-Oct-05	ND<15	17.5	6.69	ND<0.002	ND<0.01	ND<0.01	ND<0.01	3.15	ND<0.01	0.012	0.175	ND<0.02	ND<0.02
25-May-06	ND<15	ND<25	7.14	ND<0.002	ND<0.01	0.011	ND<0.01	0.598	ND<0.01	0.021	0.053	ND<0.02	ND<0.02
6-Oct-06	ND<15	16.6	6.52	ND<0.002	ND<0.02	ND<0.02	ND<0.02	2.1	0.001	0.026	0.123	ND<0.02	ND<0.02
7-May-07	68	17.5	7.62	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.641	ND<0.01	ND<0.02	0.069	ND<0.02	ND<0.02
8-Oct-07	ND<10	18	8.15	ND<0.002	ND<0.02	ND<0.02	ND<0.02	2.05	ND<0.01	ND<0.02	0.251	ND<0.02	ND<0.02
7-May-08	14	16	6.9	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.29	ND<0.01	ND<0.02	0.045	ND<0.02	ND<0.02
9-Oct-08	ND<10	16	7.5	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.56	ND<0.01	ND<0.02	0.053	ND<0.02	ND<0.02
26-May-09	ND<10	16	7.7	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.44	ND<0.01	0.03	0.073	ND<0.02	ND<0.02
29-Oct-09	ND<10	15	7.9	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.18	ND<0.01	0.026	0.046	ND<0.02	ND<0.02
26-May-10	24	14	7	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.16	ND<0.01	0.023	0.041	ND<0.005	ND<0.005
13-Oct-10	ND<10	14	7.7	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.18	ND<0.01	0.027	0.045	ND<0.005	ND<0.005
25-May-11	ND<10	12	8.6	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.047	ND<0.01	ND<0.02	0.046	ND<0.005	0.009
19-Oct-11	ND<10	16	8.5	ND<0.002	ND<0.005	ND<0.02	ND<0.02	ND<0.02	ND<0.01	ND<0.02	0.026	ND<0.005	ND<0.02
11-May-12	ND<10	17	7	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.034	ND<0.01	0.13	0.14	ND<0.005	ND<0.02
18-Oct-12	680	16	7.7	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.39	ND<0.01	ND<0.02	0.036	ND<0.005	ND<0.02
8-May-13	ND<10	16	7.2	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.068	ND<0.01	0.06	0.072	ND<0.005	ND<0.02
30-Oct-13	ND<10	18	7.5	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.052	ND<0.01	ND<0.1	0.031	ND<0.005	ND<0.02
20-May-14	17	18	7.3	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.54	ND<0.01	ND<0.02	0.1	ND<0.005	ND<0.02
15-Oct-14	ND<10	16	7	ND<0.001	ND<0.001	ND<0.001	ND<0.05	0.40	ND<0.01	ND<0.005	0.035	ND<0.001	0.005
26-May-15	ND<10	12	ND<5	ND<0.001	0.002	0.002	ND<0.05	2.1	0.001	0.16	0.31	0.003	0.008
15-Oct-15	ND<10	18	7	ND<0.001	ND<0.001	0.001	ND<0.05	ND<0.05	ND<0.001	0.009	0.017	ND<0.001	ND<0.005
10-May-16	ND<10	15	7	ND<0.001	ND<0.001	ND<0.001	ND<0.05	ND<0.05	ND<0.001	0.009	0.007	ND<0.001	ND<0.005
19-Oct-16	ND<10	16	7	ND<0.001	ND<0.001	0.001	ND<0.05	0.35	ND<0.001	0.023	0.060	ND<0.001	ND<0.005

Notes

Results in mg/l unless otherwise noted.

ND<= Non detect less than detection limit

**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-103**  
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**Laboratory Analytical Data**

Date	COD	Chloride	Sodium	Dissolved Iron	Total Iron	Total Lead	Dissolved Manganese	Total Manganese	Total Zinc
9-May-17	ND<10	15	7	ND<0.05	0.13	ND<0.001	ND<0.005	0.007	ND<0.005
24-Oct-17	ND<10	19	8	ND<0.05	0.10	ND<0.001	ND<0.005	0.029	ND<0.005
17-May-18	ND<10	17	7.5	ND<0.05	0.09	ND<0.001	0.020	0.066	ND<0.005
30-Oct-18	ND<10	18	8	ND<0.05	0.12	ND<0.001	ND<0.005	0.014	ND<0.005
29-May-19	ND<10	16	8.2	ND<0.05	ND<0.05	ND<0.001	ND<0.005	ND<0.005	ND<0.005
24-Oct-19	ND<10	17	8.5	ND<0.05	0.76	ND<0.001	0.031	0.13	ND<0.005
26-May-20	ND<10	19	9.3	ND<0.05	0.062	ND<0.001	0.069	0.12	ND<0.005
19-Oct-20	ND<10	16	9.3	ND<0.05	ND<0.05	ND<0.001	0.011	0.033	ND<0.005
25-May-21	ND<10	18	9.1	ND<0.05	ND<0.05	ND<0.001	ND<0.005	0.031	ND<0.005
19-Oct-21	ND<10	15	8.9	ND<0.05	0.52	ND<0.001	0.033	0.089	ND<0.005
20-May-22	ND<10	14	9.2	ND<0.05	ND<0.05	ND<0.001	ND<0.005	0.0067	ND<0.005
25-Oct-22	ND<10	14	9.4	ND<0.05	2.4	0.0028	0.012	0.6200	0.028

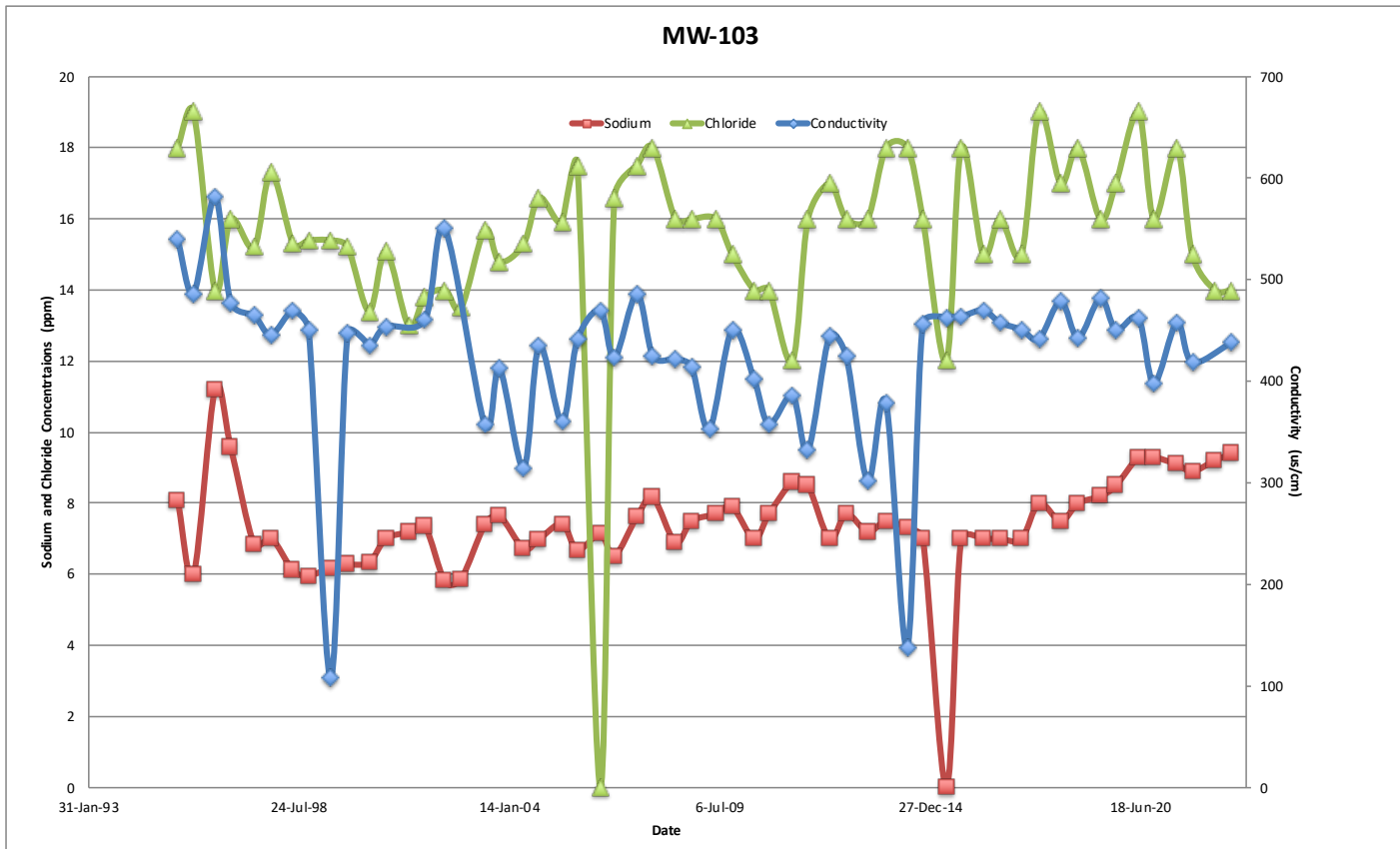
Notes

Results in mg/l unless otherwise noted.

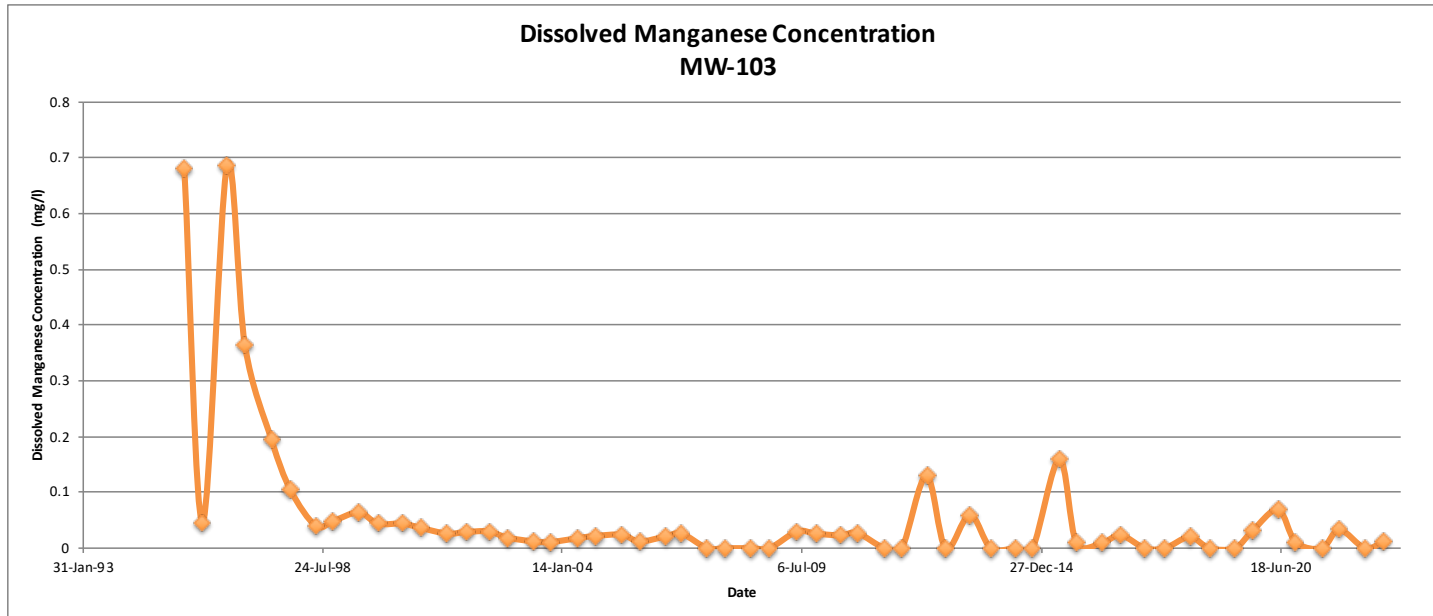
ND< = Non detect less than detection limit

"-" = No data available

Bristol Landfill Groundwater Monitoring Data  
Monitoring Well MW-103



Bristol Landfill Groundwater Monitoring Data  
Monitoring Well MW-103



**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-309**  
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**Field Measurement Data**

Date	Depth to Water (ft)	pH (SU)	Temp °C	Cond (us/cm)	Turbidity (ntu)
5-Sep-90	-	-	-	180	-
8-May-91	-	-	8.7	303	-
22-May-91	-	-	8.7	318	-
9-Oct-91	-	-	-	315	-
10-Jun-93	-	7.68	9.4	380	-
13-Oct-93	-	7.04	7.1	328	-
24-May-94	-	7.27	8.6	367	-
19-Oct-94	-	8.01	7.3	309	-
25-May-95	-	7.52	10.2	351	-
24-Oct-95	-	7.74	11.7	346	-
15-May-96	-	7.8	8.5	348	-
11-Oct-96	-	7.68	6.6	332	102
21-May-97	-	7.61	8.1	359	1.42
28-Oct-97	-	7.34	6.8	337	2.01
27-May-98	38.95	7.85	8	359	4.16
21-Oct-98	38.12	7.77	8.1	372	5.11
19-May-99	38.95	7.88	8.5	278	29.4
28-Oct-99	40.54	8.25	10.2	383	162
19-May-00	44.16	8.79	8.4	310	72.1
24-Oct-00	40.05	7.39	11.6	377	74.6
29-May-01	39.4	8.23	9.7	367	110
31-Oct-01	39.65	6.39	7.8	370	27.4
9-May-02	41.85	7.43	10.1	428	27
10-Oct-02	42.72	7.65	10.5	-	37
22-May-03	42.23	7.92	11.1	285	43.3
9-Oct-03	42.4	7.90	13.3	346	62
26-May-04	39.86	7.73	13	261	114
20-Oct-04	38.4	7.63	10.7	359	73.7
26-May-05	38.7	7.54	9.4	290	68.2
19-Oct-05	39.34	7.30	9.3	371	121
25-May-06	37.43	7.48	11.7	383	70.4
6-Oct-06	38.9	7.87	9.7	390	60
7-May-07	37.61	7.61	11.1	366	29.1
8-Oct-07	38.94	6.97	10.5	356	NM
7-May-08	32.74	7.80	10.6	361	22.5
9-Oct-08	38.45	7.88	11.5	356	15.8
26-May-09	38.68	7.99	11	317	22.1
29-Oct-09	38.92	7.78	10.9	413	33.4

**VOC Laboratory Data**

Date	Toluene (ug/l)	1,1-dichloroethane (ug/l)	Benzene (ug/l)	1,2,4-Trimethylbenzene (ug/l)	4-Isopropyltoluene (ug/l)	Total Xylenes (ug/l)
5-Sep-90	ND	ND	ND	ND	ND	ND
8-May-91	ND	ND	ND	ND	ND	ND
22-May-91	ND	ND<2	ND	ND	ND	ND
9-Oct-91	ND	ND	ND	ND	ND	ND
10-Jun-93	ND	ND<5	ND	ND	ND	ND
13-Oct-93	ND	ND<1	ND	ND	ND	ND
24-May-94	ND	ND<1	ND	ND	ND	ND
19-Oct-94	ND	1	ND	ND	ND	ND
25-May-95	ND	ND<2	ND	ND	ND	ND
24-Oct-95	ND	ND<2	ND	ND	ND	ND
15-May-96	ND	ND	ND	ND	ND	ND
11-Oct-96	ND	ND	ND	ND	ND	ND
21-May-97	ND	ND	ND	ND	ND	ND
28-Oct-97	ND	ND	ND	ND	ND	ND
27-May-98	ND	ND	ND	ND	ND	ND
21-Oct-98	ND	ND	ND	ND	ND	ND
19-May-99	ND<1	ND<1	ND	ND	ND	ND
28-Oct-99	1.6	ND<1	ND	ND	ND	ND
19-May-00	ND<1	ND<1	ND	ND	ND	ND
24-Oct-00	ND<1	ND<1	ND	ND	ND	ND
29-May-01	ND<1	ND<1	ND	ND	ND	ND
31-Oct-01	ND<1	ND<1	ND	ND	ND	ND
9-May-02	ND<1	ND<1	ND	ND	ND	ND
10-Oct-02	ND<1	ND<1	ND	ND	ND	ND
22-May-03	ND<1	ND<1	ND	ND	ND	ND
9-Oct-03	ND<1	ND<1	ND	ND	ND	ND
26-May-04	ND<1	ND<1	ND	ND	ND	ND
20-Oct-04	ND<1	ND<1	ND	ND	ND	ND
26-May-05	ND<1	ND<1	ND	ND	ND	ND
19-Oct-05	1.9	ND<1	1	ND	ND	ND
25-May-06	1.3	ND<1	ND<1	ND	ND	ND
6-Oct-06	ND<1	ND<1	ND<1	ND	ND	ND
7-May-07	1	ND<1	ND<1	ND	ND	ND
8-Oct-07	ND<1	ND<1	ND<1	ND	ND	ND
7-May-08	1	ND<1	ND<1	ND	ND	ND
9-Oct-08	ND<1	ND<1	ND<1	ND	ND	ND
26-May-09	ND<1	ND<1	ND<1	ND	ND	ND
29-Oct-09	1.1	ND<1	ND<1	ND	ND	ND

Notes:  
Data prior to October 2014 collected by others  
ND< = Non detect less than detection limit  
NS = Not Sampled  
"-" = No data available  
Only VOCs reported above detection limits one or more times are displayed

**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-309**  
Page 2 of 4

**Field Measurement Data**

Date	Depth to Water (ft)	pH (SU)	Temp °C	Cond (us/cm)	Turbidity (ntu)
26-May-10	38.74	8.34	12.1	372	20.7
13-Oct-10	39.34	7.68	11.7	350	NM
25-May-11	35.38	7.82	12.3	176	16.75
19-Oct-11	36.93	7.69	11.5	291	10.58
11-May-12	39.18	7.52	13	399.9	4.65
18-Oct-12	40.92	7.90	11.8	449	14.3
4-Jun-13	40.87	7.84	9.9	410	4.67
30-Oct-13	40.55	7.29	9.1	403.8	1.49
21-May-14	39.74	7.71	11.7	113	11.4
15-Oct-14	40.88	7.80	13.1	456	57.83
26-May-15	41.08	8.78	11.2	470	115
15-Oct-15	40.14	7.63	9.4	470	21.0
10-May-16	40.51	8.40	9.3	458	3.54
19-Oct-16	41.89	8.35	10.0	495	5.59
9-May-17	41.72	8.04	9.3	462	5.65
24-Oct-17	41.00	8.20	10.0	484	4.53
17-May-18	39.39	8.06	10.0	474	3.00
30-Oct-18	41.07	8.35	8.1	472	NM
29-May-19	38.24	8.14	9.4	457	27.80
24-Oct-19	38.38	8.14	9.1	419	1.25
26-May-20	37.50	8.22	10.0	440	0.02
19-Oct-20	40.05	8.10	9.3	390	0.02
25-May-21	41.65	8.19	9.7	423	0.02
19-Oct-21	42.04	8.29	9.1	434	0.91
20-May-22	39.39	8.21	16.9	NM	0.02
25-Oct-22	40.87	8.08	9.4	475	0.02

**VOC Laboratory Data**

Date	Toluene (ug/l)	1,1-dichloroethane (ug/l)	Benzene (ug/l)	1,2,4-Trimethylbenzene (ug/l)	4-Isopropyltoluene (ug/l)	Total Xylenes (ug/l)
26-May-10	ND<1	ND<1	ND<1	ND	ND	ND
13-Oct-10	ND<1	ND<1	ND<1	ND	ND	ND
25-May-11	ND<1	ND<1	ND<1	ND	ND	ND
19-Oct-11	ND<1	ND<1	ND<1	ND	ND	ND
11-May-12	ND<1	ND<1	ND<1	ND	ND	ND
18-Oct-12	ND<1	ND<1	ND<1	ND	ND	ND
4-Jun-13	5.6	ND<1	ND<1	1.5	1	3.3
30-Oct-13	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
21-May-14	ND<1	ND<1	ND<1	ND<1	ND<1	ND<1
15-Oct-14	ND<1	ND<2	ND<1	ND<1	ND<1	ND<2
26-May-15	ND<1	ND<2	ND<1	ND<1	ND<1	ND<2
15-Oct-15	ND<1	ND<2	ND<1	ND<1	ND<1	ND<2
10-May-16	ND<1	ND<2	ND<1	ND<1	ND<1	ND<2
19-Oct-16	ND<1	ND<2	ND<1	ND<1	ND<1	ND<2
9-May-17	ND<1	ND<2	ND<1	ND<1	ND<1	ND<2
24-Oct-17	NT	NT	NT	NT	NT	NT
17-May-18	ND<1	ND<2	ND<1	ND<1	ND<1	ND<2
30-Oct-18	NT	NT	NT	NT	NT	NT
29-May-19	ND<1	ND<2	ND<1	ND<1	ND<1	ND<2
24-Oct-19	NT	NT	NT	NT	NT	NT
26-May-20	ND<1	ND<2	ND<1	ND<1	ND<1	ND<2
19-Oct-20	NT	NT	NT	NT	NT	NT
25-May-21	ND<1	ND<2	ND<1	ND<1	ND<1	ND<2
25-May-21	NT	NT	NT	NT	NT	NT
20-May-22	ND<1	ND<2	ND<1	ND<1	ND<1	ND<2
25-Oct-22	NT	NT	NT	NT	NT	NT

Notes:  
Data prior to October 2014 collected by others  
ND< = Non detect less than detection limit  
NS = Not Sampled  
NT = Not Tested  
Only VOCs reported above detection limits one or more times are displayed

Bristol Landfill Groundwater Monitoring Data Table  
Monitoring Well MW-309  
Page 3 of 4

Laboratory Analytical Data

Date	COD	Chloride	Sodium	Total Cadmium	Total Chromium	Total Copper	Dissolved Iron	Total Iron	Dissolved Manganese	Total Manganese	Total Nickel	Total Zinc
5-Sep-90	-	8	3.79	-	-	-	0.01	-	0.215	-	-	-
8-May-91	-	9.6	5.65	-	-	-	0.147	-	0.265	-	-	-
22-May-91	ND<10	-	-	-	-	-	-	-	-	-	-	-
9-Oct-91	-	9	3.44	-	-	-	ND<0.01	-	0.127	-	-	-
10-Jun-93	-	8	3.45	-	-	-	ND<0.03	-	0.02	-	-	-
13-Oct-93	ND<2	7.1	3.3	-	-	-	0.03	-	0.18	-	-	-
24-May-94	28	7.5	8	-	-	-	ND<0.01	-	0.01	-	-	-
19-Oct-94	ND<2.5	7.5	4.1	-	-	-	ND<0.01	-	0.17	-	-	-
25-May-95	2.6	8	3.1	ND<0.001	ND<0.005	ND<0.03	ND<0.03	0.03	0.21	0.29	ND<0.05	0.045
24-Oct-95	ND<20	10	2.8	ND<0.001	ND<0.005	ND<0.03	0.07	0.09	0.18	0.31	ND<0.05	0.044
15-May-96	ND<20	7	3.65	ND<0.001	ND<0.025	ND<0.02	ND<0.05	0.157	0.02	0.932	ND<0.025	0.046
11-Oct-96	ND<5	7.5	4.39	ND<0.001	0.009	0.023	ND<0.02	6.59	0.947	0.565	ND<0.05	0.033
21-May-97	ND<5	11.2	4.21	ND<0.002	ND<0.01	0.081	ND<0.01	-	0.005	-	ND<0.02	ND<0.01
28-Oct-97	ND<20	81	3.44	ND<0.002	ND<0.01	ND<0.01	ND<0.01	0.09	0.005	0.017	ND<0.02	ND<0.01
27-May-98	ND<20	11.2	4.56	ND<0.002	ND<0.01	ND<0.01	0.031	0.594	0.118	0.314	ND<0.02	0.014
21-Oct-98	ND<20	11.2	3.66	ND<0.002	ND<0.01	ND<0.02	ND<0.02	0.917	0.011	0.164	ND<0.02	ND<0.01
19-May-99	ND<20	12.5	3.26	ND<0.003	ND<0.01	ND<0.01	0.019	0.02	0.119	0.109	ND<0.02	ND<0.01
28-Oct-99	ND<15	9.66	3.37	ND<0.003	ND<0.01	ND<0.01	0.011	5.97	0.006	0.424	ND<0.02	0.017
19-May-00	ND<15	10.8	4.08	ND<0.003	ND<0.01	ND<0.01	ND<0.01	3.4	0.104	0.267	ND<0.02	0.023
24-Oct-00	ND<15	10.5	4.8	ND<0.003	ND<0.01	ND<0.01	ND<0.01	5.78	0.021	0.35	ND<0.02	0.013
29-May-01	ND<15	10	3.94	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.52	0.06	0.074	ND<0.02	ND<0.02
31-Oct-01	ND<15	9.88	4.24	ND<0.003	ND<0.01	ND<0.01	ND<0.01	1.27	0.079	0.15	ND<0.02	ND<0.02
9-May-02	ND<15	10.4	3.27	ND<0.003	ND<0.01	ND<0.01	ND<0.01	1.76	0.122	0.187	ND<0.02	ND<0.02
10-Oct-02	ND<15	10.4	3.43	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.964	0.126	0.243	ND<0.02	ND<0.02
22-May-03	ND<15	11.4	3.75	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.662	0.092	0.199	ND<0.02	ND<0.02
9-Oct-03	ND<15	11.2	4.4	ND<0.003	ND<0.01	ND<0.01	ND<0.01	2.76	0.131	0.303	ND<0.02	ND<0.02
26-May-04	ND<15	10.7	4.08	ND<0.003	0.013	ND<0.01	ND<0.01	3.83	0.141	0.382	ND<0.02	ND<0.02
20-Oct-04	18	10.8	3.87	ND<0.003	ND<0.01	ND<0.01	ND<0.01	1.92	0.006	0.203	ND<0.02	ND<0.02
26-May-05	ND<15	9.52	3.94	ND<0.003	ND<0.01	ND<0.01	ND<0.01	1.75	0.005	0.231	ND<0.02	ND<0.02
19-Oct-05	ND<15	10.6	3.66	ND<0.002	ND<0.01	ND<0.01	ND<0.01	4.97	0.04	0.43	ND<0.02	ND<0.02
25-May-06	ND<15	ND<25	3.81	ND<0.002	ND<0.01	ND<0.01	ND<0.01	2.51	0.084	0.257	ND<0.02	ND<0.02
6-Oct-06	ND<15	8.5	3.98	ND<0.002	ND<0.02	ND<0.02	ND<0.02	2.13	0.048	0.224	ND<0.02	ND<0.02
7-May-07	118	9.67	3.96	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.524	0.02	0.079	ND<0.02	ND<0.02
8-Oct-07	ND<10	9	4.36	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.549	0.107	0.167	ND<0.02	ND<0.02
7-May-08	ND<10	9.8	4.4	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.7	0.15	0.22	ND<0.02	ND<0.02
9-Oct-08	ND<10	9.8	4.3	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.7	0.12	0.2	ND<0.02	ND<0.02
26-May-09	ND<10	11	4.5	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.55	0.18	0.28	ND<0.02	ND<0.02
29-Oct-09	ND<10	12	4.4	ND<0.002	ND<0.02	ND<0.02	ND<0.02	1	0.096	0.2	ND<0.02	ND<0.02
26-May-10	ND<10	13	4.1	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.19	0.069	0.14	ND<0.005	ND<0.005
13-Oct-10	ND<10	11	4.6	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.6	0.02	0.075	ND<0.005	ND<0.005
25-May-11	ND<10	10	4.7	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.22	0.02	0.72	ND<0.005	0.01
19-Oct-11	ND<10	8.3	3.5	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.2	0.02	0.064	ND<0.005	ND<0.02
11-May-12	ND<10	12	4.1	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.16	0.02	0.058	ND<0.005	ND<0.02
18-Oct-12	13	13	4.8	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.14	0.04	0.094	ND<0.005	ND<0.02
4-Jun-13	ND<10	13	5.1	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.087	0.13	0.17	ND<0.005	ND<0.02
30-Oct-13	10	14	5	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.072	0.054	0.091	ND<0.005	ND<0.02
21-May-14	16	14	4.8	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.4	ND<0.02	0.13	ND<0.005	ND<0.02
15-Oct-14	ND<10	11	ND<5	ND<0.001	0.002	0.002	ND<0.05	1.7	0.073	0.23	0.003	0.018
26-May-15	ND<10	16	7	ND<0.001	ND<0.001	ND<0.001	ND<0.05	ND<0.05	0.040	0.040	ND<0.001	ND<0.005
15-Oct-15	ND<10	11	5	ND<0.001	ND<0.001	ND<0.001	ND<0.05	0.43	0.16	0.270	0.001	ND<0.005
10-May-16	ND<10	11	ND<5	ND<0.001	ND<0.001	ND<0.001	ND<0.05	0.09	0.14	0.15	ND<0.001	ND<0.005
19-Oct-16	ND<10	12	5	ND<0.001	ND<0.001	ND<0.001	ND<0.05	0.10	0.18	0.20	ND<0.001	ND<0.005

Notes

Results in mg/l unless otherwise noted.

ND< = Non detect less than detection limit

"-" = No data available



**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-309**  
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**Laboratory Analytical Data**

Date	COD	Chloride	Sodium	Dissolved Iron	Total Iron	Total Lead	Dissolved Manganese	Total Manganese	Total Zinc
9-May-17	ND<10	11	6	ND<0.05	0.10	ND<0.001	0.16	0.20	ND<0.005
24-Oct-17	ND<10	14	6	ND<0.05	ND<0.05	ND<0.001	0.19	0.21	ND<0.005
17-May-18	ND<10	14	5.9	ND<0.05	ND<0.05	ND<0.001	0.14	0.16	ND<0.005
30-Oct-18	ND<10	13	6	ND<0.05	ND<0.05	ND<0.001	0.18	0.19	ND<0.005
29-May-19	ND<10	13	5.9	ND<0.05	ND<0.05	ND<0.001	0.13	0.14	ND<0.005
24-Oct-19	ND<10	12	5.2	ND<0.05	ND<0.05	ND<0.001	0.018	0.033	ND<0.005
26-May-20	ND<10	14	5.8	ND<0.05	ND<0.05	ND<0.001	0.11	0.11	0.0066
19-Oct-20	ND<10	12	5.1	ND<0.05	ND<0.05	ND<0.001	0.085	0.097	ND<0.005
25-May-21	ND<10	16	6.0	ND<0.05	ND<0.05	ND<0.001	0.21	0.22	ND<0.005
19-Oct-21	ND<10	14	6.5	ND<0.05	ND<0.05	ND<0.001	0.23	0.25	0.011
20-May-22	ND<10	15	6.7	ND<0.05	ND<0.05	ND<0.001	0.24	0.26	ND<0.005
25-Oct-22	ND<10	17	6.7	ND<0.05	ND<0.05	ND<0.001	0.47	0.45	0.0065

Notes

Results in mg/l unless otherwise noted.

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Secondary Dissolved Mn Calculation

# Samples

Average Concentration

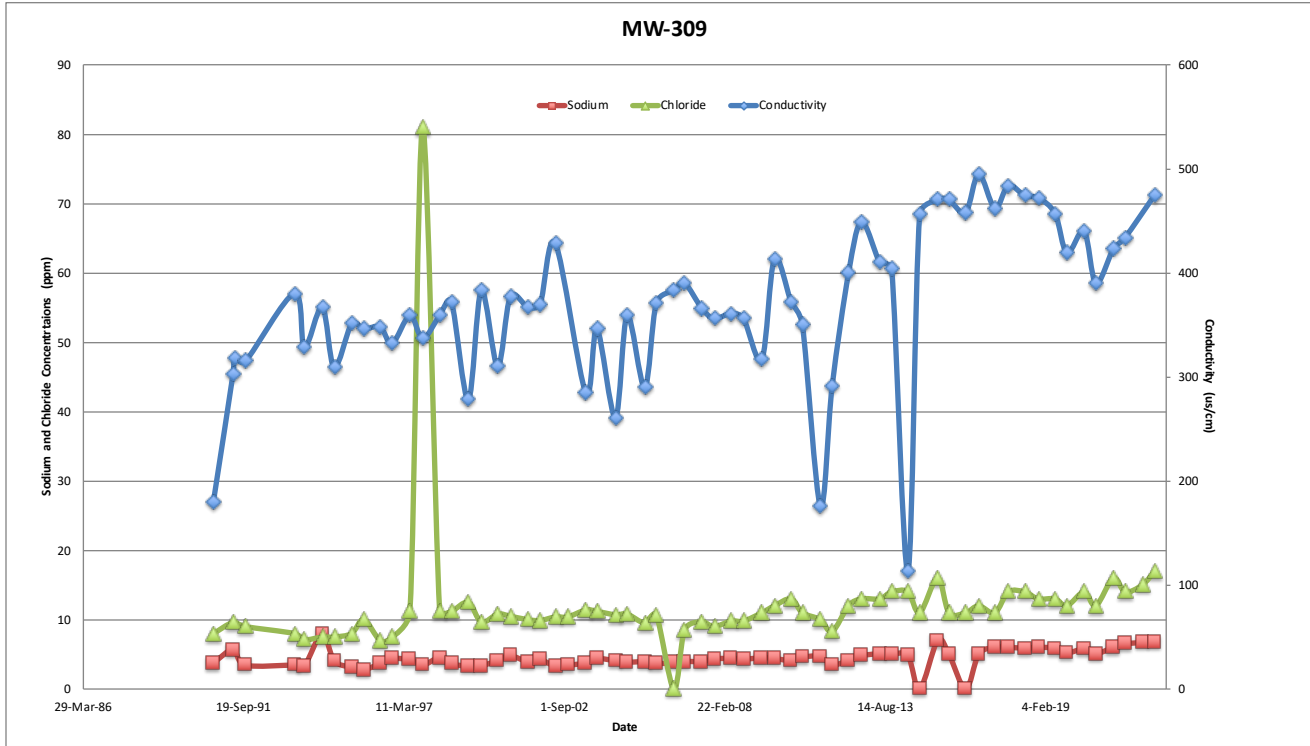
Secondary Dissolved Mn Calculation (1.1\*AVG)

62

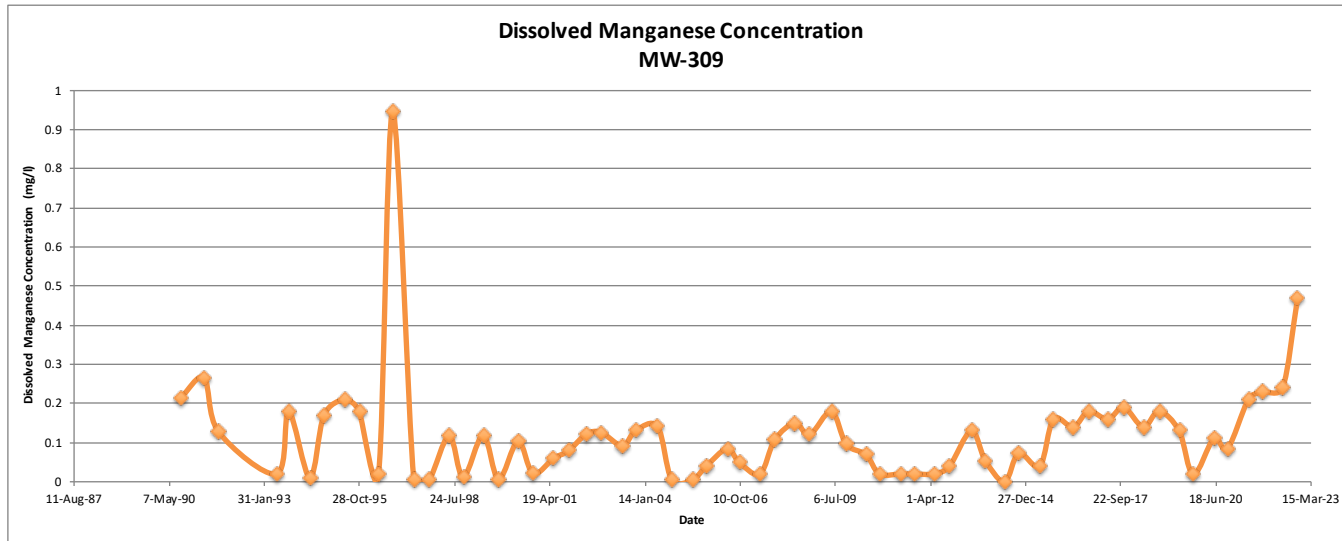
0.12

0.13

Bristol Landfill Groundwater Monitoring Data  
Monitoring Well MW-309



Bristol Landfill Groundwater Monitoring Data  
Monitoring Well MW-309



**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-335**  
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**Field Measurement Data**

Date	Depth to Water (ft)	pH (SU)	Temp °C	Cond (us/cm)	Turbidity (ntu)
5-Sep-91	-	-	-	2920	-
28-Oct-99	128.52	7.65	9.4	525	80
19-May-00	126.95	9	9.2	524	10.9
24-Oct-00	127.82	8.17	10.6	677	4.39
29-May-01	126.64	7.62	10.2	976	11.7
31-Oct-01	128.8	6.41	8.2	720	27.1
9-May-02	129.28	7.5	10.6	785	23
10-Oct-02	130.18	7.47	11.7	NT	13
22-May-03	129.57	7.58	10.6	588	15.4
9-Oct-03	129.95	7.35	13.5	1104	2
26-May-04	127.55	7.5	12.3	740	34.2
20-Oct-04	NM	7.3	10.9	1093	16
26-May-05	126.3	7.25	9.9	1362	38
19-Oct-05	126.12	7.42	10	1951	110
25-May-06	NM	7.55	13.2	1226	28.7
6-Oct-06	125.9	7.44	10.6	2800	9.1
7-May-07	NM	7.35	11.6	2860	17.1
8-Oct-07	126.79	7.04	12	3020	NM
7-May-08	125.73	6.9	11.3	1200	67
9-Oct-08	126.15	7.35	12.6	1220	60.8
26-May-09	126.6	7.49	12	892	29.6
29-Oct-09	NM	7.42	11.7	1252	51.6
26-May-10	126.64	7.66	13.5	1041	31.9
13-Oct-10	127.01	7.55	12.2	758	NM
25-May-11	124.1	7.55	12.8	687	4.7
19-Oct-11	124.5	7.15	12.4	659	3.62
11-May-12	126.9	7.36	9.9	1101	10.59
18-Oct-12	128.54	8.15	12.5	852	1.83
8-May-13	NM	7.89	15.5	543	1.51
30-Oct-13	119.02	7.09	8.3	664	101
21-May-14	127.45	7.01	11.9	157.3	19.7
15-Oct-14	128.55	8.19	20.1	999	34.44
26-May-15	129.44	8.18	22.3	878	79.4
15-Oct-15	128.05	7.76	10.4	1061	17.2
10-May-16	128.09	8.20	9.5	960	14.7
19-Oct-16	129.79	7.90	11.3	1125	3.70
9-May-17	129.06	7.69	9.7	1206	9.27
24-Oct-17	128.73	7.79	11.4	990	2.87
17-May-18	127.42	7.57	11.8	915	2.01
30-Oct-18	128.64	7.96	11.6	1077	11.60

Notes:

Data prior to October 2014 collected by others

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"-" = No data available

**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-335**  
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**Field Measurement Data**

Date	Depth to Water (ft)	pH (SU)	Temp °C	Cond (us/cm)	Turbidity (ntu)
29-May-19	126.29	7.65	10.6	1189	3.2
24-Oct-19	126.4	7.79	11.2	1241	1.05
26-May-20	125.57	7.89	11.7	858	0.02
19-Oct-20	127.56	7.57	11.4	768	1.20
25-May-21	129.00	7.78	11.9	795	1.51
19-Oct-21	129.78	7.66	11.8	800	6.54
20-May-22	128.00	7.89	14.9	NM	0.02
25-Oct-22	128.84	7.57	10.9	1195	2.05

Notes:

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NS = Not Sampled

"-" = No data available

**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-335**  
**Page 3 of 4**

**Laboratory Analytical Data**

Date	COD	Chloride	Sodium	Total Cadmium	Total Chromium	Total Copper	Dissolved Iron	Total Iron	Total Lead	Dissolved Manganese	Total Manganese	Total Nickel	Total Zinc
5-Sep-91	-	820	432	-	-	-	139	-	-	-	-	-	-
17-Oct-91	-	536	269	-	-	-	11	-	-	273	-	-	-
28-Oct-99	ND<15	54.8	29.2	ND<0.003	ND<0.01	ND<0.01	ND<0.01	5.01	0.004	0.05	0.373	ND<0.02	0.012
19-May-00	ND<15	52.7	28	ND<0.003	0.01	ND<0.01	ND<0.01	1.17	0.003	0.053	0.372	ND<0.02	0.015
24-Oct-00	ND<15	111	67.7	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.636	ND<0.02	0.045	0.12	ND<0.02	0.015
29-May-01	ND<15	160	101	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.36	ND<0.02	0.023	0.09	ND<0.02	ND<0.02
31-Oct-01	ND<15	104	69.7	ND<0.003	ND<0.01	ND<0.01	0.022	1.48	0.003	0.094	1.23	ND<0.02	ND<0.02
9-May-02	ND<15	83	40.6	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.935	ND<0.02	0.008	0.536	ND<0.02	ND<0.02
10-Oct-02	ND<15	115	51.1	ND<0.003	ND<0.01	ND<0.01	ND<0.01	1.43	ND<0.02	0.008	1.08	ND<0.02	ND<0.02
22-May-03	ND<15	171	98.2	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.948	ND<0.02	0.04	0.514	ND<0.02	ND<0.02
9-Oct-03	ND<15	336	183	ND<0.003	ND<0.01	ND<0.01	ND<0.01	0.121	ND<0.02	0.017	0.1	ND<0.02	ND<0.02
26-May-04	ND<15	272	177	ND<0.003	ND<0.01	ND<0.01	ND<0.01	1.44	ND<0.02	ND<0.005	0.1	ND<0.02	ND<0.02
20-Oct-04	23	637	291	ND<0.003	ND<0.01	ND<0.01	0.091	2.28	0.002	0.198	1.18	ND<0.02	ND<0.02
26-May-05	ND<15	935	589	ND<0.003	ND<0.01	ND<0.01	0.016	0.926	ND<0.002	ND<0.005	0.412	ND<0.02	ND<0.02
19-Oct-05	ND<15	449	229	ND<0.002	ND<0.01	ND<0.01	ND<0.01	3.99	ND<0.01	ND<0.005	1.69	ND<0.02	ND<0.02
25-May-06	ND<15	348	218	ND<0.002	ND<0.01	0.017	ND<0.01	1.85	ND<0.01	ND<0.005	0.592	ND<0.02	ND<0.02
6-Oct-06	ND<15	629	377	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.386	ND<0.001	ND<0.02	0.138	ND<0.02	ND<0.02
7-May-07	69	807	507	ND<0.002	ND<0.02	ND<0.02	ND<0.02	5.21	ND<0.001	ND<0.02	0.198	ND<0.02	ND<0.02
8-Oct-07	ND<10	250	164	ND<0.002	ND<0.02	ND<0.02	ND<0.02	0.795	ND<0.001	ND<0.02	0.093	ND<0.02	ND<0.02
7-May-08	ND<10	240	150	ND<0.002	ND<0.02	ND<0.02	ND<0.02	1.7	ND<0.001	ND<0.02	0.36	ND<0.02	ND<0.02
9-Oct-08	14	290	150	ND<0.002	ND<0.02	ND<0.02	ND<0.02	3.4	0.002	ND<0.02	0.79	ND<0.02	ND<0.02
26-May-09	ND<10	240	140	ND<0.002	ND<0.02	ND<0.02	ND<0.02	2.8	0.002	ND<0.02	0.78	ND<0.02	ND<0.02
29-Oct-09	39	240	160	ND<0.002	ND<0.02	ND<0.02	ND<0.02	2.9	0.001	ND<0.02	0.82	ND<0.02	ND<0.02
26-May-10	18	250	140	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.75	ND<0.001	ND<0.02	0.27	ND<0.005	ND<0.005
13-Oct-10	10	190	120	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.56	ND<0.001	ND<0.02	0.25	ND<0.005	ND<0.005
25-May-11	26	200	150	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.16	ND<0.001	ND<0.02	0.041	ND<0.005	0.009
19-Oct-11	22	180	140	ND<0.002	ND<0.005	ND<0.02	0.29	0.54	ND<0.001	0.32	0.23	ND<0.005	ND<0.02
11-May-12	16	200	110	ND<0.002	ND<0.005	ND<0.02	0.025	0.33	0.001	0.84	1.1	ND<0.005	ND<0.02
18-Oct-12	26	110	76	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.13	ND<0.001	ND<0.02	0.036	ND<0.005	ND<0.02
8-May-13	ND<10	70	49	ND<0.002	ND<0.005	ND<0.02	ND<0.02	0.088	ND<0.001	ND<0.02	0.023	ND<0.005	ND<0.02
30-Oct-13	26	83	50	ND<0.002	ND<0.005	ND<0.02	0.17	5.5	0.006	0.12	0.96	ND<0.005	ND<0.02
21-May-14	140	94	59	ND<0.002	ND<0.005	ND<0.02	0.024	1.2	0.001	0.045	0.25	ND<0.005	ND<0.02
15-Oct-14	ND<10	130	62	ND<0.001	ND<0.001	0.003	ND<0.05	1.1	0.001	0.009	0.28	0.001	0.017
26-May-15	ND<10	110	67	0.004	0.001	0.011	ND<0.05	2.3	0.005	ND<0.005	0.39	0.004	0.033
15-Oct-15	ND<10	160	84	ND<0.001	ND<0.001	0.001	ND<0.05	0.46	ND<0.001	0.006	0.078	ND<0.001	ND<0.005
10-May-16	ND<10	130	65	ND<0.001	ND<0.001	ND<0.001	ND<0.05	0.33	ND<0.001	ND<0.005	0.062	0.001	ND<0.005
19-Oct-16	ND<10	180	87	ND<0.001	ND<0.001	ND<0.001	ND<0.05	0.14	ND<0.001	ND<0.005	0.033	ND<0.001	ND<0.005

Notes

Results in mg/l unless otherwise noted.

ND< = Non detect less than detection limit

"-" = No data available

**Bristol Landfill Groundwater Monitoring Data Table**  
**Monitoring Well MW-335**  
**Page 4 of 4**

**Laboratory Analytical Data**

Date	COD	Chloride	Sodium	Dissolved Iron	Total Iron	Total Lead	Dissolved Manganese	Total Manganese	Total Zinc
9-May-17	ND<10	220	130	ND<0.05	0.60	0.001	ND<0.005	0.15	ND<0.005
24-Oct-17	ND<10	150	89	ND<0.05	0.10	ND<0.001	ND<0.005	0.024	ND<0.005
17-May-18	ND<10	120	65	ND<0.05	0.06	ND<0.001	ND<0.005	0.022	ND<0.005
30-Oct-18	ND<10	180	110	ND<0.05	0.39	ND<0.001	ND<0.005	0.073	ND<0.005
29-May-19	ND<10	220	110	ND<0.05	0.12	ND<0.001	ND<0.005	0.033	ND<0.005
24-Oct-19	ND<10	480	280	ND<0.05	ND<0.05	ND<0.001	0.057	0.057	ND<0.005
26-May-20	ND<10	76	46	ND<0.05	0.12	ND<0.001	ND<0.005	0.027	ND<0.005
19-Oct-20	ND<10	240	150	ND<0.05	0.22	ND<0.001	0.023	0.079	ND<0.005
25-May-21	ND<10	140	77	ND<0.05	0.14	ND<0.001	ND<0.005	0.040	ND<0.005
19-Oct-21	ND<10	120	80	ND<0.05	0.39	ND<0.001	0.10	0.27	0.00064
20-May-22	ND<10	110	73	ND<0.05	0.085	ND<0.001	ND<0.005	0.013	ND<0.005
25-Oct-22	ND<10	220	120	0.17	0.280	ND<0.001	0.51	0.380	ND<0.005

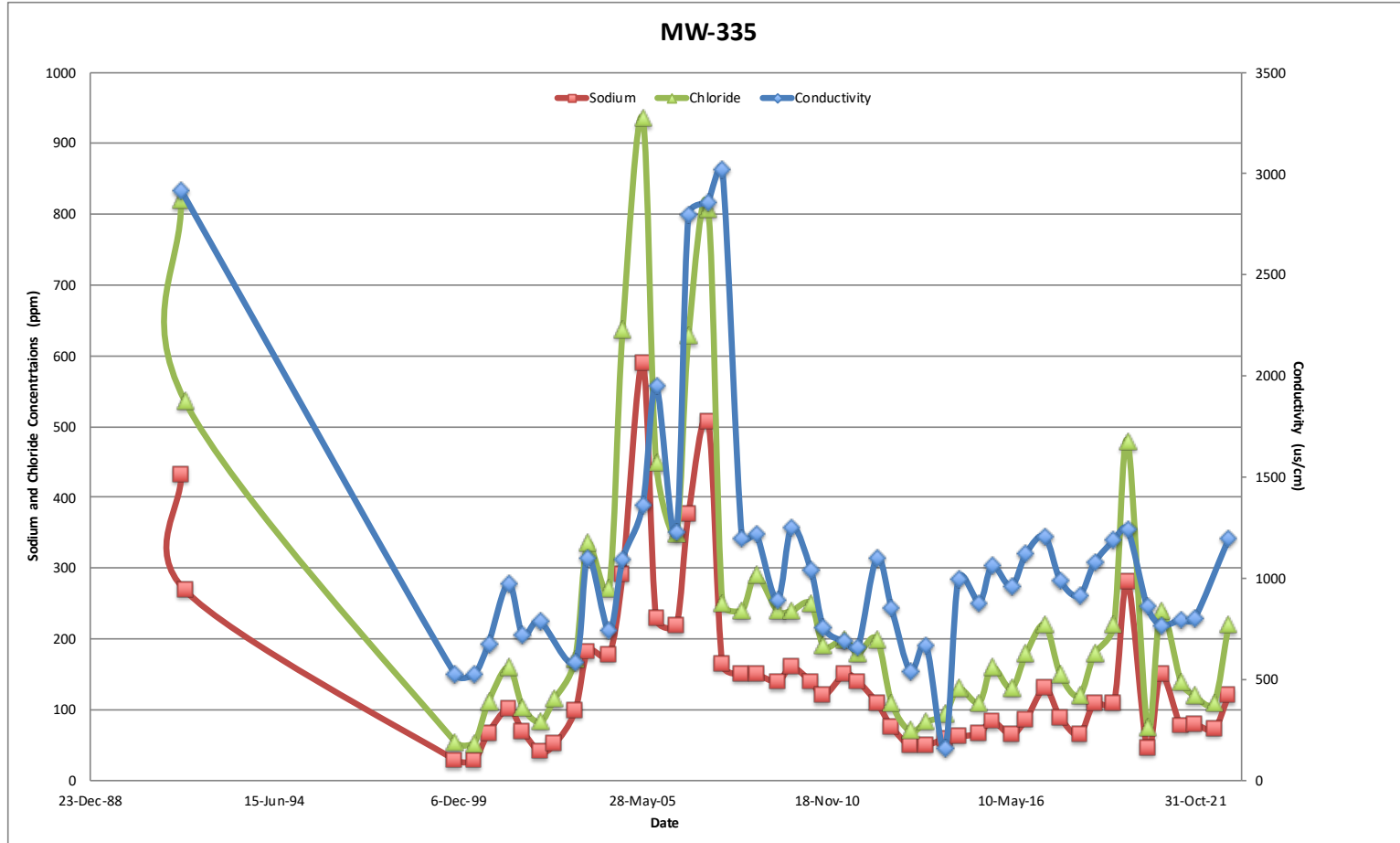
Notes

Results in mg/l unless otherwise noted.

ND< = Non detect less than detection limit

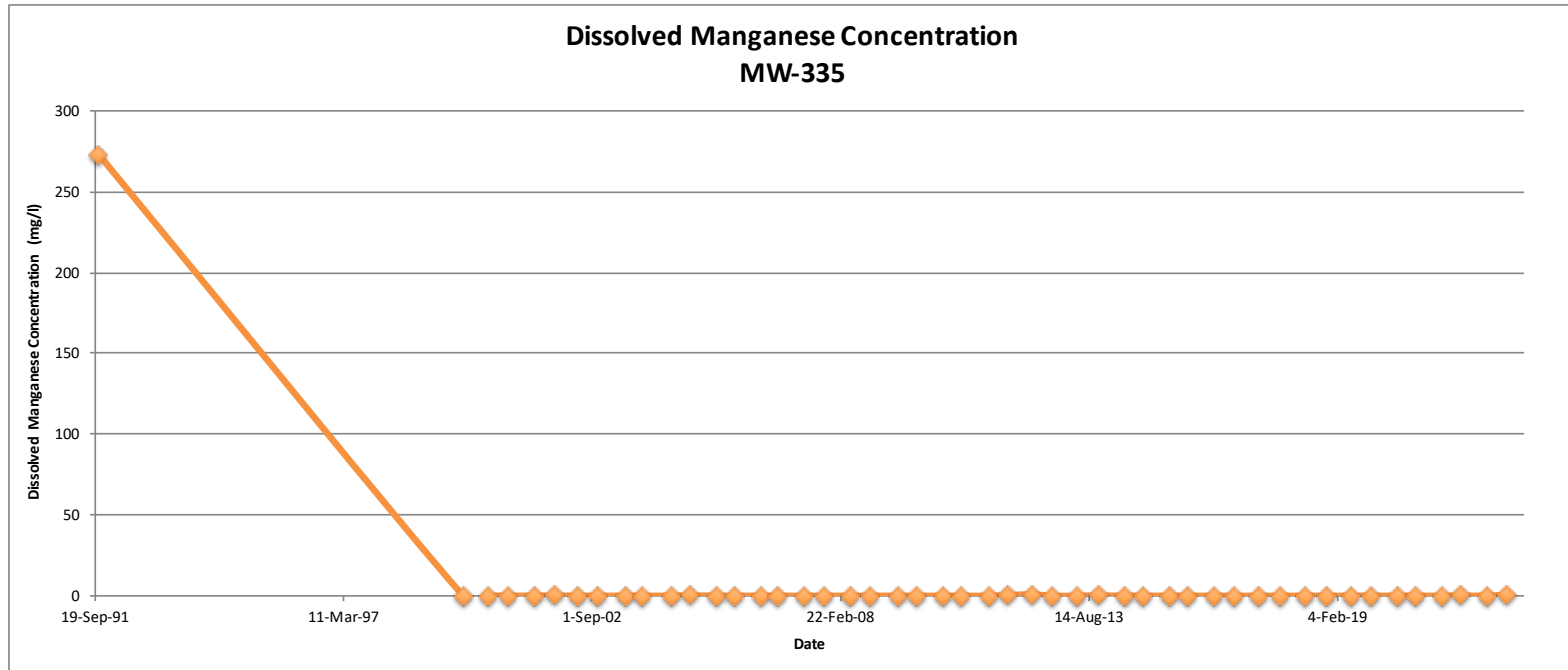
"-" = No data available

Bristol Landfill Groundwater Monitoring Data  
Monitoring Well MW-335





Bristol Landfill Groundwater Monitoring Data  
Monitoring Well MW-335



**Bristol Landfill Groundwater Monitoring Data Table  
RPD Calculation**

<b>Sample Date: 10/25/22</b>			
	<b>MW-309</b>	<b>Duplicate</b>	<b>RPD</b>
COD	ND<10	ND<10	-
Chloride	17	16	3.0
Sodium	6.7	6.4	2.3
Dissolved Iron	ND<0.05	ND<0.05	-
Total Iron	ND<0.05	ND<0.05	-
Total Lead	ND<0.001	ND<0.001	-
Dissolved Manganese	0.47	0.47	0.0
Total Manganese	0.45	0.45	0.0
Total Zinc	ND<0.005	ND<0.005	-

NOTES:

Concentrations in mg/L

RPD = Relative Percent Difference



Fall 2022 Semi-Annual Groundwater Monitoring  
Bristol Landfill, Bristol, Vermont

## APPENDIX C

### LABORATORY ANALYTICAL DATA

Angela Emerson  
LE Environmental LLC  
21 North Main Street #1  
Waterbury, VT 05676



Laboratory Report for:

Eastern Analytical, Inc. ID: 251498  
Client Identification: Bristol Landfill / 14-013 | Oct 2022  
Date Received: 10/28/2022

Enclosed are the analytical results per the Chain of Custody for sample(s) in the referenced project. All analyses were performed in accordance with our QA/QC Program, NELAP and other applicable state requirements. All quality control criteria was within acceptance criteria unless noted on the report pages. Results are for the exclusive use of the client named on this report and will not be released to a third party without consent.

The following information is contained within this report: Sample Conditions summary, Analytical Results/Data, Quality Control data (if requested) and copies of the Chain of Custody. This report may not be reproduced except in full, without the written approval of the laboratory.

The following standard abbreviations and conventions apply to all EAI reports:

- < : "less than" followed by the reporting limit
- > : "greater than" followed by the reporting limit
- %R : % Recovery

Certifications:

Eastern Analytical, Inc. maintains certification in the following states: Connecticut (PH-0492), Maine (NH005), Massachusetts (M-NH005), New Hampshire/NELAP (1012), Rhode Island (269), Vermont (VT1012), New York (12072), West Virginia (9910C) and Alabama (41620). Please refer to our website at [www.easternanalytical.com](http://www.easternanalytical.com) for a copy of our certificates and accredited parameters.

References:

- EPA 600/4-79-020, 1983
- Standard Methods for Examination of Water and Wastewater, 20th, 21st, 22nd & 23rd edition or noted revision year.
- Test Methods for Evaluating Solid Waste SW 846 3rd Edition including updates IVA and IVB
- Hach Water Analysis Handbook, 4th edition, 1992
- ASTM International

If you have any questions regarding the results contained within, please feel free to contact customer service. Unless otherwise requested, we will dispose of the sample(s) 6 weeks from the sample receipt date.

We appreciate this opportunity to be of service and look forward to your continued patronage.

Sincerely,



Lorraine Olashaw, Lab Director

11.3.22

Date



# SAMPLE CONDITIONS PAGE

EAI ID#: 251498

Client: LE Environmental LLC

Client Designation: Bristol Landfill / 14-013 | Oct 2022

Temperature upon receipt (°C): 1.3

Received on ice or cold packs (Yes/No): Y

Acceptable temperature range (°C): 0-6

Lab ID	Sample ID	Date Received	Date/Time Sampled	Sample Matrix	% Dry Weight	Exceptions/Comments (other than thermal preservation)
251498.01	MW-101	10/28/22	10/25/22 09:09	aqueous		Adheres to Sample Acceptance Policy
251498.02	MW-335	10/28/22	10/25/22 09:50	aqueous		Adheres to Sample Acceptance Policy
251498.03	MW-309	10/28/22	10/25/22 10:40	aqueous		Adheres to Sample Acceptance Policy
251498.04	Duplicate	10/28/22	10/25/22 10:40	aqueous		Adheres to Sample Acceptance Policy
251498.05	MW-103	10/28/22	10/25/22 11:05	aqueous		Adheres to Sample Acceptance Policy

All results contained in this report relate only to the above listed samples.

Unless otherwise noted:

- Hold times, preservation, container types, and sample conditions adhered to EPA Protocol.
- Solid samples are reported on a dry weight basis, unless otherwise noted. pH/Corrosivity, Flashpoint, Ignitability, Paint Filter, Conductivity and Specific Gravity are always reported on an "as received" basis.
- Analysis of pH, Total Residual Chlorine, Dissolved Oxygen and Sulfite were performed at the laboratory outside of the recommended 15 minute hold time.
- Samples collected by Eastern Analytical, Inc. (EAI) were collected in accordance with approved EPA procedures.



# LABORATORY REPORT

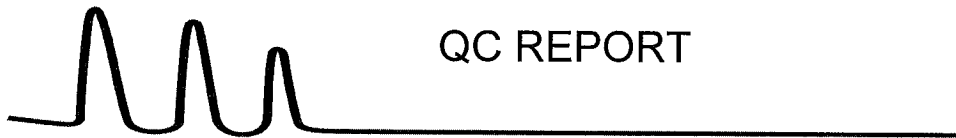
EAI ID#: 251498

Client: LE Environmental LLC

Client Designation: Bristol Landfill / 14-013 | Oct 2022

Sample ID:	MW-101	MW-335	MW-309	Duplicate		Analysis		Method	Analyst
Lab Sample ID:	251498.01	251498.02	251498.03	251498.04		Date	Time		
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	10/25/22	10/25/22	10/25/22	10/25/22					
Date Received:	10/28/22	10/28/22	10/28/22	10/28/22					
					Units				
COD	< 10	< 10	< 10	< 10	mg/L	10/31/22	15:05	H8000	JCS
Chloride	53	220	17	16	mg/L	11/01/22	13:43	4500CIE-11	ALM

Sample ID:	MW-103					Analysis		Method	Analyst
Lab Sample ID:	251498.05					Date	Time		
Matrix:	aqueous								
Date Sampled:	10/25/22								
Date Received:	10/28/22								
					Units				
COD	< 10				mg/L	10/31/22	15:05	H8000	JCS
Chloride	14				mg/L	11/01/22	13:48	4500CIE-11	ALM



# QC REPORT

EAI ID#: **251498**

Client: **LE Environmental LLC**

Client Designation: **Bristol Landfill / 14-013 | Oct 2022**

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Chloride	< 1	26 (103 %R)	26 (105 %R) (2 RPD)	mg/L	11/1/22	90 - 110	20	4500CIE-11
COD	< 10	100 (103 %R)	100 (104 %R) (1 RPD)	mg/L	10/31/22	85 - 115	20	H8000

\*! Flagged analyte recoveries deviated from the QA/QC limits. Unless noted, flagged data does not impact the sample data.



# LABORATORY REPORT

EAI ID#: 251498

Client: LE Environmental LLC

Client Designation: Bristol Landfill / 14-013 | Oct 2022

Sample ID:	MW-101	MW-335	MW-309	Duplicate					
Lab Sample ID:	251498.01	251498.02	251498.03	251498.04					
Matrix:	aqueous	aqueous	aqueous	aqueous					
Date Sampled:	10/25/22	10/25/22	10/25/22	10/25/22	Analytical		Date of		
Date Received:	10/28/22	10/28/22	10/28/22	10/28/22	Matrix	Units	Analysis	Method	Analyst
Iron	0.49	0.28	< 0.05	< 0.05	AqTot	mg/L	11/1/22	6020A	DS
Lead	< 0.001	< 0.001	< 0.001	< 0.001	AqTot	mg/L	11/1/22	6020A	DS
Manganese	0.31	0.38	0.45	0.45	AqTot	mg/L	11/1/22	6020A	DS
Sodium	39	120	6.7	6.4	AqTot	mg/L	11/1/22	6020A	DS
Zinc	0.017	< 0.005	0.0065	< 0.005	AqTot	mg/L	11/1/22	6020A	DS
Iron	0.24	0.17	< 0.05	< 0.05	AqDis	mg/L	11/1/22	6020A	DS
Manganese	0.31	0.51	0.47	0.47	AqDis	mg/L	11/1/22	6020A	DS

Sample ID: MW-103

Lab Sample ID: 251498.05

Matrix: aqueous

Date Sampled: 10/25/22

Date Received: 10/28/22

		Analytical	Units	Date of	Method	Analyst
		Matrix		Analysis		
Iron	2.4	AqTot	mg/L	11/1/22	6020A	DS
Lead	0.0028	AqTot	mg/L	11/1/22	6020A	DS
Manganese	0.62	AqTot	mg/L	11/1/22	6020A	DS
Sodium	9.4	AqTot	mg/L	11/1/22	6020A	DS
Zinc	0.028	AqTot	mg/L	11/1/22	6020A	DS
Iron	< 0.05	AqDis	mg/L	11/1/22	6020A	DS
Manganese	0.012	AqDis	mg/L	11/1/22	6020A	DS





# QC REPORT

EAI ID#: 251498

Client: LE Environmental LLC

Client Designation: Bristol Landfill / 14-013 | Oct 2022

Parameter Name	Blank	LCS	LCSD	Units	Date of Analysis	Limits	RPD	Method
Iron (Aqdis)	< 0.05	10 (101 %R)		NA mg/L	11/1/22	80 - 120	20	6020A
Iron	< 0.05	10 (105 %R)		NA mg/L	11/1/22	80 - 120	20	6020A
Lead	< 0.001	0.42 (104 %R)		NA mg/L	11/1/22	80 - 120	20	6020A
Manganese (Aqdis)	< 0.005	0.20 (100 %R)		NA mg/L	11/1/22	80 - 120	20	6020A
Manganese	< 0.005	0.41 (101 %R)		NA mg/L	11/1/22	80 - 120	20	6020A
Sodium	< 0.5	10 (104 %R)		NA mg/L	11/1/22	80 - 120	20	6020A
Zinc	< 0.005	0.42 (104 %R)		NA mg/L	11/1/22	80 - 120	20	6020A

\*! Flagged analyte recoveries deviated from the QA/QC limits. Unless noted, flagged data does not impact the sample data.



Date/Time  
Composites need start  
and stop dates/times

Matrix

Parameters and Sample Notes

# of containers

MW-101 | 10/25/22 | 0909 | aqueous Grab or Comp | AqTot/~~W~~C/C/COD/ICPMets.Fe.Mn.Pb.Zn.Na | AqDis/ICPMets.Fe.Mn | Circle preservative/s: HCL HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, NaOH, MEOH, Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub>, ICE | Dissolved Sample Field Filtered  | 4

MW-335 | 10/25/22 | 0950 | aqueous Grab or Comp | AqTot/~~W~~C/C/COD/ICPMets.Fe.Mn.Pb.Zn.Na | AqDis/ICPMets.Fe.Mn | Circle preservative/s: HCL HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, NaOH, MEOH, Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub>, ICE | Dissolved Sample Field Filtered  | 4

MW-402R- | No Sample | aqueous Grab or Comp | AqTot/~~W~~C/C/COD/ICPMets.Fe.Mn.Pb.Zn.Na | AqDis/ICPMets.Fe.Mn | Circle preservative/s: HCL HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, NaOH, MEOH, Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub>, ICE | Dissolved Sample Field Filtered  | 4

MW-309 | 10/25/22 | 1010 | aqueous Grab or Comp | AqTot/~~W~~C/C/COD/ICPMets.Fe.Mn.Pb.Zn.Na | AqDis/ICPMets.Fe.Mn | Circle preservative/s: HCL HNO<sub>3</sub>, H<sub>2</sub>SO<sub>4</sub>, NaOH, MEOH, Na<sub>2</sub>S<sub>2</sub>O<sub>8</sub>, ICE | Dissolved Sample Field Filtered  | 4

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

EAI Project ID 4477  
Project Name Bristol Landfill / 14-013 | Oct 2022

Results Needed by: Preferred date Normal TAT  
Notes:

Bill to Town of Bristol

Client (Pro Mgr) ~~Alan Lipsett~~ Angela Emeson  
Customer LE Environmental LLC  
Address 21 North Main Street #1  
City Waterbury VT 05676

Reporting Options:  
 HC  
 EDD PDF  
 EDD email  
 PDF prelim; NO FAX  
 e-mail Login Confirmation  
 NO FAX  
 Partial FAX  
 PDF Invoice  
 EQUIS  
Temp 13°C  
Ice  Y  N

Phone (802) 917-2001 Fax  
Email: ~~alan@leenv.net~~ angelae@leenv.net

QC deliverables  
 A  A+  B  B+  C  MA MCP

Samples Collected by: Angela Emeson  
Relinquished by: Angela Emeson Date/Time 10/25/22 14:03  
Relinquished by: PAR Date/Time  
Received by: PAR



Sample IDs	Date/Time <i>Composites need start and stop dates/times</i>	Matrix	Parameters and Sample Notes	# of containers
Duplicate	10/15/22 1040	Aqueous Grab of Comp	AqTot/ <del>As</del> /Cd/Cr/COD/ICPMets: Fe, Mn, Pb, Zn, Na AqDis/ICPMets: Fe, Mn	4
<input checked="" type="checkbox"/> Sampler confirms ID and parameters are accurate	MMW-103 10/25/22 1105	Aqueous Grab of Comp	Circle preservative/s: HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, MeOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> , ICE AqTot/ <del>As</del> / <del>As</del> /Cd/Cr/COD/ICPMets: Fe, Mn, Pb, Zn, Na AqDis/ICPMets: Fe, Mn	4
<input checked="" type="checkbox"/> Sampler confirms ID and parameters are accurate	Trip-Blank	No Trip Blank	Circle preservative/s: HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, MeOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> , ICE AqTot/ <del>As</del> / <del>As</del>	0
<input type="checkbox"/> Sampler confirms ID and parameters are accurate			Circle preservative/s: HCl, HNO <sub>3</sub> , H <sub>2</sub> SO <sub>4</sub> , NaOH, MeOH, Na <sub>2</sub> S <sub>2</sub> O <sub>8</sub> , ICE	Disolved Sample Field Filtered <input type="checkbox"/>

Please ensure this auto COC is accurate, adheres to permit or sampling requirements for this sampling event, and modify as necessary.

EAI Project ID 4477  
 Project Name Bristol Landfill / 14-013 | Oct 2022  
 State VT  
 Client (Pro Mgr) ~~Alex Lipstak~~ **Angela Emmons**  
 Customer LE Environmental LLC  
 Address 21 North Main Street #1  
 City Waterbury VT 05676  
 Phone (802) 917-2001 Fax  
 Email: ~~alex@leenv.net~~ **angela@leenv.net**  
 Direct

Results Needed by: Preferred date **Normal**  
 Notes: **Bill to Town of Bristol**

QC deliverables  
 A  A+  B  B+  C  MA MCP

Reporting Options  
 HC  NO FAX  
 EDD PDF  Partial FAX  
 EDD email  PDF Invoice  
 PDF prelim, NO FAX  EQUIS  
 e-mail Login Confirmation

Samples Collected by: **Angela Emmons**  
 Relinquished by: **Michelle** Date/Time: **10/24/22 14:23**  
 Relinquished by: **Michelle** Date/Time: **10/24/22 14:23**

Temp **13** °C  
 Ice  Y  N

Quote#: 1013149  
 Received by: **PAF**

PO# Verbal  
 Eastern Analytical, Inc. www.easternanalytical.com | 800.287.0525 | customerservice@easternanalytical.com